

THE EMOTIONAL DESIGN STUDY ON HOMESTAY INN SPACE - TAKING
DALI , CHINA AS AN EXAMPLE



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Thesis The Emotional Design Study on Homestay Inn Space –
Taking Dali, China as an Example

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ABSTRACT

Background: In the context of the rapid development of the tourism industry, homestay inns have attracted a large number of consumers with their unique personalization and warm environment. However, with the surge in the number of homestay inns, a large number of homestay inns with similar design styles and service modes and lacking in features and personality have appeared in the market. This makes it difficult for consumers to find a homestay inn with a unique lodging experience when choosing a homestay inn, which leads to a decrease in the level of satisfaction and loyalty to homestay inns decreases.

Objective: This study aims to explore in-depth the perceptions and needs of consumers of homestay inn in Dali on emotional design. Firstly, to understand the general characteristics of consumers of Dali's homestay inns; secondly, to explore whether there are differences in the variables of emotional needs (safety, comfort, This material is reserved for educational use only, not allowed for commercial use.

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privacy, efficacy, visual richness, visual orderliness, visual novelty, culture, personalization and fashion) between consumer groups of different genders, ages, education levels and income levels.

Methodology: This study takes the emotional needs of homestay inn consumers as the entry point, and based on the theory of affective design, the card classification method is used to construct a system of consumers' emotional needs in the homestay inn space. The study used random sampling method to select samples, distributed to respondents using online questionnaires, and used IBM SPSS Statistics 26 to conduct descriptive statistical analyses, non-parametric tests on the collected data.

Conclusion: The study found that the overall characteristics of homestay inn consumers show a trend of youthfulness, occupational diversity, high education and high income. Secondly, consumers' emotional needs for homestay inn space are generally high, and there are differences in the needs of different consumer groups on different emotional variable. The main differences are: (1) In terms of gender, there is a significant difference between men and women in terms of the need for the "safety" variable; (2) In terms of age, there is a significant difference in the needs of "Safety" and "Privacy" between consumers; (3) In terms of type of occupation, there are significant differences among consumers in the four indicators of "Comfort", "Safety", "Privacy", and "Cultural characteristics"; (4) In terms of education level, there are significant differences in consumer demand for six variables: "Safety," "Comfort," "Privacy," "Rich visual effects," "Visual sense of order," and "Cultural characteristics; (5)

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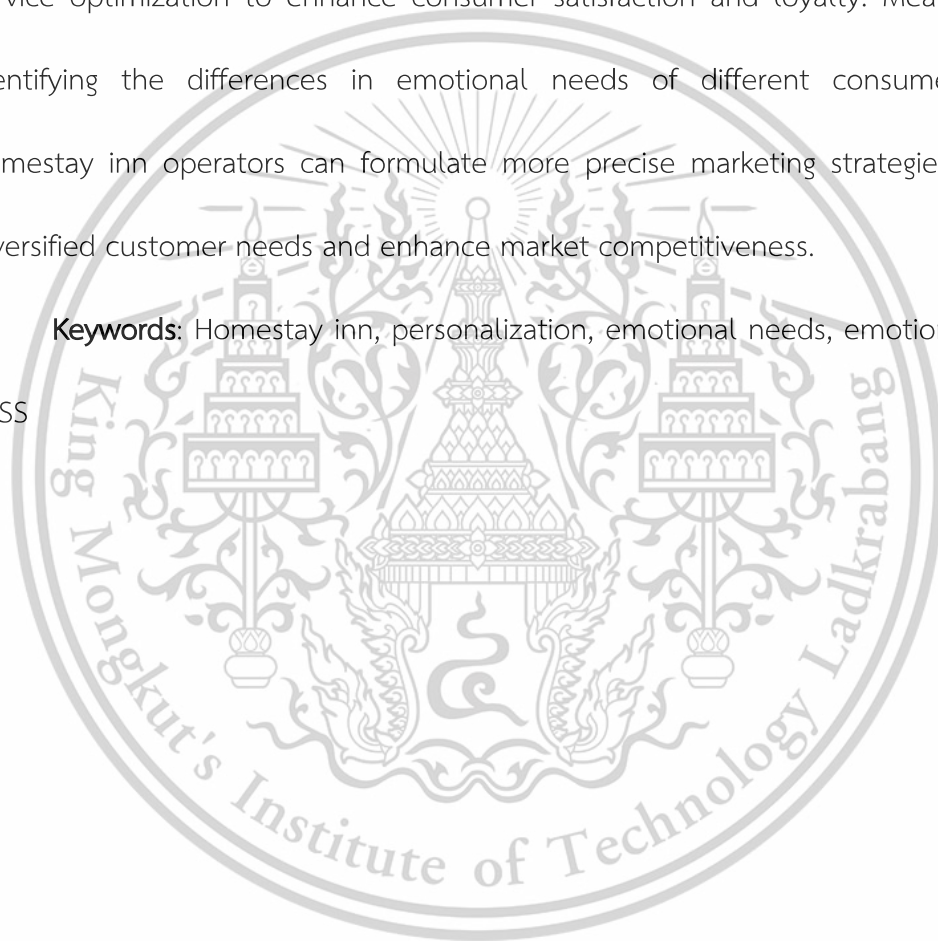
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There were no significant differences in the emotional design variables for consumers of different income levels.

Significance: The findings of this study provide valuable references for homestay inn operators to better understand the characteristics and emotional needs of their target consumers, so that they can carry out targeted design and service optimization to enhance consumer satisfaction and loyalty. Meanwhile, by identifying the differences in emotional needs of different consumer groups, homestay inn operators can formulate more precise marketing strategies to meet diversified customer needs and enhance market competitiveness.

Keywords: Homestay inn, personalization, emotional needs, emotional design,

SPSS



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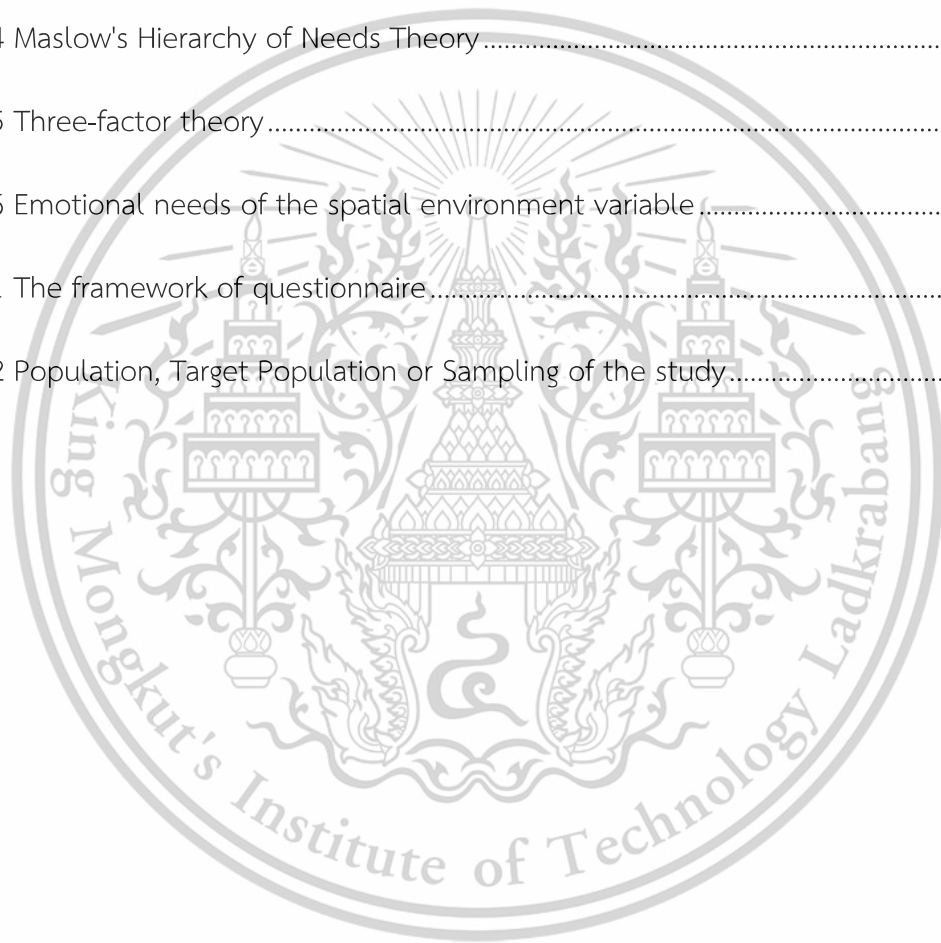
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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

With the continuous development of today's society and economy, the living standard of China's residents is constantly improving. In 2019, the national residents' income and consumption expenditure grew steadily, and the per capita disposable income exceeded 30,000 yuan. Residents' service consumption grows faster, Engel's coefficient continues to decline, and residents' quality of life continues to improve (China Business Industry Research Institute, 2020). Along with this, China's national awareness of the importance of leisure has gradually deepened, and leisure time has increased (CASS & Tencent, 2020). Tourism, as one of the most important forms of achieving concentrated and in-depth leisure, has become a regular way of life. In 2019, China's domestic tourist arrivals amounted to 6.006 billion, an increase of 8.4% over the same period of the previous year; outbound tourist arrivals amounted to 154.63 million, an increase of 3.3% over the same period of 2018; inbound tourist arrivals amounted to 145.31 million, an increase of 2.9 per cent; total tourism revenue for the year was 6.63 trillion yuan, up 11.1 per cent year-on-year (Globe Newswire, 2020).

Homestay inn, as an important form of tourism economy, has become an

unstoppable vitality driving the development of China's tourism industry, and is of great value in enriching the lodging industry, deepening the supply-side structural reform, protecting and inheriting the regional culture, assisting rural revitalization and the construction of all-area tourism, narrowing the gap between urban and rural areas, and promoting the high-quality development of the culture and tourism industry (GlobeNews.com Culture & Tourism Channel, 2020). In November 2015, the General Office of the State Council issued the Guiding Opinions on Accelerating the Development of Living Service Industry and Promoting the Upgrading of Consumption Structure, proposing the "active development of Homestay inns, short-term rental flats, long-term rental flats and other subsections of the industry" and characterizing it as a living service industry, which triggered the explosive growth of the supply side.

The number of Homestay inns in China has risen sharply, and in 2018, Homestay inns took Jiangsu, Zhejiang, Shanghai, Yunnan, Xiamen and other regions as the key areas, forming a trend of scale, chain, and high-end.

In the 2019 China mainland Homestay inn industry development data report released by the China Culture and Tourism Big Data Research Institute, it is shown that there are about 355 cities in the mainland that carry out Homestay inn operations, with the number of Homestay inns as high as 66,405, and the number of Homestay inns in more than 30 cities accounted for more than 55% of the total number of lodging industry. The positive feedback rate is up to more than 95%. In 2019, China's Ministry of Culture and Tourism issued the "Basic Requirements and Evaluation of Tourism Homestay inns", which made clear provisions on the definition,

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requirements, and rating of Homestay inns. In 2021, China's Ministry of Culture and Tourism announced the list of the first batch of Grade A and B Homestay inns in the country, which indicates that China's Homestay inn industry is constantly moving towards the development path of standardisation, boutique, specialisation and branding.

As an emerging form of accommodation, Homestay inns are gradually gaining popularity among consumers for their unique personalised experience and warm living environment. Compared with traditional hotels, Homestay inns not only provide accommodation services, but also bring consumers a sense of home and a unique cultural experience through unique design and humanised services. In this context, emotional design, as a design concept that focuses on the emotional and psychological needs of consumers, has become an important means to enhance the satisfaction and loyalty of Homestay inn consumers (Chen Zhaoqian, 2017; Zou Yuemei and Xiao Derong, 2017).

Emotional design is a concept that integrates human emotions into the design of products and services, aiming to enhance user experience by satisfying consumers' emotional needs. In the lodging industry, emotional design can not only enhance consumer satisfaction through environmental design, service processes, and interactive experiences, but also increase consumer loyalty and repeat occupancy by establishing emotional connections.

Modern consumers are increasingly focusing on psychological and emotional satisfaction when choosing accommodation. And different consumers may have

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certain differences in their emotional needs due to their different backgrounds (Pan Zhen , 2011). An in-depth study of these differences can help B&B operators develop more precise market strategies and service programmes to meet the individual needs of different consumer groups.

In the context of the rapid development of tourism and the increasing diversification of consumer needs, the study of the emotional needs of Homestay inn consumers has important practical significance and theoretical value. By deeply exploring the differences in the emotional needs of different consumer groups, it can provide scientific guidance for B&B operators, help them stand out in the fierce market competition, and enhance overall consumer satisfaction and loyalty.

1.2 RESEARCH QUESTIONS

With the rapid development of the tourism industry, Homestay inn, as an emerging accommodation option, has attracted more and more consumers. However, in addition to basic accommodation needs, consumers' pursuit of emotional experience has gradually become an important consideration in their choice of Homestay inn.

This study aims to delve into the following core questions: first, to understand the general characteristics of Dali Homestay inn consumers; second, what kind of emotional experience do Homestay inn consumers generally need? Finally, to compare whether there are significant differences in specific emotional needs variable (e.g., safety, comfort, privacy, functionality, order, cultural experience, This material is reserved for educational use only, not allowed for commercial use.

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personalised service, etc.) among different consumer groups (e.g., gender, age, occupation, education level, income level, etc.)?

1.3 RESEARCH HYPOTHESIS

In this study, we propose the following hypotheses to explore the prevalence of emotional experience needs among Homestay inn consumers and the differences in emotional needs variable across consumer groups:

Hypothesis 1: Homestay inn consumers generally have a high level of overall demand for emotional experiences.

Hypothesis 2: There is a significant difference between consumers with different characteristics (genders, ages, occupations, education levels, income levels) on variable of emotional needs.

The above hypotheses provide the framework and expected direction of the study, which will facilitate further data collection, analysis and derivation of conclusions. In the actual study, these hypotheses can be verified through quantitative or qualitative methods to gain a deeper understanding of the emotional experience needs of Homestay inn consumers and their differences.

1.4 RESEARCH OBJECTIVES

The purpose of this study is to explore in depth the characteristics of Homestay inn consumers' needs for emotional experiences and the differences in emotional needs variable across consumer groups. Specific objectives include:

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- 1) Describe the general characteristics of Dali Homestay inn consumers.
- 2) Analyse the overall level of demand for emotional experiences among Homestay inn consumers.
- 3) Compare the differences between consumers of different characteristics (genders, ages, occupations, education levels, income levels) on the emotional needs variable .

1.5 RESEARCH SCOPE

The scope of this study is clearly defined in the following areas:

1.5.1 Objects of study

The main target of this study is consumers of Homestay inns in the Dali region of China. The study focuses on the needs and responses of these consumers to the emotional design component of Homestay inn design.

1.5.2 Study area

The study area is limited to the Erhai Basin in Dali City, Yunnan Province, China. This area is an important location for the development of the Homestay inn industry due to its unique natural landscape and rich cultural heritage. The study will focus on analysing Homestay inns around the Erhai Sea in order to understand consumer preferences and needs within this specific geographical area.

1.5.3 Time frame

The time period of data collection for this study is from August 2022 to November 2022.

1.5.4 Content of the study

The research includes, but is not limited to, the following areas:

- General Characteristics of Consumers of Dali Homestay inns.
- An analysis of the emotional needs of consumers of Dali Homestay inns.
- Differences in the emotional needs of different consumer groups (gender, age group, type of occupation, level of education and income level).

1.5.5 Methods and tools

This study used quantitative research method to collect data by distributing research questionnaires through random sampling. Specific methods and tools included:

- Design and distribution of structured questionnaires to obtain information on consumer emotional needs and preferences.
- Statistical analyses of the collected data including descriptive statistics, non-parametric tests and post-hoc analyses were carried out using SPSS software.

1.5.6 Scope of exclusion

This study will not address the following:

- Design of the architectural appearance of the Homestay inn and its structural

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analysis.

- The external landscaping of Homestay inns and their environmental impact.

- Non-emotionally relevant functional needs such as price sensitivity, location convenience, etc.

- Operational management, service quality and marketing strategies of Homestay inns.

- Requirements and limitations of Homestay inn in terms of laws, regulations and policies.

- Consumer demand and evaluation of additional services such as catering and entertainment in Homestay inns.

1.6 SIGNIFICANCE OF THE STUDY

Homestay inn's Emotional design research is of great significance. On the one hand, the study of Homestay inn's emotional design can help Homestay inn service providers to better understand the needs of their guests, so as to satisfy them more effectively. On the other hand, the study of Emotional design can make the environment of Homestay inn more emotional, so that the guests can get a greater sense of experience during their stay in Homestay inn. In addition, Homestay inn's emotional design research can also enhance the service level of Homestay inn and improve the user experience of Homestay inn. Finally, Homestay inn's emotional design research can help Homestay inn's brand building, make Homestay inn's service more personalised and attractive, and bring more possibilities for Homestay inn's

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development.

1.6.1 Theoretical implications

Firstly, this study systematically sorted out the basic theories of Homestay inn and Emotional design, and expanded the research direction of Homestay inn and Emotional design.

Secondly, this study empirically demonstrates whether there are differences in the level of attention to Emotional design among different consumer groups in Homestay inns, which enriches the discussion on the influence of consumers' emotional experience in the literature on Homestay inns.

1.6.2 Practical implications

This study also has some practical implications for Homestay inn consumers, Homestay inn owners and destination managers.

In terms of consumers, the findings of this study can provide Homestay inn managers with specific data for reference, so as to avoid Homestay inn environments with a lack of Emotional design, to better understand the needs of guests, to satisfy them more effectively, and to enhance the consumer's sense of experience and emotion satisfaction.

For Homestay inn owners, the findings of the study can help Homestay inn owners to understand how much consumers care about Emotional design, which can further enhance their competitive advantage. In order to stimulate positive emotion and behavioral responses from potential guests, hosts should adopt different

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Emotional design strategies for different consumer segments.

For destination management, local governments and destination managers can provide training and business support to Homestay inn owners and designers to help them learn how to improve the consumer's emotional experience, which can contribute to the sustainability of local Homestay inns.

1.7 IMPORTANT TERMINOLOGY

1.7.1 Homestay inn

B&B (bed and breakfast) was created in the 1960s in rural families in the West Midlands of England to provide breakfast, accommodation and farming experience services, and then spread to Europe and the United States and other countries. Homestay inns in Asia began in Japan in the 1970s, called Minshuku in Japan (Jiang Jiaqian & Li Yan, 2014). Later, it was introduced into Taiwan, and in the 1990s, Homestay inns in mainland China first appeared in Sichuan (Hou Yuxia, 2021), and after the 21st century, Homestay inns in Moganshan, Zhejiang Province, Yangshuo, Guilin and other places rose rapidly in a short period of time, forming the form of agglomeration development.

In 2017, the China National Tourism Administration (CNTA) released the industry standard document "Basic Requirements and Evaluation of Tourism Homestay inns" (hereinafter referred to as the "Evaluation"), which applies to all officially operated small tourism accommodation facilities. The Evaluation clearly

specifies that China's Homestay inn is "Homestay inn" and defines it as "a small-scale accommodation facility that makes use of local tourism resources, with the participation of the owner of the Homestay inn, and provides tourists with accommodation that reflects local nature, culture and production and life style. The Homestay inn is defined as "a small accommodation facility that makes use of local tourism resources and provides visitors with accommodation that reflects local nature, culture and lifestyle."

Therefore, the spelling of Homestay inn in this study is unified as: Homestay inn. and clarify the definition of Homestay inn: "Using local unused tourism resources, Homestay inn owners participate in hospitality, providing tourists with small-scale accommodation facilities reflecting the local nature, culture and production lifestyle."

1.7.2 Emotional design

Emotional design is a concept and method of product design that emerged in the late 1980s. The theory of Emotional Design in this study comes from the book "Why We Love (or Hate) Everyday Things" by American psychologist Norman, Professor D. A. (2004). In this book Norman suggests that there are three levels of design: The first is the "visceral" level, which embodies the sensory aspects about how things look, feel, smell, and sound. Visceral design elicits immediate and powerful responses that are involuntary and subconscious. Visceral design elicits

immediate and powerful responses that are involuntary and subconscious. Second is the "behavioral" level, at which users form their perceptions of a particular product through use. Product performance is paramount, and thus designers must ensure that the product is easy to use and that the functionality of the product is not compromised. Second is the "behavioral" level, at which users form their perceptions of a particular product through use. Third, the "reflective" level is the level at which the product has meaning for consumers; it accounts for how consumers maintain an innate understanding of the product. Third, the "reflective" level is the level at which the product has meaning for consumers; it accounts for how consumers maintain an innate sense of identity through the consumption of the product over time. design leads to the culmination of the "emotional design," a new, holistic approach to designing successful products.



CHAPTER 2

LITERATURE REVIEW

2.1 HOMESTAY INN'S RELATED THEORIES

Homestay inn as a more popular form of residence, it is different from traditional hotels, but allows people to experience local customs, feel the enthusiasm and service of the host of the Homestay inn, experience a different daily life, and pay more attention to the process of residence experience "with the body, with the heart to experience" the Comfortable psychological feeling (Wu, W. C., 2018).

2.1.1 Origins of the Homestay inn

There are many theories about the origin of Homestay Inn, with two main ones (Wu, W. C., 2018). The first theory is that Homestay inn originated from Minshuku, Japan. The second theory is that homestay inns come from B&B in the UK.

Japanese Minshuku have an early and well-developed history in Japan, originating from the Izu Peninsula and the foothills of the Hakuba Mountains, and are favoured by a large number of tourists due to the unique natural landscape and regional characteristics of the area. Although Minshuku have a history of nearly a hundred years in Japan, their real boom period came in the 1970s. Japanese Minshuku are mainly divided into two categories: farm inns and western-style

Minshuku. The biggest difference between Japanese Minshuku and ryokan is that Japanese Minshuku emphasize on reasonable charges and self-service for the general public, and although the equipment is not luxurious, special attention is paid to safety and hygiene conditions; although the service is not exquisite, it is very rich in family atmosphere, local flavour and human touch. In addition, Minshuku operators also attach great importance to the use of natural resources, in addition to matching the local cultural characteristics, providing accommodation and catering, but also with recreation, leisure, sports and other functions, so that residents can fully enjoy a leisurely accommodation environment.

British B&B, in the early 1960s, the sparsely populated farmhouses in the south-west and the centre of Britain, in order to increase their income, began to appear B&B, at that time, the number of B&B was not large, it was the Bed and Breakfast mode of operation, and its nature is to belong to the family hospitality, which is the earliest B&B in the UK. The majority of B&B in Europe is presented in the form of tourist farms, which belong to the side income operation. Most of the B&Bs in Europe are presented in the form of tourist farms, which belong to the side income operation. Britain is the earliest industrialised country, the rapid development of industrialisation indirectly affects the rural development and environmental ecology, so Britain can be said to be the earliest country to combine agriculture and tourism, and one of the most complete development of B&B in Europe. B&B is a traditional way of business in Britain, is to provide bed and breakfast for tourists to visit the home hotel service mode. Unlike noisy youth hostels and overcrowded

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hotels, B&Bs in the UK are usually run by enthusiastic hosts who will take visitors to harvest produce, feed sheep and cattle, and explore the mysteries of the English countryside.

2.1.2 Development history of Homestay inn in China

Homestay inns have existed in our country since ancient times, and the most representative one is KeZhan, which is the title of the ancient hotel in our country. The modern Homestay inn is imported from Japan to Taiwan. Until the 1990s, Homestay inns in mainland China appeared in Sichuan in the form of NongJiaLe (Hou Yuxia, 2021). 2010 was a watershed year for China's lodging industry, as demand for non-standardised Homestay inns increased rapidly due to the rapidly increasing demand for mass tourism and holidays among residents. Around 2015, Homestay inns rose rapidly in Moganshan, Zhejiang Province; Dali, Yunnan Province; Lijiang, Yunnan Province; and Guilin and Yangshuo, Guangxi Province, forming a clustered development pattern. In 2017, the Ministry of Culture and Tourism of the State issued the "Basic Requirements and Evaluation of Tourism Homestay inns" (LB/T065-2017), which marks the In 2019, the Ministry of Culture and Tourism revised and promulgated the "Basic Requirements and Evaluation of Tourism Homestay inn" (LB/T065-2019), which means that the construction of Homestay inn standard system will be fully launched.

2.1.3 Difference between Homestay inn and hotel in China

Homestay inn in combination with the local natural and humanistic

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landscapes, based on the unique architectural style, exquisite room decoration and the enthusiasm and service of Homestay inn hosts, to create for tourists or romantic and warm or classical and solemn or exotic and other different sensory experiences, reflecting the hosts of the different personalities and styles; while the hotel is to provide guests with a standardised, safe, comfortable accommodation for guests in a commercial organisation (Wu, W. C., 2018). The main differences between the two are as follows (Table 2.1):

Table 2.1 Differences between Homestay inn and traditional hotels

	Homestay inn	pub (public house)
way of doing business	Family side business	Expertise
usable space	Use of vacant residential space, buildings are mostly converted from self-occupied or rented dwellings	Use of dedicated business space
Number of rooms	The number of rooms is relatively small	There is no limit to the number of
Relationship to the surrounding environment	We often make use of the natural and human resources in the neighbourhood to form a symbiotic relationship with the surrounding community.	Often do not proactively offer networking events with neighbouring communities and make less use of neighbouring resources
hardware	Hardware is simple and some facilities can be shared with the hosts when basic needs are met	Provision of facilities required by the appropriate standards
service personnel	Served by hosts or local butlers, the emphasis is on local flavours and family atmosphere, with a focus on interaction between hosts and guests.	Services are provided by professionals who seek standards and efficiency and lack a human touch

2.1.4 Types of Homestay inns in China

Homestay inn has shown a vigorous life in the arena of tourism industry in our continent and can be categorised according to various criteria (Wu, W. C., 2018).

(1) According to the type of development, it can be divided into traditional Homestay inns and modern Homestay inns. traditional Homestay inns are mostly reconstructed on the basis of people's houses. These Homestay inns basically retain their original appearance, while the interior is appropriately remodelled and decorated. They generally have a certain history, preserving the local architectural style and cultural relics at that time, with certain historical and cultural value and research value, and are the mainstream of Homestay inns. Modern Homestay inns are mainly newly built, generally in accordance with the local architectural style of the new land, can also be transplanted outside the famous houses, villages, or by designers to carry out innovative design, the formation of contrast effect, to enhance the attractiveness.

(2) According to geographical location, Homestay inns can be divided into rural Homestay inns and urban Homestay inns. rural Homestay inns are located in the countryside and have a strong local flavour, and the supporting landscapes and featured activities are often more abundant. It can also be called rural Homestay inn if it is built in the city or suburb in accordance with the rural style; similarly, urban Homestay inn is located in the urban area. Similarly, urban Homestay inn is located in the city. It can be an ancient residential house in the city, or a private house in which city residents use their own spare rooms to receive guests in the form of family side business.

(3) They can be classified into single-service and integrated-service types according to their service functions. The single-service type refers to only providing

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accommodation services, and such Homestay inns are generally close to large scenic spots, comprehensive tourism function areas and cities, because the tourism functions of the region on which they are based are relatively complete, and services other than accommodation can be conveniently solved. Comprehensive service type means that in addition to accommodation, it can also meet the needs of other services, such as catering, leisure and so on. Some Homestay inns are tourist attractions in their own right, and in addition to solving the problem of food and lodging, they also have the function of sightseeing, leisure and health care.

(4) According to the scale, it can be divided into the type of home scattering, individual modelling, small clusters of clusters and continuous new construction.

The main function of Homestay inn is home, that is, the owner of the house is still living in the place, under the premise of meeting the conditions of home, the extra room is sorted out to be used for receiving guests. Its characteristic is a strong family flavour, live with the owner's family, live a family life; second is grounded, live in the real people's homes, can better understand the local folk customs, into the people's lives, so that tourism is more experiential; third is the service family, live in the people's homes, each of its family members may be a waiter; fourth is irregular, dispersal of the layout, the stars are scattered in the village, streets.

The Homestay inn refers to the Homestay inn owner to choose the appropriate location to build a few houses into the Homestay inn. this kind of Homestay inn is mostly seen in the traffic road, mostly to provide speciality food and drink as the main, both as accommodation, often more complete, in addition to

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food and lodging, but also pay attention to the environment and the landscape of the building; small cluster cluster type Homestay inn is a village, a street or a part of it for overall planning, continuous piece of Homestay inn. this kind of Homestay inn is mainly based on the ancient village and town, ethnic areas. It is characterised by its scale, features and better management.

The continuous new Homestay inn, i.e. planning and building a piece of Homestay inn on a new piece of land, is either transplanted to a famous village or town at home and abroad, such as the Interlaken town in OCT Shenzhen; or restored to a disappeared historical village or town; or built as a special town according to a certain cultural main line or a special resource. Some are restoring historical villages and towns that have disappeared; some are built according to a cultural thread or a characteristic resource. These Homestay inns are mainly developed by the government and operated by the people.

(5) According to the Homestay inn development level can be divided into general Homestay inn, boutique Homestay inn and theme Homestay inn. general Homestay inn is mainly based on the home Homestay inn, i.e. traditional Homestay inn, which is characterised by the original, simple and real. The original is to retain the original state of the building; simple that is, the appearance of the Homestay inn, the interior does not do or less change, the original appearance of the residential show to tourists; real that is to truthfully show the architectural style, features, truthfully show the original state of life. Boutique Homestay inn is mainly reflected in a "fine" word. Different from general Homestay inn, it retains the original appearance

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of the building on the basis of the characteristics of the internal decoration will make a large adjustment, reflecting a kind of "silver" state. Firstly, the design is fine, according to the modern living needs. Secondly, the material is fine, in the selection of materials and materials to speak of high-grade. Third, the characteristics of fine, reflecting the local customs, cultural heritage. The beauty, comfort and enjoyment of this kind of Homestay inn is even better than that of a star hotel. Themed Homestay inns have clear themes, and such Homestay inns are often tourist attractions in their own right, such as the French Mountain House in Moganshan, the Niaoshanming Homestay inn next to Xihu, and Homestay inns themed on anime characters such as Doraemon and Cherry Maruko. Homestay inns like these are culturally appealing, and you can experience the atmosphere of a foreign land or country.

(6) According to the property rights can be divided into private Homestay inns, collectively owned Homestay inns, state-owned Homestay inns and social Homestay inns. private Homestay inns refers to the property rights in each household, belonging to the individual private ownership, the main body of which is a large number of residential Homestay inns. their property rights are owned by the individual, self-management, self-management and self-financing. They are owned by individuals and are self-managed, self-operated and self-financing. Collectively owned Homestay inn is also divided into several kinds, one is the property rights for the clan, family collective ownership, such as the southern region of the Kejia hut. This kind of house has a large scale, many rooms, full functions, a long history, and has not been divided into property rights because of the many families involved.

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Homestay inns transformed into such dwellings are collectively owned by the family. It is generally managed and operated by a family council. The other is that many rural villages in China still retain the collective ownership of residential houses, with this kind of residential house made of Homestay inn its property rights still belong to the collective ownership. State-owned Homestay inn is a new type of Homestay inn in recent years. Mainly state-owned enterprises at all levels of government purchased or newly built pieces of residential houses. Social Homestay inn mainly refers to Homestay inns invested, constructed and operated by social capital, such as private enterprises and enterprise groups.

2.1.5 Development characteristics of Homestay inn in China

As an emerging tourism product, Homestay inn has some essential characteristics (Wu, W. C., 2018):

(1) Individual characteristics are flaunted. The traditional Homestay inn originated from the people's houses. The people are distributed all over the world, receiving different cultures, customs, traditions, and tutelage, and when choosing and building their own houses, they are all influenced by these influences and appear to have their own characteristics. In addition, because they are private dwellings, initially intended for their own use, they fully reflect the wishes of their owners in the choice of location, orientation, design, materials, interiors, scale and size of the houses.

(2) Obvious cultural characteristics: Homestay inn is a kind of architecture, and architecture is a kind of culture, which is one of the physical manifestations of

culture. Therefore, although the personalised features of Homestay inn are obvious, it can't be detached from the influence of local culture, and it can reflect the local cultural characteristics in its appearance, architectural style, internal facilities and other aspects.

(3) Strong "nostalgia" flavour. Because Homestay inn has obvious traces of history, strong local flavour, close to and even integrated into people's lives, therefore, it is easy to cause people's homesickness and evoke people's childhood memories, which is a typical "nostalgia" type of tourism products. This is a typical feature of Homestay inn, which is also the attraction and vitality of Homestay inn.

(4) Appreciation, experience and research value are given equal importance. A Homestay inn is often a screenshot of history, a fossil of culture, and the remains of a custom. At the same time, living in a Homestay inn allows people to experience the life of local people, appreciate the local folkways and customs, and taste the authentic local food. In addition, some Homestay inns have high research value due to their historical and cultural characteristics.

2.1.6 Dali Homestay inn

Homestay Inn appeared in Dali in 1994. The first registered homestay inn was "Siji" in Dali Old Town, and the first to open was Guiyuanju (yang guihua, long xiaoyi, 2008). After entering the 21st century, with the implementation of the "Golden Week" system in China (May 1 Labour Day and October 1st National Day), and the rise of mass tourism, driving tours, and experiential tourism, homestay inns have developed

rapidly in the Dali area. According to the statistics of Dali Ancient City Industry and Commerce Bureau, there were only about 200 of them in 2008, and by the Spring Festival (Chinese New Year) in 2015, the number of homestay inns in the Dali area had grown to 4,000.

1) Dali Homestay inn Features

Dali Homestay inn has the following characteristics (yang guihua, long xiaoyi, 2008): ① small size, strong ethnic characteristics, its ethnic characteristics can be reflected from the Homestay inn architecture, services, culture, etc.; ② collection of food, lodging, tourism, entertainment as a whole, to meet the needs of tourists with a variety of experiences, it is a kind of holiday and leisure type of "Homestay inn tourism" form. "Homestay inn tourism" form. Homestay inn tourism" is a form of holiday and leisure "Homestay inn tourism", i.e., the purpose of tourism is to intervene in the local people's life scene and feel the local customs and folklore (Lin Yi, 2003); ③ it is representative of both ancient towns, scenic spots, and ethnic groups; ④ it is dominated by the Bai nationality style, and has both traditional and modern styles.

2) Dali Homestay inn distribution

In terms of spatial distribution (figure 2.1, figure 2.2), Homestay inns in Dali are mainly distributed around the Erhai basin: the western cultural landscape Homestay inn belt centred on Dali Ancient City and Xizhou, and the eastern leisure and holiday Homestay inn belt represented by Shuanglang and Wenbi Village. Because of the different resources and landscape main body relied on, so its Homestay inn culture is

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also different.

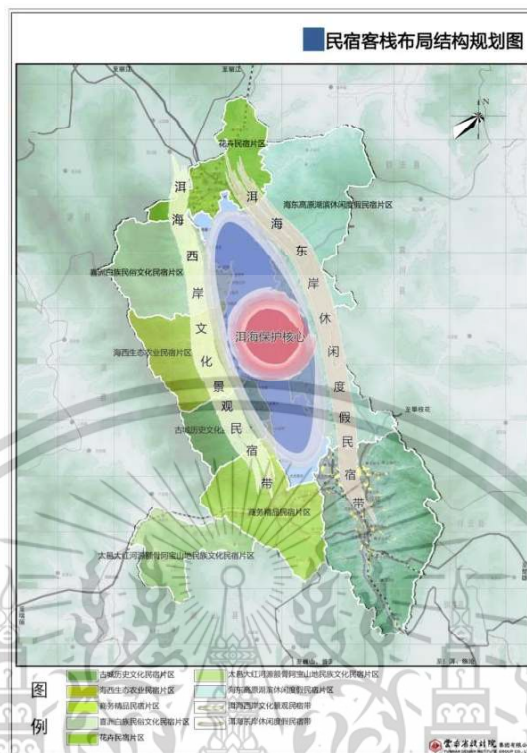


Figure 2.1 Dali Homestay inn layout structure figure

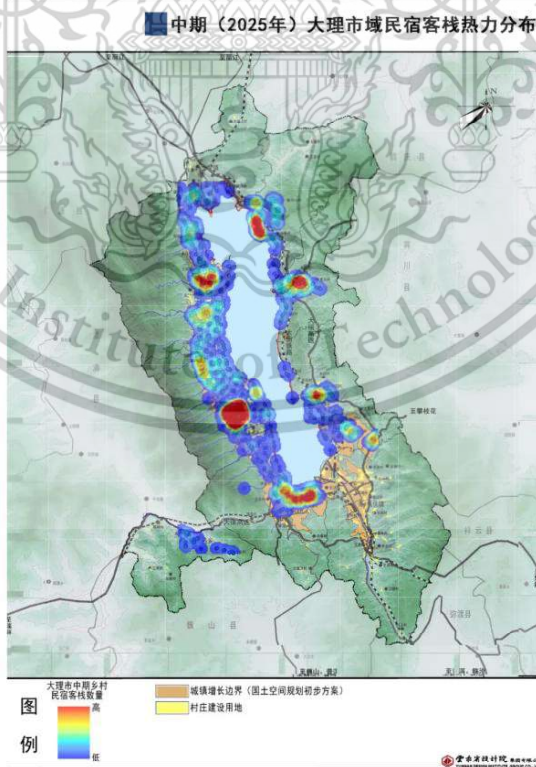


Figure 2.2 Dali Homestay inn heat distribution map

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3) Dali Homestay inn history

After more than 20 years of development, the scale and number of Homestay inns in Dali are among the highest in China, and the characteristics of clustering are obvious. The development of Homestay inn in Dali can be roughly divided into four stages according to time and its stage characteristics (Lei Jie, 2019).

① Start-up phase (1994-2007)

The first phase of the budding stage. In the mid to late 1990s, Dali's tourism market was still dominated by foreign backpackers, while the more prophetic people in China began to foresee the business opportunities in Dali's tourism and accommodation, and began to move. After the opening of Homestay inn "SiJi" in Dali in 1994, Nima and Minnie opened MCA in Dali in 1995, which at that time was still a platform for artists' studios, galleries and youth hostels. At that time, MCA was still mainly a platform for artists' studios, galleries and youth hostels. Despite the fact that MCA only had the reception facilities and equipment of a youth hostel at that time, many big names in the art world visited MCA one after another, and in 1998, the director Zhang Yang visited Dali, and at that time, there were only three homestay inns in Dali, namely MCA, "SiJi" and "Yu anyuan". At that time, MCA was still only 10 yuan a night for a bed. Even "Haidi" (name of homestay inn), which later became famous in Dali, was still a simple hostel with only eight beds and one standard room in 2007.

From this can be seen, in the budding start period, Dali Homestay inn is mainly a simple accommodation facilities, single function, the Homestay inn is only a simple

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accommodation products, tourists to Dali travel to the Homestay inn's requirements are only simple accommodation needs, but more tend to visit Dali's natural scenery, so the start stage can also be called "sell the scenery" stage, this period of Homestay inn number is very small, is the beginning of Dali Homestay inn cluster development. Therefore, the initial stage can also be called the stage of "selling scenery", the number of Homestay inns in this period is very small, and it is the initial stage of the development of Dali Homestay inn clusters.

② Development phase (2008-2012)

In 2008, Zhaobaxun (the brother-in-law of world-renowned dancer Yang Liping) opened a Homestay Inn ,named "Fen si",with Yang Liping's four sisters as the design concept, the English name is "ladyfour", played a leading role in the design of the Dali homestay inn, including the design of the name, the architectural design and the decoration design. In April of the same year, Mr and Mrs Linden from the United States started the business of "Xilinyuan", which mainly carries out the "cultural experience" of ethnic minorities and receives foreign customers, and the architecture of the homestay inn is in the form of a traditional courtyard, combined with the field scenery. The architecture of the Homestay inn is in the form of a traditional courtyard combined with the scenery of the fields. With the opening of "Qijianfang" in Shuanglang, "Canghaiyishu", "Shuishiguang" and other Homestay inns are located along the "sea". In 2010, various types of Homestay inns appeared in Dali, driving a new round of tourism boom.

In this stage of development, Dali homestay inns began to focus on design,

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from the name of the homestay inn, the theme, the exterior of the building, and the interior design, to enhance the convenience of Dalihomestay inns to a certain extent. The number of homestay inns began to increase.

③ Formation phase (2013 - 2016)

In 2012, Zhangyang purchased a home base on Shuangyu Island to build his own homestay inn - "Gui Shu", and made the short films "Living Elsewhere" and "Meeting a Different Kind of Life", which depict the lives of new Daliites (outsiders settling down in Dali), and "Going to Dali" has become one of the dreams of the urban white-collar workers. "Going to Dali" has become one of the dreams of urban white-collar workers. Under the publicity and influence of Zhangyang's two short films, Dali became a place for white-collar urbanites to talk about their ideals and sentiments, and the Dali Homestay inn's "culture of sentiments" was birthed. After 2012, people from various industries flocked to Dali to operate Homestay Inn, driving a wave of investment in Homestay Inn in Dali. In 2014, the movie "Heart Blossom Road" was released, and the "Sea View Homestay Inn" in the movie impressed the audience. Literary and artistic young people yearned to talk about poetry and distant emotions in Dali. At this point, DaliHomestay Inn has received great attention, and as a result, the number of Homestay Inns has exploded.

In the third stage, the injection of sentiment culture enriches the cultural connotation of Dali Homestay inn. If the "design" enhances the hardware facilities of Dali homestay inn, then the injection of "sentiment" adds colour to the software facilities of Dali homestay inn. Therefore, the third stage is the stage of "selling

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feelings". dali homestay inn gradually unfolds from point to surface, and homestay inn clustering appears.

④ Transformation and upgrading phase (2017-present)

Dali homestay inns have grown by leaps and bounds in terms of quantity and quality after going through a start-up phase, a development phase and a blowout phase. Especially after the development of the blowout stage, the quantity has been increased unprecedentedly, and the increase in quantity has intensified the competition among Dali homestay inns. Design, sentiment is no longer enough to enhance the competitiveness of homestay inn itself, at the same time, Dali's ecological environment is also under great threat. 1 April 2017, the group of homestay inns in the Erhai region in response to the Erhai protection and governance of "seven actions", a large number of homestay inns around Erhai. A large number of homestay inns around Erhai closed down. The signboards of selling scenery, design and sentiment gradually passed away, and the only way to maintain the sustainable development of Dali homestay inns is to seek transformation and upgrading.

In order to continue to maintain the attraction of homestay inn, Dali homestay inn must be upgraded, batch of boutique homestay inn appeared one after another, butler-style service, family-like get along and other modes appeared one after another, for the transformation and upgrading of the first step of the Dali homestay inn. This stage can be called "sell quality" stage. What is quality, quality is the current homestay inn in progress.

Looking at the four stages of development of the Dali homestay inn cluster,

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each stage is an upgrade of the previous one, and Homestay inns encompass an increasingly wide range of genres, and their connotations are becoming richer and richer.

2.2 THEORIES RELATED TO DESIGNING EMOTIONS

2.2.1 Emotion

1) Concept of Emotion

General psychology has this description of emotion, "emotion is a special kind of psychological reflection of man to the reality of objective things. The so-called emotion refers to a kind of human attitude towards objective things, a kind of tendency due to certain objective things, which is an unavoidable phenomenon of human activities and widely involves all aspects of psychology, sociology, culture and aesthetics." (Ren, L. S, 2005).

Emotion is a psychological activity specific to humans; for animals, the concept of emotion is rarely used, because emotion is often associated with an individual's need for sociability, which can produce complex and stable psychological experiences of deep social significance. emotion is a universal term for judgement systems, and the concept of emotion is often used when describing the subjective experience of human beings, in particular, higher social emotion is often the concept of emotion is used.

According to Jakobsson, emotion is the reflection of the real world in a

characteristic way, in the form of subjective attitudes manifested by man towards the things and realities of this world (1988). Byderovsky, a Soviet psychologist, on the other hand, defines emotion as "emotion is the reflection in the mind of the human being of all kinds of real relations, of the relations of the needy subject with the objects that are meaningful to him" (1981).

Psychologist Alice Isen suggested in 1984 that emotion is made up of three components: feelings, moods, and emotions. Feelings and moods refer to an individual's general state of being in daily life, while emotions are specific outcomes triggered by more intense events.

Fisker & Taylor (1984) argue that emotion is a general term referring to sensations and emotions; an emotion is a more intense feeling with a specific object; a sensation is a mildly subjective reflection of a specific object: a mood has no specific object.

Psychologist Weiss (2022) proposed the Linnaean Classification System for emotion, which could help develop a useful classification structure. According to the Linnaean Classification System, emotion can be viewed as a family of constructs that contains concepts such as moods and discrete emotions, with some shared "family characteristics" within the "family" of emotion concepts. In the "family" of emotion concepts, there are some shared "family characteristics". In the "family" of emotion concepts, there are some shared "family characteristics", such as: (1) moods or emotions are a state, a transitional psychological experience; (2) they are people's subjective feelings; (3) they are accompanied by physiological reactions (physiological

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reactions may be different in different experiences); and (4) they all contain elements of assessment.

Chinese educational psychologist Zhang Chunxing (1998) argues that emotion includes emotions, feelings, moods, and all other aspects of inner feelings, including moods, which are more prosaic emotional states, the inner state of individuals ready to react to a certain situational stimulus, and feelings, which are subjective emotional mental states. Mood is the individual's perceived psychological imbalance caused by a certain stimulus.

Meng Zhaolan in *Psychology of Emotion* (2005) makes the following delineation of the difference between emotion and emotion, "Emotion and emotion occur both in the evolutionary process of the species and as a product of the historical development of human societies, and for such a phenomenon of multilevel qualitative change occurring over a long period of time in the process of evolution, it is difficult to try to use a single term to It is difficult to signify it. Because, when people use such terms as emotion and emotion to express this psychological phenomenon, the connotation that people reflect in their minds is often different. People call emotional reactions linked to biological needs emotions, and emotional states governed by social norms emotions; at other times they use emotions in labelling the form of feelings, and emotions in labelling the content of feelings."

Liusha, in his book "Design Psychology" (2009), suggests that "emotions are linked to the physiological needs of the organism and are an innate, instinctive reflection, such as the feeling of anxiety when hungry or thirsty, or the feeling of

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excitement when seeing something new and strange; on the other hand, they are also developed by the organism in social environments, especially in interpersonal interactions, and have a strong social nature, such as the feeling of anger when seeing events that go against morality, or the feeling of pain when seeing a friend suffer misfortune. events, or the feeling of anger when seeing a friend suffer misfortune."

To sum up, emotion is a complex psychological phenomenon that includes a variety of inner feelings, such as emotions, sensations and moods. It is related to both the physiological needs of human beings and closely linked to the social environment and interpersonal interactions. Emotion has transitional, subjective, physiological response and assessment components, and is a multi-level psychological experience formed by human beings in the process of evolution and social development.

2) Classification of emotions

The categories of emotions have long been subject to a variety of claims, and experts from different disciplines have proposed different ways of categorising emotions.

In China, as early as the end of the Spring and Autumn Period in ancient times, the Confucian classic work "Zuo Zhuan" put forward in the "six emotions" in the "joy and anger", sadness and happiness, "love and evil" three groups of relative emotions, and that "love and evil" is the most basic emotion. In the classic work "Zuo Zhuan", the "Six Emotions" include "joy and anger", "sadness and happiness", "love and evil",

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and "love and evil", of which "love and evil" is the most basic emotion, and the other emotions are based on the derivation of this pair of emotions. In the Spring and Autumn and Warring States periods, the "seven emotions" of happiness, anger, anxiety, thoughts, sadness, fear and surprise were also formed. The origin of the "seven emotions" can be traced back to the Spring and Autumn and Warring States periods, and there are references and expressions of different emotions in the canonical texts of the Hundred Schools of Thought. It is also an important basic theory of Chinese medicine, the Southern Song Dynasty medical doctor Chen Wuzhe in the former on the basis of the development of the doctrine of emotions, he is in the "three causes of extreme a disease evidence Fang Theory" clearly pointed out that: "the five viscera and six bowels, the yin gallbladder lifting and lowering, non-gas does not rise. God is quiet is quiet, emotional movement is chaotic, so there are joy, anger, worry, thoughts, sadness, fear, shock." The clear outline of the doctrine of seven emotions is clearly summarised.

McDougall (1926), an American psychologist and the founder of "curatorial psychology", categorised emotions into two main types: simple emotions and complex emotions. Simple emotions can be divided into: anger, disgust, fear, elation, subjection, tender emotion, wonder seven, complex emotions are composed of a mixture of simple emotions.

Arnold Allan Lazarus (1966), a South African psychologist, argued that emotions are caused by external events, and that people develop a tendency to "tend" or "avoid" them depending on the nature of the external event. Based on the

tendency of people to react to external events, he classified emotions into two categories, "tend" and "avoid", containing eleven types of emotions. The four emotions of "tend" include: courage, desire, hope, love; the seven emotions of "avoid" include: anger, dejection, despair, fear, hate, sadness. hate, sadness.

The American psychologist Borgatta, E. F. (1961) proposed six categories of emotions: depression, warmheartedness, tiredness, thoughtfulness, aggression, anxiety.

Psychologist Tomkins (1962) believes that emotion has a primary character, which is determined by changes in the rate of neural power generation in the central nervous system, and that the eight primary emotions possessed by human beings are: excitement, joy, horror, distress, contempt, anger, shame, and fear.

The American psychologist Izard (1977) proposed four dimensions of emotion through factor analysis: pleasantness, tension, excitement and conviction, and then eleven basic emotions: excitement, surprise, grief, pleasure, anger, disgust, shame, shyness, contempt, fear and guilt. In contrast to the basic emotions, there are also a large number of compound emotions. Izard classified compound emotions into three categories, one being a mixture of two to three basic emotions on top of the basic emotions, the second being a mixture of basic emotions with internally driven bodily sensations, and the third being a mixture of affective-cognitive structures with basic emotions.

The eight basic emotions possessed by humans as summarised by Plutchik (1980) include: fear, anger, joy, sadness, disgust, expectation, acceptance and surprise.

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He argues that these basic emotions are manifested in both animals and humans and have their universality. Each basic emotion is associated with a particular life situation or stimulus event and carries different cognitive and behavioral characteristics. Placzek believed that all other emotions possessed by human beings are secondary or a mixture of several of the eight basic emotions mentioned above.

Psychologist O'Connor, K. (1993) asked college students to categorise cards with the names of different emotions based on their personal emotional experiences, resulting in the identification of six basic emotional archetypes: love, happiness, surprise, anger, sadness, and fear. The six emotional archetypes contained 25 categories and more than 100 different emotions.

According to Lazarus (1991), a famous American stress psychologist, emotion is related to the consistency of an individual's assessment of an event with the individual's goals. If the individual's assessment of the event is consistent with the individual's goals, positive emotions are generated, while inconsistency with the goals generates negative emotions. There are six types of positive emotions: pleasure, pride, relief, hope, love, and compassion; and nine types of negative emotions: anger, anxiety, panic, guilt, shame, sadness, envy, jealousy, and disgust. Positive and negative emotions are actually two sides of the same coin, depending on the event, the situation, the individual's assessment and the outcome of the process.

American psychologist Krech, D. (1949) divided human emotions into four types: primitive emotions, stimulus-related emotions, self-evaluation-related emotions and emotions related to others. Among them, primitive emotions include

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four kinds of emotions: happiness, fear, anger, and sadness; emotions related to self-evaluation such as sense of success or failure, pride, guilt, and remorse, which are formed due to the relationship between one's own behaviours and the standard; stimulus-related emotions are caused by the target stimulus, such as pleasant or unpleasant emotions; and emotions related to other people are caused by the relationship between oneself and other people, and directed to the feelings of other people. emotions that are caused by the relationship between oneself and others and are directed towards others.

The above scholars differ in their definition of the concept of emotion and the classification of emotion, but psychologists agree that emotion is not a single, simple mental activity, but rather a psychological response to different external stimuli with certain distinctions. People have both basic emotions and a wide variety of complex emotions. Emotions are generated both in the context of the stimulus under the direct emotional reflection, such as the startle reflex, odour aversion, etc., but also with the human higher cognitive processes associated with the generation of, such as shame, internal disease, contempt, jealousy and other emotions.

3) Basic emotions

Charles Darwin, in 1872, through his studies of human and other animal expressions, especially primates, had proposed the first idea of emotional universality: that specific emotional expressions were a remnant of the evolutionary tendency of human beings to behave in survival situations. However, Darwin's research orientation was ignored for years and it was not until 1970 that

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psychologists began to conduct cross-cultural studies of facial expressions again. Through these studies it was established as an undeniable fact that some facial expressions of specific emotions are universal.

Table 2.2 Representative views of basic emotions

Darwin (1872)	Pleasure, affection, elation, horror, anger, surprise, pain
Arnold (1960)	Escape, fight, defence, attack
Osgoode (1966)	Pleasure, calmness, elation, fear, anxiety, anger, sadness, surprise, disgust, interest, Expectation, boredom
Izzard (1977)	Enjoyment, fear, contempt, wonder, disgust, shame, shyness, depression, internal disease, interest
Emde (1980)	Pleasure, fear, anger, sadness, surprise, disgust, shame, shyness, depression, internal illness,
Pankos Beat (1982)	Fear, pain, anger, sadness, loneliness, sorrow, anticipation
Trevelyan (1984)	Happy, fearful, angry, sad, close, inhibited
Johnson Laird and Ouellette (1992)	Happiness, fear, anger, sadness, disgust.

Table 2.2 lists the types of basic emotions as perceived by different scholars. There is some debate among scholars as to how many basic emotions exist and which ones belong to the basic emotions, but most psychologists agree that happiness, fear, sadness and anger are the most universal emotions.

In real life, happiness is a positive emotional experience for people, which often arises in the process of achieving the desired purpose or relieving tension. The degree of happiness is often closely related to the degree of human needs, when people have the more urgent and strong wishes and needs, the purpose of the realisation and achievement of the more unexpected, the degree of happiness will be higher. Pleasure is an important source of enjoyment for people, and there can be no enjoyment or joy without pleasure and joy. Democritus famously said, "This material is reserved for educational use only, not allowed for commercial use."

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offered the three conclusions of Pleasureism: "It is best for man to be able to live in a state where he can steal as much pleasure as possible, and with as little pain as possible." The sense of pleasure is holistic and relatively stable, and the formation of a happy state of mind can have a long-term and stable effect on the individual. Meng Zhaolan, in his edited book, *Psychology of Emotions*, points out that the generation of pleasure and cheerfulness can be influenced by physiological, psychological, social conditions and other aspects.

Pain is also one of the basic emotions, "According to Tompkins' view of neural activation, pain is activated as a result of the persistence of a stimulus and a high level of neural activation. Pain, hunger, and any strong and persistently acting stimulus can be innate activators of pain." In the view of some scholars pain and sadness are two expressions of the same emotion, while others believe that sadness can be seen as a development and continuation of pain. Sadness is a negative emotional experience and a protective emotion that brings a deeper impression.

Anger is a common negative emotion, and the archetypal significance of anger is that it inspires one to fight and prevent the offender with maximum vigour and strength. In contemporary civilised societies, the function of anger has changed to become a sign that expresses one's defiant intentions and attitudes.

Fear is an unpleasant emotional experience caused by confronting danger, but fear is not merely a harmful emotion. Fear helps to keep people away from danger and is also beneficial to the bonding of human communities. Fear can bring strong psychological stimulation and put people in a state of high tension. When this strong

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stimulation disappears, people will be released from the state of high tension and feel relaxed and happy after the pressure is released. The stronger the stimulation level when people feel fear, the stronger the pleasure they get when the fear disappears.

Among these four basic emotions, pleasure is the most important human emotion, "Without pleasure and joy, there is no enjoyment or enjoyment." (1) Whereas pain, anger, fear, etc. are common negative emotions and are products of human evolution. Common negative emotions such as fear, anxiety, and anger increase endocrine secretions such as adrenaline corticosteroids, causing physiological changes such as increased heart rate, vasoconstriction of blood vessels, increased blood pressure, increased respiration, and slowed intestinal screws in humans. Negative emotions, if the duration is too long or long-term repression and can not vent, will make the whole psychological state of people out of balance, the body's physiological and biochemical processes are difficult to return to normal, and will cause a variety of diseases over time.

Among the basic human emotions, happiness and pleasure are the most important and obvious positive emotions. When the emotional needs of users of indoor environments are satisfied, users can experience joy and pleasure.

2.2.2 Design emotion

1) Designing the features of emotion

Design emotion refers to the human emotion experience inspired by artifacts,

including all the emotion experience triggered by the interaction process between humans and artefacts. design emotion also has certain specificity compared with ordinary human emotion, which is due to the characteristics of design with purpose and practicality, this specificity is mainly reflected in the following aspects. This particularity is mainly reflected in the following aspects:

(1) The primary value of design works is not to satisfy the needs of people's appreciation and appraisal, but the use and purpose of design works are its essential attributes, and the emotion experience inspired by people in the process of interacting with design works should be closely related to the purpose of design works. The expression and delivery of the designer's own emotion should not be the criterion for judging the merits of a design work. The criterion for judging the merits of a design work should be whether the designer's judgement of the emotion Experience that may be aroused by the user's interaction with the design work is accurate, and whether the designer is able to satisfy the user's emotional needs for the design work in the process of selecting and organizing the design language to realize the design features.

(2) The stimulation of design emotion is closely related to the process of "use" by the user, not only to the purpose of the design work. The motion experience stimulated by the design work is a comprehensive and interactive motion experience, which largely comes from the interaction between "people-objects-environment" in the interactive context, which can be called the motion experience in the interaction between people and objects. We can call it the motion experience of human-object

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interaction, which has the characteristics of dynamic, random and contextual, and it is an important part of the motion in design art. The qualities and attributes of the design works are perceived by people in the interaction and stimulate the corresponding motion experience, while the motion experience stimulated by people will in turn affect the process of interaction between people and design works.

Focusing on the Positive Emotions that a design piece inspires in the user, as Positive Emotional Experiences are critical to people's curiosity and ability to learn, Barbara Fredrickson describes positive emotions as having "the ability to broaden one's mind and enhance one's action skills, prompting people to discover new cues for thought or action." When people are in the presence of positive emotions such as pleasure and joy, their minds are sharper, they are more productive, and their problem-solving flexibility and speed increase. Although a person's attention will be highly focused on an object for a short period of time when he or she is stimulated by a sudden strong negative emotion, such as fear or grief, most negative emotions, such as frustration, sadness, and fear, will also cause a person to focus his or her attention in the short term, but it is difficult to be sustained. If a person is exposed to negative emotions for a long period of time, it can be detrimental to both physical and mental health.

(3) The human emotion stimulated by design works is hierarchical. Design works can stimulate human sensual emotion by stimulating human perception and causing physiological changes, and also stimulate human high-level emotion, such as

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aesthetic sense, sense of reasoning and moral sense, etc. Alberto Alessi pointed out in his book "The Dream Factory: Alessi since 1921" (1999) that "true design is to move people, it can convey feelings, evoke memories and surprise. Alberto Alessi pointed out in his book "The Dream Factory: Alessi since 1921" (1999): "True design is to move people, it can convey feelings, evoke memories, give people surprises, and good design is a poem about life, which will really bring people into the realm of deep thinking. "

(4) Design works always exist to satisfy people's certain purposeful needs, and it is not only able to satisfy the user's pure aesthetic experience. It is because of this characteristic of design art, its stimulation of people's emotion will not only bring pleasant feelings through aesthetics, but also may stimulate many different types of emotion.

2) Designing the hierarchy of emotion

The rapid development of modern neuroscience has provided conditions for psychologists to study emotion. Psychologists classify the process of human emotion into three levels according to the interaction of neural activities in the brain. The first level is the reflexive emotion response, this type of emotion occurs directly under the sudden situation stimulus, has a relatively simple neural circuit, their production does not need to go through the thought processing, but also can be linked with the higher cognitive processes. The second level is first-degree emotion, which arises from processing in neural circuits in the middle part of the brain. Emotional circuits include the higher limbic areas of the cingulate gyrus, prefrontal gyrus, and temporal

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cortex, and the integration areas of emotion in the midbrain. These sites coordinate relevant physiological, cognitive, behavioral and emotional aspects. This category of levels of emotion has a top-down function, whereby the information that first elicits a stimulus is fed from the lowest level of the nervous system, and at the same time, the information is thereby transmitted to higher centres. It is due to this mechanism that human beings are able to perceive the third level of emotion, which is the higher level of emotion, i.e., the fine and profound social emotion that is prevalent in human beings. This type of emotion, such as shame, guilt, contempt, envy, jealousy, sympathy, and so on, is generated by linking it to higher cognitive processes in human beings. This type of emotion experience Each occurrence of these three levels of emotion Experience is distinguishable, yet continuous and recurrent.

Donald. Norman, D. A. in the book "Emotional design" proposes to divide the emotion experience of design works into three levels according to the modern neuroscientific mechanism of emotion: "instinctive" level of emotion, "behavioral" level of emotion and "reflective" level of emotion (Figure 2.3). The division of levels is based on the different levels of brain processing, reflecting the biological origin of the human brain, which slowly evolved from primitive single-celled organisms to more complex animals, then to vertebrates, mammals, and finally to apes and humans. The "instinctive" level of emotion is very fast, it can quickly make a judgement on the object or the environment, it is caused by perception, mainly caused by the visual form of the design work. The second level is the "behavioral" level of emotion, which is generated by the interaction between the user and the

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design, including the usability, efficiency and usefulness of the design. The third level is the "reflective" level of emotion, which requires more involvement of the brain and is closely related to the user's self-image, satisfaction, and memory.

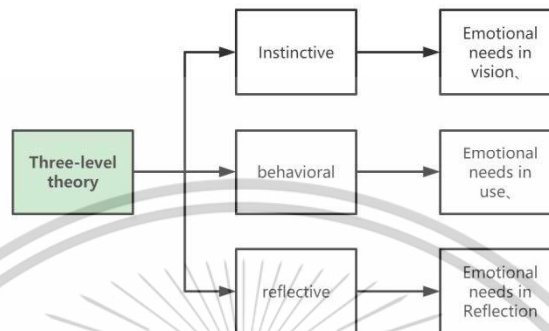


Figure 2.3 Three-level theory of emotional design

2.3 CONSTRUCTION OF EMOTIONAL DEMAND SYSTEM OF SPATIAL ENVIRONMENT

2.3.1 Hierarchy of emotional needs

Emotions are the various realities of the human being, the reflection in the mind of the subject's needs in relation to the objects that are meaningful to the person. The understanding of the concept of needs and their hierarchy is the basis for classifying the emotional needs of users.

Needs is a basic concept that often appears in the study of economics, psychology and other related disciplines. 1943, Abraham Maslow, an American social psychologist, comparative psychologist and personality theorist, and the main initiator and theorist of humanistic psychology, proposed the "basic hierarchy of

human needs" in his article "The Theory of Human Motivation" (Fig. 2.4). In his "Hierarchy of Basic Needs Theory", the basic needs of human beings include the five needs of survival, security, belonging, self-esteem and self-actualisation, which show the characteristics of a ladder-like, hierarchical progression.

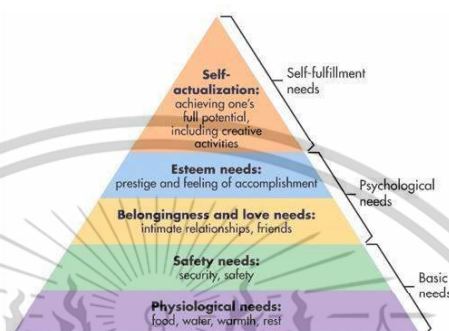


Figure 2.4 Maslow's Hierarchy of Needs Theory

Physiological needs are the most basic and lowest level of survival needs of human beings, including people's needs for water, sleep, food, air and so on. Physiological needs are the fundamental driving force for human survival. Only when physiological needs are satisfied will people pursue higher-level spiritual needs; safety needs include people's needs for their own safety, stability of life, and freedom from pain, threat or disease. People need to seek physical and spiritual security; social needs are also known as belonging and love needs. After physical and safety needs are met, the need for socialisation emerges. Social needs are reflected in the desire to integrate into the group, get care, love and understanding from family, friends, colleagues and the group, establish a good social relationship with everyone, and get a sense of belonging in the group, etc. It is also a need for

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friendship, affection and love; respect needs belong to a higher level of needs, which are mainly derived from the individual's needs for both self and others. On the one hand, it refers to self-esteem, that is, individuals hope that they can achieve something in all aspects and realise their own ideals; on the other hand, it refers to the individual's hope to be recognised and respected by others. In today's society, most elderly people are prone to low self-esteem. Especially some old people who suffer from activity disorder need more care, understanding and respect from the society; self-actualisation need is the highest level of need, which means that individuals hope to realise their ideal ambitions and pursuits as much as possible through their own efforts, and become the characters they expect to be.

Maslow believed that the need for self-actualisation is the most difficult of these five needs to obtain satisfaction, and that people always give priority to the satisfaction of physiological needs. At the same time, Maslow also believed that some of the following characteristics exist between the various levels of human needs.

He believes that these five needs are similar to a ladder, which develops from low to high, and that when the needs at the lower level are better satisfied, a person will try to satisfy the needs at a higher level. At the same time, only when the lower level needs are better satisfied, the higher level needs can become the driving force of human behaviour. Needs that have been better satisfied, on the other hand, cannot become incentives that drive human behaviour. Individuals may have multiple needs at the same time in a given period of time, because human

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behaviour is governed by multiple needs, but there is always one need that dominates. There are more ways to satisfy the higher level needs that people have than there are ways to satisfy the lower level needs.

According to the hierarchy of human needs put forward by Maslow, it can be seen that when the social and economic development, it will inevitably lead to the growth of people's material needs and spiritual needs. Among the various needs of users for the spatial environment, the low-level needs are a spatial environment that can meet the functions of shelter, rain, safety, hygiene, etc., which is also to meet the most basic physiological needs of users. When the low-level needs can be satisfied, the higher-level needs will be put forward by the users of the spatial environment.

2.3.2 Classification of emotional needs of users of the spatial environment

"The universal notion of value arises from the relation in which people treat external objects that satisfy their needs" (Marx, 1965). Value is generally regarded as the positive or negative significance of the properties of an object for the fulfilment of the needs of the subject, the existence of the object, its role, and the changes between the objects for a certain fitness, proximity, or consistency with the needs of a certain subject and its development, and includes everything that can satisfy the needs of man and society. The fulfilment of the needs of the subject's values by the object triggers a corresponding emotional experience in the user.

The spatial environment is an objective existence created by people according

to their own needs. During the evolution of the spatial environment, people continuously create, process and improve the spatial environment, and constantly put forward new demands for the spatial environment, which is due to the fact that people want to get the desired value from the spatial environment. The main reason for the change of people's demand for the value of the spatial environment is that people are constantly influenced by the external environment and change constantly. The complexity and diversity of human needs determine the diversity of object value attributes that people need. The satisfaction of object value pursued by human beings is not only to satisfy the material needs of human beings, but also to satisfy the needs of human beings' emotion and rationality. Material needs are regarded as the practical value of the object, and the practical value is the adaptation of the object to the material needs of human beings and their development, which is also called the "external value". The aesthetic value of the spatial environment is regarded as the "intrinsic value" of the object. Intrinsic value is the content of enjoyment, happiness, freedom, self-realisation, etc., which is directly manifested through the spiritual structure of the subject and through the material carrier.

In the period of social productivity is not high, people's demand for the space environment is mainly to stay on the level of material needs, that is, special emphasis on the space environment "external value" of the pursuit of the space environment, care about whether the space environment can provide people with a shelter from the wind and rain, to resist the beasts of the place. When the spatial

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environment to meet the user's basic production, life needs, this stage of the spatial environment needs in addition to the material level, more in order to meet the psychological and spiritual needs, including a more humane focus on a variety of ancillary functions and how to facilitate the coordination of the spatial environment and the functional relationship between the user. One of the most significant features of modern design is the change of aesthetic thinking. Modern spatial environment is not only to meet the user's physiological and psychological needs, but also to reflect the aesthetic significance and aesthetic value from the overall spatial environment. with the industrialisation of human society advancing continuously, in the social productivity has been continuously improved and the material base necessary for social development has been extremely rich today, people are more and more eager to meet the spiritual needs. Strongly, on the basis of the satisfaction of "external value", the modern spatial environment is increasingly pursuing the unity of "external value" and "internal value".

1) User demand for practical value

The user's need for the practical value of the spatial environment is the basis for its existence, and includes the user's need for functionality, lifestyle, and limitations. Users need the spatial environment to function effectively and to serve the desired purpose.

2) User demand for aesthetic value

The beauty that things possess can be perceived by people. The aesthetic information conveyed by things does not have a direct connection with objective

beauty in some cases. Although there are individual differences in the users' aesthetic evaluation of the spatial environment, the similarity of the spatial environment in the way, manner and content of aesthetic information dissemination will guide and imply the users, so that the users will obtain similar aesthetic emotion, i.e., the popular aesthetic tendency of the design object.

The human aesthetic process is a dialogue and dialectical process, a communication of emotion Experience by way of rational communication, a conversion between the individuality of emotion Experience and the publicity of language. In the world of aesthetics, the subject of aesthetics can psychologically experience a kind of freedom of emotion that is difficult to experience in real life.

From the perspective of the development of social civilisation, design aesthetics is related to the social environment and culture of different times. In the present society, we are experiencing the art of living and the living of art, and people's lives are being aestheticised. The root of this phenomenon is due to the fact that modern society is a society of material abundance and inner scarcity, where people's participation, communication, and dialogue always take place in some kind of occasion. Individuals feel the common preferences and value judgements they share with society through aesthetic interaction, which satisfies their sense of belonging.

The aesthetic value is the higher level of value contained in the spatial environment. aesthetic value is the degree of aesthetic satisfaction of the aesthetic subject and the aesthetic evaluation of the aesthetic object. This also means that

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the beauty that users feel in the spatial environment will be different because of their personal understanding and different aesthetic standards. Some users prefer spatial environments that embody natural flavour, and are attracted to purely handmade crafts and decorations, while scoffing at spatial environments that embody high technology and contemporary fashion. However, this kind of spatial environment that embodies the sense of technology and fashion may satisfy the aesthetic needs of other users.

Users' demand for aesthetic value in the spatial environment is mainly reflected in two aspects, on the one hand, it is users' need for visual aesthetics in the spatial environment. Users hope that through the arrangement and layout of the visual elements of the spatial environment, they can obtain visual enjoyment and pleasure of the mind. On the other hand, it is hoped that the spatial environment has deep flavour and connotation, which can be understood by the users, so that the users can get the pleasure of thinking in the process, and satisfy the users' demand for aesthetic reflection value.

2.3.3 Levels of emotional needs of users of the spatial environment

Emotion is a response to the attitude of people to objective things, the production of emotion and the object to the subject's needs of the satisfaction of the close connection, the higher the degree of satisfaction of the needs, the more intense the emotion satisfaction obtained.

When the spatial environment can satisfy the user's needs for practical value

and aesthetic value, it will stimulate the user to obtain different levels of emotional satisfaction, and these rich emotional Experience constitutes the user's emotional needs system in the spatial environment.

In the most elementary stage of human development, the level of social productivity is not high, as a productive person for living conditions only need to meet the basic requirements. Only need a space environment that can meet the wind, rain, safety and hygiene, this demand is for the space environment in the practical value of the demand. When the level of production increases, the demand for living will also increase with the increase in the degree of material civilisation of human society, and the user's demand for the practical value of the spatial environment is also constantly enriched and improved.

When people meet the conditions of survival, through further consumption activities to meet the needs of normal social interaction, life and entertainment, etc., this time the consumer behaviour is not only out of material, more from people to meet the psychological and spiritual needs, such as human self-esteem, spiritual pleasure and so on. Users of the space environment for the emotional needs of the system also put forward a higher standard, people in the space environment, in addition to focusing on the function of the spatial environment, the use of the function of the satisfaction for people to bring the feeling of pleasure, will also pay attention to its diversified forms of expression whether it can bring people aesthetic pleasure.

Spatial environment as a design work to bring the user's emotion Experience

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has a hierarchy, the user of the spatial environment for the spatial environment of the emotional needs of the system also has a hierarchy, the user on the one hand will focus on the spatial environment of the practical value, hope that in the use of the spatial environment in the process of obtaining a sense of security, a sense of control, a sense of comfort and so on, but also focus on visual aesthetic value and reflective value satisfaction.

2.3.4 Spatial environment features linked to Emotional design

The American psychologist Schacht proposed the three-factor theory of emotion in the 1970s (Figure 2.5), in which he argued that human emotion is produced by the integrated action of three factors: physiological, cognitive and stimulus.

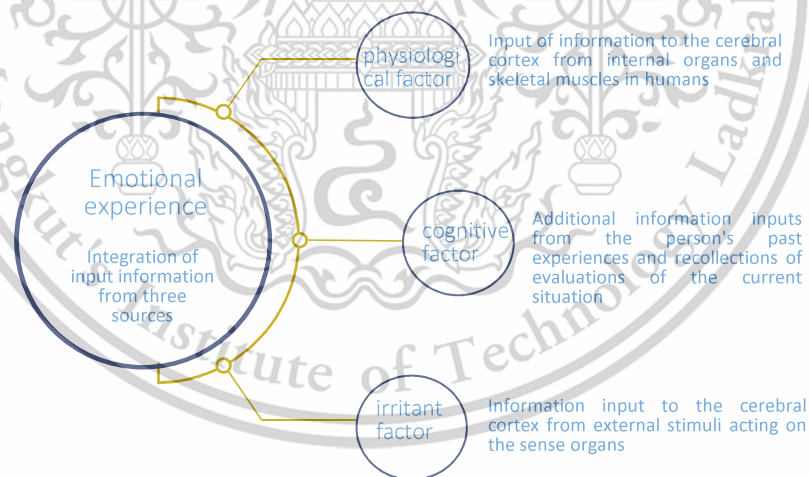


Figure 2.5 Three-factor theory

"Physiological factors" and "cognitive factors" are the subjective factors of users' emotion, while "stimulation factors" are the external objective conditions of users' This material is reserved for educational use only, not allowed for commercial use.

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emotion. The "stimulus" is the external objective conditions for the user's emotion stimulation. "Characteristics" is the special nature of things, the specific characteristics of the spatial environment to meet the user's emotional needs in the spatial environment of the external "stimulus factors". Based on the user's emotional needs system to carry out interior design, need to understand the focus of the user's attention, targeted organisation and use of interior design language, it is necessary to meet the different levels of emotional needs system in the spatial environment to meet the different levels of the spatial environment characteristics associated with the generalisation and classification.

The classification of spatial environment characteristics referred to the thesis of Qin Yang (2013), a PhD student from Wuhan University of Technology: Using the card classification method, where seven designers (experts) were invited to form an expert panel to carry out the discussion. They were asked to write down the characteristics that the spatial environment should have on cards based on their professional knowledge and experience, and then the listed characteristics were categorised according to the three levels of the user's emotional needs system classified (word list). Based on the expert group discussions, the following spatial environment characteristics were obtained (figure2.6):

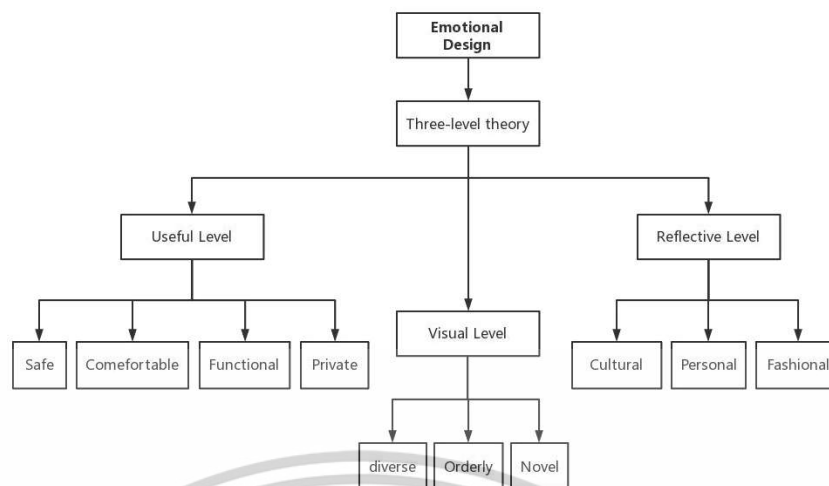


Figure 2.6 Emotional needs of the spatial environment variable

(1) Spatial environment features that satisfy the "Useful" level of concern

Among the spatial environments, the spatial environment characteristics that satisfy the "Useful" level include "Safety", "Comfort", "Efficacy" and "Privacy".

The biological characteristics of human beings determine that human beings inevitably have physiological limitations, and human beings are used to forming cognitive experiences through perceptual trial and error, which often leads to the creation of unsafe consequences in the spatial environment. "Safety" and "efficacy" are the basis for the existence of the spatial environment, and it is from the consideration of safety and function that people in the ancient times produced residential buildings and their derived residential spatial environments, which provide people with shelter from the wind and rain, and a place to escape from wild animals. The safety and efficacy of the spatial environment are closely linked, and a spatial environment that does not make users feel safe is difficult to bring users a good use

and emotion Experience. focus on the "efficacy" of the spatial environment, the spatial environment to provide users with functionality and efficiency to ensure that the spatial environment helps users to obtain a pleasant feeling of self-realisation. This will help the user to get a pleasant feeling of self-realisation.

The "comfort" feature of the spatial environment emphasises the creation of a comfortable spatial environment for the user, which stimulates pleasant feelings by satisfying the user's needs at the physiological level.

The feature of "privacy" emphasises the psychological needs of users for a private environment during their behavioral interactions, and stimulates the users' pleasant feelings through the satisfaction of their psychological needs for privacy.

(2) Spatial environment characteristics that satisfy the "visual" level

Among the user's many senses, vision is undoubtedly one of the most complex and important senses, which is because most of the external stimulus information that people feel comes from vision. When people look at the object, the image of the object through the pupil and lens, falling on the retina, retinal optic nerve cells in the light stimulation, the signal will be converted into bioelectric signals to the human brain, the human brain through experience, memory, analysis, judgement, and other complex processes to form the shape of the object, colour and other concepts. The greatest advantage of vision is not only that it can be used as a medium of high clarity, but also that it can provide an endless wealth of information about the world and various objects and events. "Vision is one of the most fundamental instruments (or media) of thought" (Arnheim, R. (1987)), and all

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the physiological sensory activities of vision are closely linked to the rational activities of the visual mind.

The characteristics of the spatial environment that satisfy the user's "visual" level are "richness", "order" and "novelty".

The user's need for "richness" and "order" comes from the user's instinctive need for visual aesthetics. Human visual aesthetics needs to maintain a certain degree of order, but at the same time there is also a desire for richness and change.

Users for the visual effect of the space environment "novelty" demand is the user for the novelty of the pursuit of a stimulus, people are eager to get in the spatial environment of the visual experience of novelty and beyond the conventional stimulus brought about by the pleasurable feeling.

(3) Spatial environment characteristics that meet the "reflective" level

At present, we are in a world where the pace of life and work is accelerating, and people also have the need for spiritual satisfaction in the spatial environment. Focusing on the "cultural", "fashionable" and "personalised" characteristics of the spatial environment, through the user's high-level thinking activities, the spatial environment expresses the deeper connotation of understanding It also stimulates the use of emotional experience and satisfies the "reflective" level of the user's emotional needs.

The characteristic of "cultural" is to reflect different heterogeneous cultural connotations and different national personalities in the spatial environment, to oppose the international design mode, to abandon the environmental decoration

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without a sense of place, and to highlight the regional characteristics and cultural features in the design of the spatial environment.

In the information age, the spiritual needs of human beings have also changed, and "finding a way to reflect the diversity and complexity of our world and society" has become a pursuit of people. Focusing on "personalization" in spatial environments that reflect individual/group differences, evoke users' thoughts and memories, and display users' own preferences, interests and identities can help stimulate users' sense of identity and belonging.

The "fashionable" character of the spatial environment requires that the spatial environment can reflect the advanced social consciousness or aesthetic orientation, and can meet the needs of users in pursuit of fashion.

2.4 LITERATURE REVIEW ON EMOTIONAL DESIGN

Emotional design is a product design concept and method that emerged in the late 1980s. American scholars Norman, D. A. and Delaporte published the book "User-Centered System design: New Perspectives on Human-Computer Interaction" in 1986, for the first time put forward "user-centered design". "which can be considered as the original concept of Emotional design. However, there is no uniform definition in the academic and engineering communities (Luo & Pan, 2007). In Japan and Korea, it is generally referred to as "Kansei engineering" (Yamamoto, K. 1986. Nagamachi, M, 1996), and there are related research organisations such as the "Kansei Engineering Society". "There are also related research organisations such as the Kansei Engineering

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Society. The reference to Kansei Engineering is generally accepted in the European academic community. In China, engineering academics generally accept the Japanese concept of Kansei Engineering, which is called "perceptual imagery or perceptual intention" (Su, J.N. & Li, H.Q. 2005). Zhou, M.Y. 2005), some scholars combine perceptual imagery with artificial intelligence on the basis of which they propose the theory of artificial emotion, which some scholars call "perceptual design" (Zhu, B., Jiang, P. Z., & Su, J. N., 2004), and some scholars in art and design schools are in agreement with those in the United States. Some scholars in the School of Art and Design have adopted the term "Emotional design" in line with American scholars (Kan, 2006. Zhang, F. & Tang J. 2004).

In English, Emotional design is generally expressed as "effective design" and "emotional design", which are often interchangeable, but there are some subtle differences. There is also a subtle difference between the two. The former generally refers to product design that brings consumers positive emotions, such as like, happy and other emotional responses; the latter has a certain neutral colour, including both positive and negative emotions, such as painful memories. From the analysis of the connotation of the words, "emotional design" is greater than "effective design".

Scholars at home and abroad have carried out extensive research on the theory and application of Emotional design. The main research on Emotional design includes the measurement, analysis and modelling of consumer's emotional factors, and the conversion of emotional factors to product design parameters, etc. Many literatures have studied different aspects of Emotional design, and a wide range of

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theories and methods have been used. There are many theories and methods used in the literature on different aspects of Emotional design. However, looking at a large number of Chinese and foreign literature on Emotional design, it can be found that only the following three theoretical systems are recognised as being able to form a theoretical system: Emotional design represented by Professor Norman, D. A.'s three-level theory, Affective Computing represented by Professor Picard, R. W. of the Massachusetts Institute of Technology, and Affective Computing represented by Professor Picard, R. W. of Japan's Affective Computing. Affective Computing represented by Prof. Picard, R. W. of MIT, and Kansei Engineering represented by Prof. Mitsuo, N. of Hiroshima University, Japan (Chen, Jiang, He, & Wu, 2022). These three theories are mainly introduced below:

(1) Kansei Engineering

Kansei Engineering, as a representative method in Emotional design, guides and evaluates the design process by capturing users' perceptual imagery of product attributes and finding quantitative relationships between their subjective responses and design features (Lévy, P. D., 2013). The first research paper on "Kansei Engineering" was "Research on Emotional Engineering" by Professor Mitsuo, N. of Hiroshima University, Japan, published in 1975 in the Journal of Ergonomics and Engineering, which was the beginning of the Kansei Engineering research (Li , Liang & Liu, 2016). (Li , Liang & Liu , 2016). In 1988, at the 10th International Congress of Ergonomics held in Sydney, "Emotion Engineering" was officially named Kansei Engineering, and the term "Kansei Engineering" has been used ever since. Since then,

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the term "Kansei Engineering" has been officially used. As a product development technology based on ergonomics and computer science, Kansei Engineering design research is mainly divided into three aspects: grasping and categorising consumers' Kansei and needs for products from the perspectives of ergonomics and psychological assessment; establishing a systematic framework by using computer technology, and identifying the design features of a product from the user's intention, such as expert systems, neural network models, and the use of computer technology. Examples include expert systems, neural network models and genetic algorithms; and the use of Kansei Engineering as an ergonomic technique for mathematical structural modelling (Nagamachi, M. 1995. Nagamachi, M. 2002).

With the success of Kansei Engineering in practice, it has gradually spread to Western Europe and countries such as the United States, Korea and China. Although Kansei Engineering still has some problems to be solved, such as how to deal with the differences in the understanding of sensibility of different individuals, how to quantitatively describe the mapping relationship between the product elements and the sensibility terminology, etc., it is still by far the most humane and effective method to support the development of emotive products. In the field of tangible product design, it is basically equivalent to the Emotional design referred to in this paper.

(2) Affective Computing

The earliest research on Effective Computing can be traced back to 1985, when it was first mentioned by Professor Minsky (one of the founders of artificial

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intelligence) of MIT in his monograph "The Society of Mind". The term "Effective Computing" was officially proposed by Professor Picard of MIT in his 1995 article "Effective Computing". "Effective Computing" is defined as "calculations related to, derived from, or capable of influencing emotion factors" (Russell, J. A. 1980). Its main research content includes: emotion signal acquisition, emotion state recognition, understanding of emotion information, and expression of emotion (Picard, R. W. 2003). The acquisition of emotion signals refers to the acquisition of physiological signals from users through sensors, including speech, facial expressions, body posture, blood volume pulses, skin electric reactions, etc; Emotion state recognition refers to the analysis and recognition of the obtained emotion signals to determine internal (invisible) emotions; The understanding of emotion information refers to the ability of computers to analyze the causes of emotions and provide reasonable and appropriate feedback on them; The expression of emotion refers to simulating the expression of emotion to users through computer interaction devices and further applying it in design practice (Tao, J., & Tan, T. 2005)。

(3) Emotional design

Norman, D. A., as a world-renowned cognitive psychologist, has long been committed to product usability research, and has written a series of books exploring the relationship between design and emotion, and his advocacy of "user-centred" design principles has been deeply rooted in the design community. Norman points out the diversity of human emotion and analyses how to better integrate emotion into product design from the perspective of psychology, so as to achieve the unity of

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product aesthetics and usability. The theories put forward by Norman, D. A. laid a solid foundation for the development of Emotional design research.

In the book "Emotional design: Why We Love (or Hate) everyday things", Norman, D. A. explains the important position and role of emotion in design based on three different dimensions of design: "visual", "behavioral" and "reflective". "behavioral" and "reflective" as the basis of the three different dimensions of design, explains the important position and role of emotion in design, and emphasizes that product innovation and design from these three levels will probably cause consumers to be surprised and generate the impulse to buy. Among the 3 levels, the "visceral" level refers to the sensory stimulation brought by the product, which reacts very quickly to make a judgement on good or bad, safe or dangerous, and sends appropriate signals to the muscles (motor system). This is the starting point for emotion processing and is determined by biological factors. The "behavioral" level, on the other hand, is where most human behaviours reside, and refers to the skills that consumers must learn to master, to trigger emotion from the use of a product, to gain a sense of achievement, etc. Its activity can be enhanced or inhibited by the reflective level, which in turn can enhance or inhibit the instinctive level. The highest level is the "reflective" level, which is a deeper level of emotion, awareness, understanding, personal experience, cultural background, and other factors that are intertwined in a complex emotion within the consumer as a result of the first 2 levels.

Professor Norman's book refers to design in a broad sense, including not only

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product design, but also software, interaction, game, service design, etc. Three-levels theory is not a specific design guideline, but a research philosophy.

2.4.1 Foreign Research on Emotional Design

Emotional Design, as an important field in design, has received much attention internationally in recent years, and the field has accumulated a large amount of literature. Web of Science is a leading global database of scientific literature, providing high-quality research literature from multiple disciplines, including journal articles, conference papers, patents, and other scholarly resources. It covers a wide range of fields including natural sciences, social sciences, humanities, and engineering and technology, and helps researchers access the latest scientific findings and trends. With its powerful citation tracking feature, users can track research impact and citations, and discover relevant research and research collaboration opportunities. Web of Science provides important support for academic research, scientific projects and thesis writing.

By searching the Web of Science database, the search strategy was Title="Emotional Design", Search in "All databases", and the search time span was set to 887 articles. The time span of the search was set to all years (i.e., 1900 to present), and a total of 887 articles were obtained. The main research areas (top5) are: arts and humanities (254), engineering (250), computer science (211), psychology (133) and education research (82), and the number of articles per year (>30) tends to stabilise from 2010 to 2023. Among them ARTICLES is 576 and Web of Science core database

literature 250. In order to ensure the high relevance of the references, further screening was done with the screening criteria: arts and humanities field and academic papers, which yielded 183 documents. Finally, further screening of the titles and abstracts of these literatures revealed that there are more literatures on product design, packaging design, human-computer interaction, and educational research, while there are relatively few literatures on interior design and spatial design, which are closely related to this study (table2.3). Based on the limited literature, it was summarised and analysed in detail.

Kim, M.-D. (2005) argues that customers' emotional resonance and experience can be triggered through the creation of site-specific and experiential designs that not only consider the functionality of the space, but also emphasize the interaction between people and the space.

Hakatie, A. T. R. (2006) et al. conducted a study on users' cognitive and emotional responses to product design intentions through furniture design case studies to validate the theory proposed by Norman.

Grace (2008) researched from three aspects: objects in hotel rooms, users' behaviours and users' motion experience, and proposed how to realize the motion value of the spatial environment through hotel spatial environment design, and how to create an environment that causes users' corresponding motion experience.

Banu Manav (2006) This study explored existing ideas about the association of colours with emotions and in particular discussed how colours can be used as a form of communication to meet human needs in the home. Fifty participants from

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different age groups were invited to the study and asked to match a set of adjectives with a sample of colours from the catalogue of a well-known colour production company in Turkey. The results of the study showed a strong dependence on the choice and use of green in the residential environment. Emotional responses to colour varied with hue and saturation. According to the test results, gender and age were determining factors that influenced the choice of black, a colourless colour.

The article Seuntiens & Vogels (2008) investigates how to create different contextual atmospheres in terms of indoor light settings. Through a number of experiments, the authors suggest that the four light source characteristics of brightness, light colour, light angle and dynamic light play an important role in creating the four moods of comfort, relaxation, excitement and activity.

In Hotel Stay Scenarios Based on Emotional design Research (LO, 2010), the authors used photo evaluation and in-depth interviews to propose a hotel design method to stimulate female business users' emotion experience. Through the research and analysis, the author concluded that the three aspects of motion, motion stimulation and user needs should be considered together to bring a good motion experience for users.

In The dark side of enjoyment: Using negative emotions to design for rich user experiences (Fokkinga, Desmet & Hoonhout, 2010), the authors suggest that stimulating negative emotions in the interaction between a product and its user does not necessarily have a negative impact on the user. In Fokkinga, Desmet & Hoonhout, 2010, the authors suggest that in the interaction between a product and its user, This material is reserved for educational use only, not allowed for commercial use.

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arousing negative emotions does not necessarily have a negative impact on the user, and that certain measures can be taken to bring the user a richer emotional experience by arousing negative emotions.

The authors of the article "Designing a Creative Playground with Positive Affects" (Mohammadpour, Aslefallah & Mohammad ,2010) used user perceptual needs research as a part of the pre-design work, and used the Quality Function Deployment (QFD) approach to design novel children's playgrounds. A study was conducted with 45 children aged 4-12 years and their parents to understand their perceptual needs for a children's playground and to develop a design based on these needs, with favourable results.

Yoon Yoonseong and Yoon Jaeun's (2010) study on trends in emotive design in the internal and external spaces of residential cultural centres examines how emotive design has been embodied and applied in these spaces. Through site visits and design analyses of several residential cultural centres, the study found several key trends in affective design in both internal and external spaces, including the use of natural elements, clever mixing of colour and light, multi-functional space design, and interactive installations. These design strategies aim to enhance the emotional experience and psychological comfort of the user, so that the space not only fulfils functional needs but also triggers a positive emotional response from the user. The study concludes that affective design has a significant impact in the internal and external spaces of residential cultural centres, helping to enhance the attractiveness of the space and user satisfaction. Through emotional design, the space can better

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establish an emotional connection with the users, thus enhancing the overall spatial experience.

Min's (2011) research focuses on the application of emotive design in smart spaces, particularly architectural company showrooms centred on future homes. Through fieldwork and design analyses of several architectural company showrooms, the study found that affective design plays an important role in smart spaces, aiming to enhance users' quality of life and emotional experience. Emotional design strategies include intelligent control systems, humanised interface design, multi-functional furniture and environmental ambience creation to create a more interactive and comfortable living environment. The study concludes that affective design can effectively improve the living experience so that smart spaces not only meet functional needs, but also resonate emotionally with occupants and enhance their overall life satisfaction. This study demonstrates the prospect and importance of the widespread use of affective design in future homes

Kang, S.-J.'s (2011) study focuses on the needs analysis of small houses based on household preference types and explores the application of emotional design to these dwellings. Through a preference survey and needs analysis of different types of households, the study found that emotional design can significantly enhance the living experience of small houses. Emotional design strategies include flexible layout of space, careful selection of colours and materials, integration of smart home systems, and personalised and customised home solutions. These designs not only met the functional needs of different families, but also improved living comfort and

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satisfaction through meticulous emotional care. The study concludes that emotional design has significant value in small houses, effectively addressing the challenges posed by limited space and enhancing the overall quality of life for occupants.

Reddy, S. M., Chakrabarti, D., & Karmakar, S. (2012) stated that user-environment interactions are unavoidable and can have positive or negative effects. Good interior space design needs to integrate and harmonise physical, environmental and cognitive factors to meet the functional and emotional needs of the user while balancing personal choice with standardised safety and convenience requirements.

Choi's (2016) study focused on the expression of emotive design in Expo pavilions, exploring how design elements can be used to elicit emotional responses from visitors. Through fieldwork and design analysis of several Expo pavilions, the study found that emotive design has a significant role to play in the pavilions. Key emotive design strategies include the use of light and shadow effects, colour palettes, interactive installations and multi-sensory experiences to enhance visitors' sense of immersion and engagement. The study concludes that successful affective design can enhance the attractiveness and impact of pavilions, so that visitors not only gain information and knowledge, but also have deep emotional resonance, thus enhancing the overall visitor experience. This indicates that emotional design has a broad application prospect and important value in exhibition halls and other public spaces.

Cho, J. Y., & Lee, E.-J. (2016) explored the effects of interior colour in retail

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atmospheres on perceived shop luxury, consumer mood and preferences. A total of 218 U.S. consumers participated via an online survey using hypothetical shop images reflecting high or low luxury retail atmospheres (manipulated via interior colour). Findings statistically support that (a) participants exposed to a high-luxury retail ambiance condition (high-luxury colours) reported higher levels of perceived shop luxury than participants exposed to a low-luxury retail ambiance condition (low-luxury colours); (b) perceived shop luxury increased feelings of pleasure and excitement, but not feelings of dominance; and (c) feelings of pleasure and excitement increased shop preferences.

Lombana, M., & Tonello, G. L. (2017) found experimentally that the combination of light direction and wall colour has a significant impact on customers' visual and emotional responses in retail space design, providing designers with perceptual guidance for creating ideal retail environments.

Tuszyńska-Bogucka et al. (2020) analysed the emotional experience of volunteers in architectural spaces in the Lublin region of Eastern Poland through eye-tracking and found that interior design significantly affects people's emotional experience and overall well-being, and that specific design elements can either enhance or diminish psychological and physical comfort.

Cha, S. H., Zhang, S., & Kim, T. W. (2020) This study recruited 55 student participants to experience four different colours of the IVE model (red, green, blue, and white), and measured their mood, heart rate variability, and performance on a proofreading task during immersion, as well as their post-experience sense of

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presence. The results of the study support the three hypotheses that (1) the IVE indoor colour scheme affects participants' mood, (2) the IVE indoor colour scheme affects participants' task performance through the proofreading exercise, and (3) the IVE indoor colour scheme affects participants' heart rate. Specifically, red was perceived as heavier, warmer, more exciting, more stressful, and unpleasant. Significantly fewer errors occurred during task completion with white immersion than with the green colour scheme. Although each colour reduced heart rate, significant heart rate reductions were detected in the blue, white and green scenarios. Most participants felt a sense of presence while experiencing all four coloured IVE spaces. Based on these results, we conclude that IVE has the potential to be used in indoor colour research to overcome the limitations of traditional colour research tools.

Kim, D., Hyun, H., & Park, J. (2020) This study examines the role of colour in luxury service environments. By investigating how each dimension of colour (hue, saturation or brightness) affects customers' perception of luxury hotel room aesthetics, the study explains customers' emotional and behavioral responses to luxury hotel rooms painted in different colours, using the S-O-R model. The results of the study showed that soft and bright colours within the same shade encouraged both classic and expressive aesthetic perceptions. Furthermore, the results indicated that customers' aesthetic perceptions influenced their approach responses in luxury hotel environments through feelings of perceived pleasure and dominance, which were moderated by their luxury consumption motives. This study extends previous literature by elucidating the process of how colour influences customers' aesthetic

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perceptions, affective states, and behavioral responses, and may inform the composition of luxury hotel service scenes that reflect customers' consumption motivations.

Xu, Y., & Wu, S. (2022) proposed an emotional needs problem based on neural network models and analyzed a case study of emotional based indoor color and space humanization design. The experimental results showed that in the evaluation of emotional needs of indoor environment users, users' emotional needs for all three levels were above 3.00. Users have the highest emotional needs at the usage level, reaching 4.24. Users are more concerned about the practical value of indoor environments and hope to obtain a pleasant emotional experience by meeting the needs of practical value. This literature also uses the three-level theory of affective design, and all 10 affective indicators used are the same as those in this study.

Table 2.3 Main literature on the theme "Space & Emotion"

serial number	author	Research theme	Research methodology	Key findings
1	Grace (2008)	Objects, user behaviour and emotional experience in hotel rooms	investigate and research	Realise emotional value by designing hotel space environments to create environments that trigger emotional experiences Light source brightness, light colour, light angle and dynamic light characteristics play an important role in creating the four contextual atmospheres (comfort, relaxation, excitement and activity)
2	Seuntiens & Vogels (2008)	Interior Lighting and Ambience	test	

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Table 2.3 Main literature on the theme "Space & Emotion"

3	Lo. (2010)	Hotel design that inspires emotional experiences for female business users	Photo assessments, in-depth interviews	Enhancing the emotional experience through three aspects of design: emotion, emotional stimulation and user needs Stimulating negative emotions does not necessarily bring negative consequences, and emotional experiences can be enriched through negative emotion design Researching and designing according to the perceptual needs of children and parents, with good results
4	Fokkinga, Desmet & Hoonhout (2010)	The Role of Negative Emotions in Product-User Interactions	theoretical analysis	Validating Norman's theory and analysing users' emotional responses to product design intentions Interior design significantly affects emotional experience and overall well-being, with specific design elements enhancing or diminishing psychological and physical comfort Emphasising spatial functionality and human interaction with the space, the design can trigger an emotional experience Enhance emotional response with light and shadow effects, colour schemes, interactive devices and multi-sensory experiences to increase the attractiveness and impact of the pavilion
5	Mohammadpour, Aslefallah & Mohammad (2010)	Research and design of perceptual needs of children's playgrounds	Quality Function Deployment (QFD), Research	Enhance the user's emotional experience and quality of life through intelligent control systems, user-friendly interface design, etc.
6	Hakatie, A. T. R. (2006)	User Perception and Emotional Response in Furniture Design	Case Studies	
7	Tuszyńska-Bogucka et al. (2020)	Emotional experience of architectural space	eye tracking	
8	Kim, M.-D. (2005)	Emotional resonance through the design of specific places and experiences	theoretical discussion	
9	Choi (2016)	Emotional Design Expressions in Expo Pavilions	Field visits, design analysis	
10	Min (2011)	Emotional Design in Smart Spaces	Field visits, design analysis	

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Table 2.3 Main literature on the theme "Space & Emotion"

11	Yoon Yoonseong & Yoon Jaeeun (2010)	Trends in emotional design of internal and external spaces of residential cultural centres	Field visits, design analysis	Use of natural elements, colour and light, multi-functional space design and interactive installations to enhance the emotional experience
12	Kang, S.-J. (2011)	Emotional design applications in demand analysis for small houses	Preference surveys, needs analyses	Enhancement of living experience and satisfaction through flexible layout of space, choice of colours and materials, etc.
13	Lombana, M. & Tonello, G. L. (2017).	The impact of light and colour in retail space design	test	Light direction and wall colour combinations have a significant impact on customers' visual and emotional responses
14	Ji Young Cho & Eun-Jung Lee (2016)	Perceived and emotional impact of colour on luxury in the retail atmosphere	Online Survey	High luxury colours increase perceived luxury and pleasure, influencing shop preferences
15	Reddy, S. M., Chakrabarti, D. & Karmakar, S. (2012).	Emotional impact of user-environment interaction	theoretical discussion	Good interior design needs to integrate physical, environmental and cognitive factors to meet emotional needs
16	Cha, S. H., Zhang, S. & Kim, T. W. (2020).	The effect of IVE interior colour schemes on mood and heart rate	test	Different colours affect mood and heart rate, with white reducing task errors and blue, white and green lowering heart rate
17	Kim, D., Hyun, H. & Park, J. (2020).	The role of colour in a luxury service environment	Investigations, S-O-R model	Soft and bright colours promote aesthetic perception, pleasure and dominance influence proximity response
18	Banu Manav (2006)	Colour and emotional associations in housing	investigate and research	Colour emotional responses vary by hue and saturation, and gender and age influence colour choice
19	Xu, Y., & Wu, S. (2022)	Research on Emotional Needs in Humanized Design of Indoor Colors and Spaces	Questionnaire and case analysis	Users prefer to obtain a pleasant emotional experience by satisfying practical value needs.

The research spaces in the existing literature mainly focus on specific environments such as hotel rooms, exhibition halls, and smart spaces; the types of subjects mainly focus on specific groups of people, such as students, business users, children and their parents; most of the research methods use fieldwork, in-depth interviews, and experiments for the analysis of emotional experience and the validation of design strategies; and most of the research foci are focused on the light, colour, layout, etc., of the exhibition and commercial space and layout, etc. As a non-standardised living space, the emotional design strategy of B&B needs to pay more attention to the personalised needs and emotional connection of the occupants, which is different from the design objectives of commercial spaces.

In summary, although existing literature has explored the study of emotional experience in different contexts, an in-depth understanding and comparative analysis of the specific residential context of B&Bs and the emotional experience needs of consumers from different backgrounds in this context remains an under-explored area of research.

2.4.2 Domestic research on emotive design

CNKI (China National Knowledge Infrastructure) is China's largest integrated platform for academic information resources, providing a wide range of academic literature resources, including journals, dissertations, conference papers, newspapers, yearbooks, tool books and other types of literature. Its rich literature resources and powerful search function provide great convenience for researchers and educators,

and are important tools for academic research and knowledge dissemination. Therefore, the domestic research literature mainly comes from CNKI.

As a specific type of accommodation, B&B space belongs to a branch of interior space design. Therefore, "interior design" was included in the scope of the literature search in order to provide a stronger and richer literature base for the study of B&Bs.

Based on the CNKI database, the keywords: interior design, motion design, Homestay inn design, Homestay inn&emotion, with the qualification of "title" and the year as the full time period. The following search results were obtained (Table 2.4):

Table 2.4 Summary of the number of relevant documents searched by CNKI

Scope	keywords	journal articles	doctoral	total
CNKI	interior design	20307	2878	27739
	emotional design	4027	1126	6284
	Homestay design	586	291	1058
	homestay & emotion	19	20	46

A total of 27,739 documents were searched under the title of "interior design", which indicates that interior design as a professional field has a very high level of research activity, and the development of the discipline tends to be mature. The large number of documents shows that the academic community pays attention to interior design, as well as the rich research results in this field.

The number of documents searched with the title of "emotional design" is 6,284. Before 2000, there were less than 10 articles on emotional design each year; since 2007, the number of articles has exceeded 100 and increased year by year; This material is reserved for educational use only, not allowed for commercial use.

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from 2016 to 2021 is the peak period, and the number of articles will remain stable at more than 400 each year, which reflects that the research on emotional design is getting more and more attention in China in recent years. This reflects that the research on emotion design in China is gradually being paid attention to in recent years. In the retrieved literature, it mainly focuses on product design, packaging design, interaction design, visual communication design and other fields.

Searching with "Homestay inn design" as the title, there are 1058 documents in total, from the time point of view, the research in this field has appeared only since 2014, indicating that the attention and research on the design of B&B in China is relatively late, and compared with some developed countries, the research and practice in this field in China has a shorter time to start; It began to show a linear upward trend in 2016 and peaked in 2019. This indicates that B&B design has gradually become a hotspot of attention in academia and the industry; the research has basically stabilised in recent years, indicating that the research results in this field have been accumulated to a certain extent.

A total of 46 documents were searched with "Homestay inn & emotion" as the title, of which only 19 were in journals. The lack of literature will affect the academic credibility of the study. Therefore, the literature on the topic of "interior space" was included in the scope of reference for this study. Through the comparative analysis of the main literature (table 2.5), it is found that the literature collectively emphasises the importance of emotional design in different types of spaces. Through the rational use of design elements and technological means, it is possible to create

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spatial environments that satisfy people's emotional needs and enhance the overall experience and satisfaction of users.

Table 2.5 Key literature on 'space & emotional design'

Author (date of publication)	Key points	Specific design elements	design purpose	Other key points
Pan Zhen (2011)	Emotional design not only meets functional needs, but also focuses on psychological and emotional experiences	Colour, light, materials, spatial layout	Enhancement of occupants' comfort and well-being	Emphasis on humanising and personalising the design
Liu Shanshan (2012)	Emotional design makes spatial environments more attractive and infectious	Various design techniques and elements	Enhancement of spatial aesthetics and improvement of mental state and mood	Case studies demonstrate emotional elements
Tian Yaxing (2013)	Children's cafe design focuses on children's emotional experience	Brightly coloured décor, fun furniture, interactive space layouts	Making children feel safe and happy	Emotional design is especially important in children's spaces
Wen Qian (2004)	Through the clever use of colour, light and shadow, materials and spatial forms	Enhancement of space accessibility and attractiveness	Psychological satisfaction and pleasure for the user	Emphasis on emotional content
Ma Hui (2010)	Emotional design enhances the human emotional experience	Different types of space design	Increase the value of space use and emotional resonance	Human-centred design concepts
Xia Ying Chong (2019)	Emotional design in digital media exhibition design	Multi-sensory experience, interactive design	Enhanced exhibition interactivity and immersion	Enhancing Audience Engagement and Memory
Liang Bing (2008)	Emotional design concepts in interior spaces	Colour, light, materials, spatial layout	Emotional resonance	Enhance user satisfaction and well-being
Li Lingling (2021)	The application of ceramic plastic ornaments in the emotional design of interior space	Shape, texture, colour	Creating a warm and cosy atmosphere in the space	Enhance the cultural connotation and artistic atmosphere of the space
Yang, Yinbing et al. (2017)	Emotional design in public space	Colour, material, form, function	Enhancing the experience of using public space	Promoting social interaction and emotional exchange

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Table 2.5 Key literature on 'space & emotional design'

Xu Jing et al. (2017)	Emotional design of metro interiors	Colour scheme, comfortable seats, user-friendly indication system	Create a warm and comfortable travelling environment	Enhance passenger satisfaction and travelling experience
Zou, Yuemei & Xiao, Derong (2017)	The Application of Emotional Design Concepts in homestay inn Spaces	Unique decorative style, warm space layout, personalised service	Creating a homey atmosphere	Enhancing the attractiveness and competitiveness of homestay inns
Xiang Lihui & Zhang Yushan (2023)	Application of Changsha Kiln Ceramic Cultural Elements in homestay inn Interior Design	Morphology, ornamentation, colour	Enhance the cultural taste and artistic value of the space	Creating a cultural atmosphere and emotional experience
Li Xueyan, Ren Xinwei & Cen Yating (2021)	The Application of Vernacular Materials in homestay inn Interior Design	Natural and rustic materials and craftsmanship	Creating a warm and intimate atmosphere in the space	Enhance the emotional experience and satisfaction of residents

There is relatively less literature on the theme of "homestay inn & emotion", among which the following articles provide more references to this study: Lin Pinpin and Lin Xi (2023) discuss the application of emotional design in the design of the brand image of the homestay inn, and through the design of colours, materials and storytelling, the emotional resonance of the brand is enhanced. enhance the emotional resonance of the brand.

Min Ju (2022) analysed the characteristics of rural homestay inn spaces in Yangzhou, and enhanced the spatial atmosphere and user experience of homestay inns by applying the three-level theory of emotional design, i.e., visual attraction, functional layout, and cultural integration, to the design of rural homestay inns in

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Yangzhou.

Tao Ziyue's (2022) study explored the application of affective design in the interior space of a historical and cultural themed hotel to create a spatial atmosphere rich in storytelling and emotional resonance through the integration of historical and cultural elements, emotional triggers, and interactive experiences in order to enhance the guests' emotional experience and sense of cultural engagement.

Li Hehe (2021) combines localised elements with emotional design, using regional cultural symbols, traditional crafts and interactive experiences to create a B&B space with local characteristics and humanistic care, and to enhance users' emotional resonance and cultural identity. Based on the background of "Internet+", Pu

Yingjie (2020) used visual elements, brand story and user interaction to enhance the visual image of the homestay inn brand, in order to meet the emotional needs of users in the process of online booking and experience.

Shen Luxin (2020), a master's degree from Huaqiao University, takes homestay inn in Wuyi Mountain Scenic Area as the research object, combines the instinctive, behavioral and reflective three-level theory of Emotional design, researches its optimization design strategy, and discusses the application of part of the strategy;

Sun Xiaorui's (2019) research shows that the application of Emotional design to B&B hotels through emotion perception Soft decoration design, the specific methods include the choice of colour, material and decorations, aiming to create a warm and

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personalized spatial atmosphere, enhance the psychological comfort and emotional resonance of users, in order to meet the emotional needs of users.

Chen Lu (2019) from the Northern Polytechnic University took the emblematic homestay inn as the research object, researched the experience needs and behavioral patterns of tourists, and combined with the motion Experience design theory and Maslow's hierarchy of needs theory, explored and analysed the design of the emblematic homestay inn, trying to explore the dialogue between people and space, and to explore the relationship between people and space, so as to meet the emotional needs of users. Emotionally dialogue, to better protect and develop the Huizhou ancient folk houses, and to provide a basis and useful reference for the way of creating homestay inn space;

Mei Zisheng (2018) explored the specific application of emotional design concepts in homestay space through theoretical analysis and field research, emphasizing that designers should create warmth through the elements of colour, material, spatial layout and decoration, personalised spatial atmosphere. The study found that emotional design can not only improve user satisfaction, but also enhance the market competitiveness of homestay inn brands.

Zou Jiao (2017) from Jiangxi Agricultural University, from the perspective of homestay inn tourists' emotional experience, analyzes the psychological needs and behaviors of homestay inn tourists, pushes back the output and expression of homestay inn vernacular cultural products, meets the tourists' personalized consumption needs, and realizes the healthy development of homestay inn tourism,

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thus promoting the brand competitiveness of homestay inns. and promote the protection and inheritance of local culture. In her study,

Chen Zhaoqian (2017), through a case study of a village lodging in Baileqiao, Hangzhou, points out that the user's emotional experience can be significantly enhanced by optimising design elements such as colour, material and spatial layout. The study emphasized that homestay inn design should focus on the realisation of emotional value so that users can obtain positive emotional resonance in the homestay inn environment.

In summary, the focus of domestic research is mainly as follows: (1) Most of the existing research focuses on the design of homestay inns in specific regions, and (2) most of the literature explores how emotional design can be applied to the spatial design of homestay inns, including the design of brand image and the integration of cultural elements. In addition, (3) research also focuses on how to enhance the emotional experience through design elements such as colours, materials and decorations. (4) Existing research methods mainly use qualitative methods, such as case studies and theoretical discussions.

2.4.3 Research Contribution

Based on a comprehensive review and analysis of relevant literature both domestically and internationally, this study identified limitations and deficiencies in existing research in specific regions, research methods, and research subjects. In view of this, this study aims to achieve innovative breakthroughs in the following areas.

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1). Regional Innovation Perspective: This study focuses on Dali, a unique tourist city in southwestern China. With its abundant natural resources and diverse ethnic minority cultures, this region is significantly different from other domestic tourism areas in terms of regional characteristics. Through in-depth analysis of Dali, this study aims to reveal the unique path and model of tourism innovation and homestay industry development in the region.

2). Innovative integration of research methods: This study adopts a comprehensive strategy of combining quantitative and qualitative research in methodology, achieving innovation in research methods. Specifically, the literature review stage employed qualitative research methods, constructing a theoretical framework and hypotheses for the study through in-depth interpretation and analysis of existing literature. In the data analysis stage, quantitative research methods were mainly used to rigorously verify research hypotheses by collecting and processing a large amount of first-hand data. The organic combination of qualitative and quantitative research not only enhances the scientific and rigorous nature of the research, but also enriches the depth and breadth of the research.

3). Novelty of research object: Unlike previous studies on homestay design elements, this study shifts its focus to the emotional experience of homestay consumers. Through a detailed investigation of the emotional state of homestay consumers, this study aims to explore how consumer emotions affect key behavioral variables such as homestay selection preferences, satisfaction, and loyalty, in order to provide theoretical basis and practical guidance for emotional marketing strategies

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and service quality improvement in the homestay industry. The transformation of this research object not only broadens the perspective of homestay research, but also opens up new directions for the study of tourism consumer behavior.



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CHAPTER 3

RESEARCH METHODOLOGY

Methodology is a synthesis of research approaches and methods used on a specific discipline, and is a system of principles, principles and methods that govern a scientific discipline (Li, L. X., 2010). Therefore, it is extremely important to choose an appropriate methodology (Qian, W. L., 2004).

This study adopts a positivist research methodology that aims to test theories through hypothesis testing. The study began with a comprehensive and detailed literature review in order to formulate the research hypotheses. Subsequently, a random sampling method was used to distribute research questionnaires for data collection. Once data collection was completed, the data were collated and analysed using SPSS software. Data were analysed using descriptive statistics, non-parametric tests and post-hoc tests in order to fully explore the relationships and differences between different variables.

3.1 RESEARCH PROCESS

The research process of this study was divided into three parts: preparation phase, body writing and revision phase.

3.1.1 Preparation phase

Literature analysis method and fieldwork method were adopted in this stage. Firstly, taking national and local development policies into account, rich theoretical and empirical support was obtained by studying and analysing relevant literature on CNKI and Web of Science. Subsequently, a site visit to a local Homestay inn was conducted to obtain first-hand information. These steps led to the finalisation of the research topic, the development of a research outline and the selection of applicable research materials.

3.1.2 Body writing stage

The main text is divided into five chapters. The first chapter is the preface, which mainly introduces the problem, purpose and significance of the study. Literature sources are mainly Web of Science (WOS), CNKI, Google Scholar, Baidu Scholar, Ministry of Culture and Tourism of China (<https://www.mct.gov.cn/>), National Bureau of Statistics of China (<http://www.stats.gov.cn/>), 360 Personal Library (www.360doc.com/index.html), Sohu News (<http://news.sohu.com/>), Sina News Network (<https://news.sina.com.cn/>), and so on. The research method is mainly used in the literature analysis method; the second chapter is the literature review, It is writing about the reviewing about related theories and past research to review the state of the body of knowledge on the issue. Literature sources are mainly WOS, CNKI, Google Scholar, Baidu Scholar, etc.; Chapter 3 is Research methodology, it is the chapter which to describe about the process of data collection, case study

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selection or sample sampling and data analysis. Primary data were obtained through questionnaires, the sample size was determined based on the scholars' suggestions, and the data were analysed based on SPSS26.0. Chapter 4 is Data analysis, it is the part to show about the data analysis. it described with text, and table .Chapter 5 is Discussion and Conclusion,They are the part to discuss with the result of the research. the research should be wright with rational reasonable explanation by theoretical principals principles.

3.1.3 Revision phase

The revision phase consists mainly of revising, reviewing, equipping with diagrams and charts, and reference checking.

3.2 RESEARCH STRATEGY

Qualitative and quantitative research represent the different ways in which humanism and positivism each approach the problem (Table 3.1).

Table 3.1 Qualitative research versus Quantitative research

	Quantitative Research	Qualitative Research
Philosophical Foundations	Positivism	Humanism
Research Paradigms	Scientific Paradigm	Nature Paradigm
Logical Processes	Deductive reasoning	Inductive reasoning
Theoretical models	Theory Testing	Theory construction
Main objectives	Identify correlations and causal links	Deeper understanding of social phenomena
Methods of analysis	Statistical analysis	Textual descriptions and social phenomena

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Table 3.1 (Continue) Qualitative research versus Quantitative research

Main approaches	experiments, surveys	Field studies, case studies
Data collection techniques	Objective such as scales, questionnaires, structured observation	Subjective such as participant observation, in-depth interview
Research characteristics	Objective	Subjective

This study aims to explore the differences in emotional design among consumers with different characteristics. Given this research objective, a quantitative research strategy is the most appropriate choice because this method not only provides objective and measurable evidence about emotional design, but also allows statistical analyses to validate research hypotheses, thus ensuring the reliability and validity of the findings. Quantitative methods have been widely used because of the fact that things that can be measured or counted gain scientific credibility over the unmeasurable (Lakshman, M., Sinha, L., Biswas, M., Charles, M., & Arora, N. K., 2000).

3.3 RESEARCH METHODS

The most commonly used method for quantitative research is the questionnaire method (Gürbüz, S., 2017, Sinclair, M. A. 1975), the statistical software packages commonly used in social sciences research is SPSS (Ong, M. H. A., & Puteh, F., 2017).

3.3.1 Data collection Methods

Questionnaire forms are often standardised, thereby increasing the reliability, comparability, and precision of data from one region or time frame to another (Blalock HM. 1972; Johnson AW. 1978.).

The aim of this study was to explore the perceptions of homestay inn consumers about emotional design in homestay inn spaces. The questionnaire was designed based on the following research questions:

-What is the extent to which the interviewed homestay inn consumers demand the 10 variables of emotional design (safety, comfort, privacy, efficacy, richness, order, novelty, culture, individuality and fashion)?

-Do consumers with different characteristics (gender, age group, occupation type, education level and income level) have different needs on different emotional variable?

2) Prior to the questionnaire design, an extensive literature review was conducted to review relevant studies on consumer and emotional design. The questionnaire was referenced from the dissertation of Dr Qin Yang (2013), which has been validated for reliability and validity by the original author. In order to better adapt to this study, I have made modifications and adjustments to some of the issues.

① Object of research: changed from "indoor environment" to "homestay inn space", homestay inn is a specific type of indoor space.

② Answers to scale questions: 10 points instead of 5 to provide a more refined measure of satisfaction.

③ Number of questions: 15 questions instead of 18, because the deleted questions overlapped with the content of other questions and were easily confusing.

④ Presentation of the topic: Additional explanations of proper nouns in layman's terms have been provided in order to improve the fluency and accuracy of the answers.

3) The questionnaire consists of four parts (Figure 3.1): ① personal information: basic information such as gender, age, type of occupation, education level and income level of the participants is collected. ② Emotional variable at the instinctive level: including 4 variables of safety, comfort, efficiency and privacy. ③ Emotional variable at the visual aesthetic level: including 3 variables of visual richness, order and novelty. ④ Emotional variable at the reflective level: including 3 variables of culture, individuality, and fashion.

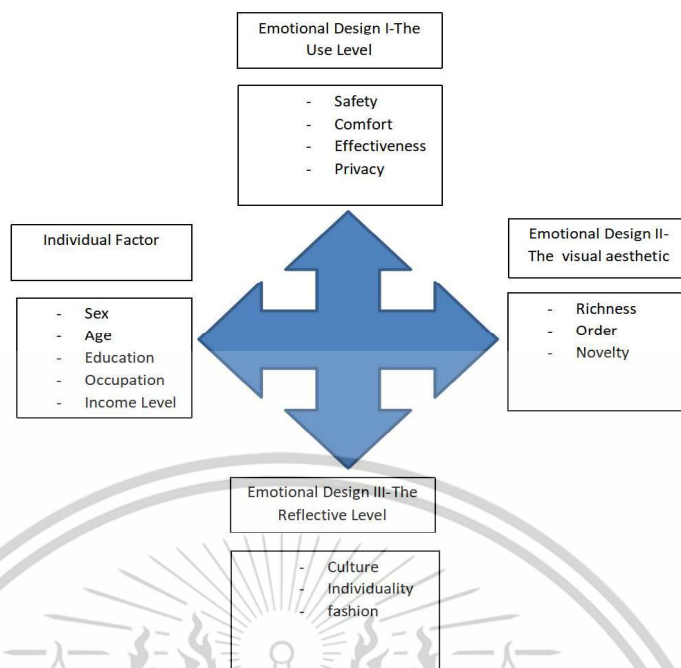


Figure 3.1 The framework of questionnaire

4) Question types include single choice and Likert scale questions. The single choice questions are about personal information and have multiple alternatives, so it is sufficient to choose a suitable answer. The scale questions are on a ten-point Likert scale, ranging from "Very unimportant" 1 to "very important" 10, in order to assess consumer satisfaction. Likert scale (Likert, R., 1932) is a commonly used survey scale to assess respondents' satisfaction with a question. scale that is used to assess respondents' attitudes or perceptions of an issue. The questionnaire in this study takes a subjective consumer evaluation approach to correlate satisfaction with indoor space characteristics, and the level of pleasure as a criterion for consumers to obtain emotional fulfilment.

5) Pretesting and revision. The first draft of the questionnaire was distributed to 30 consumers through the online platform for pre-testing. Based on the feedback

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from the pre-test, the vague questions in the questionnaire were revised, and the formulation of the questionnaire questions was adjusted to improve the fluency of the responses (for details of the revisions, please refer to 3.4 Reliability and Validity Test).

6) Finalisation and implementation

The revised questionnaire finally consisted of 15 questions and was distributed to the respondents using an online questionnaire. The data collection period was from August to November 2022 and a total of 916 valid questionnaires were collected. All data were anonymised after collection and stored in a secure database to ensure participant privacy and data integrity.

QuestionStar is a comprehensive online questionnaire design, distribution, and data collection tool. Developed by Changsha Ranxing Information Technology Co., Ltd. in China, it was officially launched in November 2006. It covers functions such as online surveys, exams, 360 degree assessments, and voting. The questionnaire design, distribution, and collection in this study were all completed on the QuestionStar platform due to its many advantages (Table 3.2).

Table 3.2 Advantages of Questionnaire Star

Strengths Category	descriptions
convenience	Friendly interface, easy to start, no programming skills required to design and distribute questionnaires. A variety of distribution methods are flexible and convenient, adapting to different research scenarios.
Rich functionality	Multiple question types and logical jump functions to meet the needs of complex questionnaire design. Provide a variety of questionnaire templates and appearance themes to enhance the professionalism and aesthetics of the questionnaire.
Real-time data monitoring	Real-time view of the progress of question-answering and data collection, timely adjustment of the survey strategy. Automatically count question-answering data and generate visual reports for easy data analysis.
Data Security	The platform guarantees data security and privacy, and user data confidentiality is high. A variety of export formats are provided to facilitate the subsequent analysis and processing of data.
cost-effectiveness	Online questionnaire distribution is cost effective and suitable for large-scale data collection. Reduces the cost of printing and distributing paper questionnaires, increasing the cost-effectiveness of the research.

3.3.2 Data analysis Methods

Data analysis is the part of explanation with how to analyze the data that explain with data analysis process and data analysis technique.

The main tool used for data analysis in this study is SPSS 26.0 (Statistical Package for the Social Sciences). SPSS is a statistical analysis software released by IBM for statistical analysis and research in the social sciences, economics, and behavioral science. It provides many powerful statistical analysis tools that can help users perform complex data analysis and modelling to better understand and analyse complex data (Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. , 2014). SPSS is today one of the most authoritative and internationally influential one of the statistical software. The software provides a wide range of statistical analysis

processes that play a large role in various industrial fields of social sciences and natural sciences (Xue, W., 2014; Feng, Y., 2015; Zhang, W. T., & Kwong, C. W., 2011; Wu, S., & Pan, I., 2014). The statistical analysis software SPSS provides us with a variety of correlation analysis procedures in the "Correlation (C)" submenu of the "Analysis (A)" menu.

According to the research objectives, a total of three methods of data analysis were used in this study. They are: descriptive statistics, non-parametric test and post hoc test (Table 3.3). ① Descriptive statistics were used to analyse the data in order to grasp the overall characteristics of consumers and the demand values of the emotional variable; ② non-parametric tests were used to analyse whether there were differences between different groups of people (gender, age group, occupational type, education level and income level) in terms of the emotional demand variable. ③ Post-hoc tests were then used to further analyse in which variables the groups with significant differences differed".

Table 3.3 Objectives of the study and its method of analysis

order	Analysed content	Methods and technology
1	Describe the general characteristics of Dali B&B consumers.	Descriptive statistical analysis
2	To analyse the overall level of demand for emotional experiences among B&B consumers.	Descriptive statistical analysis
3	Compare the differences between consumers of different genders on the above emotional design variable and identify possible gender differences on the emotional experience needs.	Non-parametric tests
4	To explore the differences in the emotional design of consumers of different age groups in B&Bs and to analyse the trends in their preferences for emotional experiences.	Non-parametric tests

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Table 3.3 (Continue) Objectives of the study and its method of analysis

5	To study the differences in emotional design of consumers from different occupational backgrounds, such as the priorities and experience preferences of self-employed entrepreneurs and public employees in emotional experiences.	Non-parametric tests
6	To analyse the differences in the weight distribution of consumers with different levels of education on the emotional designvariable, and to explore the influence of social and educational factors on the needs of emotional experience.	Non-parametric tests
7	To analyse the differences in the weight distribution of consumers with different income levels on the emotional designvariable, and to explore the impact of economic factors on the demand for emotional experiences.	Non-parametric tests

3.3.2.1 Descriptive statistics

The descriptive statistics of this study are designed to capture the overall characteristics of consumers and their overall perception of emotional design. The frequency, concentration trend, dispersion and distribution of the data are obtained by statistically describing the data related to consumers in general and all variables. Commonly used descriptionvariable include mean, median, quartile, variance and standard deviation. The mean and median are generally used to indicate the concentration trend of the data, while the variance and standard deviation are generally used to indicate the degree of dispersion of the data.

3.3.2.2 non-parametric tests

Non-parametric comparative analyses are often performed when variables do not satisfy the assumption of normality and the nature of the target measurement variable is a nominal or ordered measure (Wayne, 1990; Field, 2009; Pallant, 2015; Kim, 2015). If the assumption of an independent samples t-test is not met, the

Mann-Whitney U-test is an alternative method for comparing differences between two groups of interest on a target variable (Wayne, 1990; Field, 2009; Pallant, 2015). In addition, the Kruskal-Wallis test can also be used when the assumptions of a one-way analysis of variance (ANOVA) cannot be met (Field, 2009).

The non-parametric tests chosen for this study are Mann-Whitney, Kruskal-Wallis. The results of Mann-Whitney, Kruskal-Wallis tests are usually judged based on the p-value. If the p-value is less than the level of significance (usually 0.05), the original hypothesis can be considered rejected, and vice versa. Also, in addition to the p-value, the size of the effect can be described by calculating a confidence interval for the difference in means. Confidence intervals give the possible range of the true mean difference and help in understanding the actual significance of the effect.

3.3.3 Sampling

1) Sampling method

Simple random sampling method was used in this study, random sampling (Wang, 2016) is a sampling method in which a certain number of samples are randomly drawn from the whole population to represent the whole population (Figure 3.2). This method was chosen because of its ability to obtain a more representative sample while being more efficient with the available resources (Olken, F., & Rotem, D. 1986, Feng, Shiyong, Ni, Jahun, & Zou, 2012).

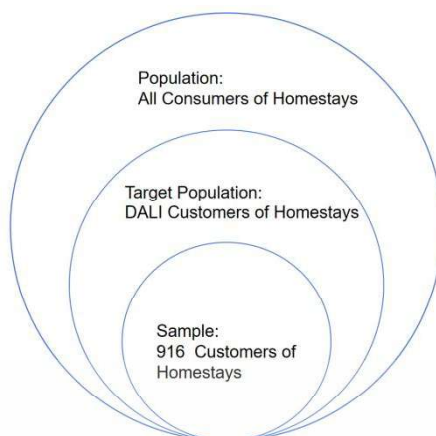


Figure 3.2 Population, Target Population or Sampling of the study

2) Sampling frame

The sample area for this study was the Erhai Basin in Dali, as it is home to both Dali Homestay inns and provided transport, financial and time convenience for the research to be carried out.

The sample consisted of consumers of the homestay inn. Inclusion criteria were: consumers over 18 years of age and exclusion criteria were: consumers under 18 years of age.

3) Sample size

According to Gorsuch (1983), Kline (1994), and Comrey&Lee (1992), the minimum sample size for this study is 300. However, we also need to consider other practical factors.

Recovery rate and efficiency adjustment: In order to cope with possible low recovery rates and efficiency, we have made adjustments. Assuming an expected response rate of 70% (i.e. 70% of respondents will return the questionnaire) and an

expected effectiveness rate of 80% (i.e. 80% of the collected questionnaires are valid), the number of questionnaires we need to send out is:

$$\text{Number of required questionnaires} = \frac{\text{Minimum sample size}}{\text{Recovery rate} \times \text{Efficiency}} = \frac{300}{(0.7 \times 0.8)} \approx 536$$

However, in order to further improve the robustness of the sample size and the reliability of the study, we have decided to issue more questionnaires.

Final decision: Taking into account the above factors, we have ultimately decided to send out 1057 questionnaires. This number not only exceeds the required number of questionnaires adjusted for response rate and efficiency, but also provides a buffer for potential additional losses such as respondents giving up midway, data entry errors, etc.

4) Sampling Steps

Online questionnaires (After completing the questionnaire, Wenjuanxing will automatically collect the questionnaire) were distributed to volunteers in the target areas (Main homestay clusters : Dali ancient City, Xizhou, Shuanglang, Wase, Haidong) through the Questionnaire Star platform by means of random interception. In order to ensure the representativeness and diversity of the samples, questionnaires were distributed at different time periods (10:00-12:00 AM, 3:00-5:00 PM) to cover all types of people. In the end, a total of 1057 questionnaires were collected, of which 916 were valid questionnaires, with a valid questionnaire rate of 86.66%. Invalid questionnaire exclusion criteria: incomplete answers or the same answers for all

questions.

3.4 RELIABILITY AND VALIDITY TESTS

When evaluating the quality of a scale or measuring tool, one typically focuses on its Reliability and Validity (Knapp, T. R., & Mueller, R. O. , 2010; Fink, A., & Litwin, M. S. , 1995) .

Before officially distributing the questionnaire, a pre-test was conducted. A total of 30 Dali homestay consumers from different regions and backgrounds were invited to participate in the predictive test to ensure the applicability and representativeness of the questionnaire. Based on the feedback from the pre test, the ambiguous items in the questionnaire were modified. Specific adjustments include:

1. Original question: "Do you think a homestay design with good" Efficiency "can bring you a sense of pleasure in terms of usage?" In the prediction test, it was considered that the expression was too specialized and difficult for non professionals to understand, so it was modified to "Do you think that a homestay inn design with good" efficiency "(i.e. functionality, efficiency, etc.) can bring you a sense of pleasure in use?";

2. Original question: Do you think that emphasizing "Rich visual effects" in homestay inn design can bring you aesthetic pleasure In the prediction test, it was found that the expression was not clear and specific enough, so it was revised to "Do

you think that emphasizing" Rich visual effects "(i.e. rich colors, materials, shapes, decorations, etc.) in homestay inn design can bring you aesthetic pleasure?";

3. Original question: "Do you think that emphasizing the design of" Visual sense of order "in homestays can bring you aesthetic pleasure?" In the prediction test, it was found that the expression was not clear and specific enough, so it was modified to "Do you think that the design of homestays that emphasizes" Visual sense of order "(i.e., regular arrangement, symmetrical shape, etc.) can bring you aesthetic pleasure?".

After revision, the formal questionnaire (Appendix A) was finally finalized. By calculating the Cronbach's Alpha coefficient, the result was 0.914, indicating that the questionnaire had a high level of internal consistency and reliability (see Table 3.4). Subsequently, the structural validity test was conducted. The KMO and Bartlett's test of sphericity resulted in a KMO value of 0.922 and a significant Bartlett's test of sphericity (see Table 3.5), indicating that the data were suitable for factor analysis. The factors were extracted by principal component analysis, and the rotated factors explained a total of 74.138% of the total variance (see Table 3.6), and the question item loadings on each factor were high (see Table 3.7), which verified the structural validity of the questionnaire.

Table 3.4 Reliability Statistics

Cronbach's Alpha	N of Items
0.914	10

Table 3.5 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.922
Bartlett's Test of Sphericity	Approx. Chi-Square	5363.789
	df	45
	Sig.	0

Table 3.6 Total Variance Explained

Table 3.6 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.685	56.853	56.853	5.685	56.853	56.853	2.936	29.36	29.36
2	1.128	11.275	68.128	1.128	11.275	68.128	2.478	24.783	54.143
3	0.601	6.01	74.138	0.601	6.01	74.138	2	19.995	74.138

Extraction Method: Principal Component Analysis.

Table 3.7 Rotated Component Matrix^aTable 3.7 Rotated Component Matrix^a

	Component		
	1	2	3
"Safety"	.860		
"Privacy"	.813		
"Comfort"	.805		
"Efficacy"	.611		
"personalization"		.824	
"Fashion"		.783	
"Cultural characteristics"		.677	
"Visual sense of order"			.801
"Rich visual effects"			.748
"Novel visual effects"			.622

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Overall, these results indicate that the questionnaire used in this study has high reliability and validity.

3.5 ETHICAL CONSIDERATION

Ethical consideration consisted of particular guidelines for moralities and values in order to provide research experts with the methods to conduct It included dealing with the research respondents, managing research members, and users of their analysis (Bell, 2018). Ethical observations are critical in research for different reasons (Öksüzoglu-Güven, G. 2016; Farrimond, H. 2012). It ensured the integrity of respondents' data and provided them with guarantee of no inconvenience. a moral concern in this manner gave a A moral concern in this manner gave a sign of respect for various experts and the users who took part in the study. However, failing to conduct research ethically could be embarrassing, humiliating for respondents, and resulted in a lack of understanding of the research process.

In the current research, we had taken the consent from respondents before they participated in the survey, suggesting that they knew correctly what was being drawn and what the perils and favourable circumstances were before they assented to share. The respondents were informed in regards to precisely who the researcher is, where he/she is coming from, and what is the purpose of the study investigation. In addition, the participants were ensured that the data they gave would be made baffling. In addition, the participants were ensured that the data they gave would be made baffling; this suggests the part's names were evacuated to guarantee their identity. Also, information accumulated was treated with security; there was much thought put into it. Also, information accumulated was treated with security; there

was much thought taken in this review as it was dealing with a very delicate and instructed bunch in the open eye. individuals were ensured that they would be verified as the exploration is just for scholarly purposes.



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CHAPTER 4

DATA ANALYSIS

This chapter presents the results of the data analysis of the current research work. There are two sections:

Part I: Descriptive statistics presenting the profile of the respondents and the statistics of the pleasantness of all respondents on each emotional needvariable.

Part II: Non-parametric test analysis. It is used to analyse whether there is a significant difference between different populations (X) on different emotional design variable(Y). The results of the analyses showed that there is a difference in X on Y. Therefore, further post-hoc test "Pairwise Comparisons" was used to find out which two groups were significantly different from each other.

4.1 DESCRIPTIVE STATISTICS

1) The variables for demographic characteristics, of which there are five (X), are:

X1:Gender

X2:Age group

X3: Occupation type

X4: Education level

X5:Income level (Monthly)

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2) Emotionally designed variables, containing a total of 10 (Y):

Y1: "Efficacy"

Y2: "Safety"

Y3: "Comfort"

Y4: "Privacy"

Y5: "Rich visual effects"

Y6: "Visual sense of order"

Y7: "Novel visual effects"

Y8: "Cultural characteristics"

Y9: "Personalization"

Y10: "Fashion"

4.1.1 Descriptive statistics of the independent variables

The purpose of conducting demographic analysis on the respondents is to understand the overall characteristics of the samples collected in this study.

According to the research objectives, respondents were asked the following questions: gender, Age group, Occupation type, Education level, Monthly Income-level.

1) Gender

In the questionnaire, participants chose their gender according to the options (1: male, 2: female). The descriptive statistics (Table 4.1) show that the total number of respondents was 916, of which 457 (49.9 per cent) were male respondents and

459 (50.1 per cent) were female respondents. The gender distribution is basically balanced. This is a good reflection of the differences in emotional design between men and women.

Table 4.1 Participant's gender

	Frequency	Percent	Cumulative Percent
Male	457	49.9	49.9
Female	459	50.1	100
Total	916	100	

2) Age

Participants chose their age group according to the options (1: 18-30 years old; 2: 31-45 years old; 3: >45 years old). The descriptive statistics (Table 4.2) shows that the respondents were categorised into 3 age groups with a total sample size of 916. Among them, there are 515 respondents in the age group of 31 ~ 45 years old, accounting for 56.2% of the total sample data, which is the largest proportion; followed by 280 respondents in the age group of 18 ~ 30 years old, accounting for 30.6% of the total sample; and lastly, there are 121 respondents in the age group of >45 years old, accounting for 13.2% of the total sample data, which is the smallest proportion. These figures show that the majority of respondents belonged to the youth group of 18 to 45 years old, which accounted for 86.8 per cent of the total sample size. This also reflects the fact that Homestay inn consumers are mainly

young people.

Table 4.2 Participant's age group

		Frequency	Percent	Cumulative Percent
Age group	18-30	280	30.6	30.6
	31-45	515	56.2	86.8
	> 45	121	13.2	100
	Total	916	100	

3) Education level

Participants chose their Education level according to the options (1: High school or below; 2: College graduate; 3: Master degree or above). Through the descriptive statistics (Table 4.3), it can be seen that the respondents were divided into three Education level groups with a total sample size of 916. The highest number of respondents' education level was College graduate, which accounted for 48.5% of the total sample data. Next, 38.1% of the respondents have master degree or above, and only 13.4% of the respondents have high school or below, which shows that the education level of the respondents is generally high.

Table 4.3 Participant's education level

	Frequency	Percent	Cumulative Percent
High school or below	123	13.4	13.4
College graduate	444	48.5	61.9
Master degree or above	349	38.1	100
Total	916	100	

4) Occupation Style

Participants chose their Occupation Style according to the options (1: Student; 2: Public official; 3: Company employee; 4: Self-employed). Through the descriptive statistics (Table 4.4), it can be seen that the respondents were categorised into four groups, with a total sample size of 916 respondents. Only 7.0 % of the respondents are students, which is the smallest percentage; Public official has 206 respondents, which is 22.5 % of the sample data; Company employee has 352 respondents, which is the highest percentage (38.4 %); Self-employed has 294 respondents, which is the second highest percentage (32.1 %).

Table 4.4 Participant's occupation

	Frequency	Percent	Cumulative Percent
Student	64	7	7
Public official	206	22.5	29.5
Company employee	352	38.4	67.9
Self-employed	294	32.1	100
Total	916	100	

5) Income level

Participants chose their Income level (monthly) according to the options (1: $< \text{¥} 2500$; 2: $\text{¥} 2500\text{-}5000$; 3: $\text{¥} 5001\text{-}10000$; 4: $> \text{¥} 10000$). Through the descriptive statistics (Table 4.5), it can be seen that the total sample size is 916 people. Respondents with Income level between 5001-10000 Yuan accounted for the largest proportion (42.1%), followed by those with Income level between 2500-5000 Yuan, accounting for 26.4%; and those with Income level >10000 Yuan also accounted for 19.3%; respondents with lower Income level (<2500 Yuan) accounted for the least proportion, only 12.1%.

Table 4.5 Participant's income level (monthly)

	Frequency	Percent	Cumulative Percent
< ¥ 2500	111	12.1	12.1
¥2500-5000	242	26.4	38.5
¥5001-10000	386	42.1	80.7
> ¥ 10000	177	19.3	100
Total	916	100	

4.1.2 Descriptive statistics on variable of emotional design

The Variable of Emotional design (Table 4.6) is constructed based on the Three -Level Theory, where the variable is scored from 1 to 10, with smaller scores representing less important and larger scores representing more important.

Table 4.6 Descriptive Statistics Of indicators of Emotional experience

Indicators	N	Minimum	Maximum	Mean	Std.
					Deviation
"Efficacy"	916	1	10	7.49	2.32
"Safety"	916	1	10	8.55	1.969
"Comfort"	916	1	10	8.39	1.883
"Privacy"	916	1	10	8.45	1.922
"Rich visual effects"	916	1	10	7.96	1.955
"Visual sense of order"	916	1	10	7.63	1.984
"Novel visual effects"	916	1	10	7.71	1.939
"Cultural characteristics"	916	1	10	7.87	2.036
"personalization"	916	1	10	7.75	2.02
"Fashion"	916	1	10	7.67	2.02

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Table 4.6 provides information on the sample size (N), Minimum, Maximum, Mean, and Std for different variables of emotional design Deviation.

The statistical results are summarized as follows: a total of 916 sample sizes are included. Minimum is 1, Maximum is 10. The average value of "Efficiency" is 7.49 (SD=2.320), the average value of "Safety" is 8.55 (SD=1.969), the average value of "Comfort" is 8.39 (SD=1.883), the average value of "Privacy" is 8.45 (SD=1.922), the average value of "Rich visual effects" is 7.96 (SD=1.955), the average value of "Visual sense of order" is 7.63 (SD=1.984), the average value of "Novel visual effects" is 7.71 (SD=1.939), and the average value of "Culture effects" is 7.96 (SD=1.955). The average value of "normal characteristics" is 7.87 (SD=2.036), the average value of "personalization" is 7.75 (SD=2.020), and the average value of "Fashion" is 7.67 (SD=2.020).

In summary, among the 10 variables in emotional design, the lowest average score is 7.49 and the highest average score is 8.55. Sort the average scores of 10 variables in descending order: "Safety" (8.55)>"Privacy" (8.45)>"Comfort" (8.39)>"Rich visual effects" (7.96)>"Cultural characteristics" (7.87)>"Personalization" (7.75)>"New visual effects" (7.71)>"Fashion sense" (7.67)>"Visual sense of order" (7.63)>"Efficiency" (7.49).

4.1.3 Summary

The total number of respondents in this study is N=916, and the statistical results are as follows:(1) 49.9% male, 50.1% female; (2) 30.6% 18-30 years old, 56.2%

31-45 years old, and 13.2% greater than 45 years old; (3) 7% students, 22.5% public official, 22.5% Company employee accounted for 38.4%, Self-employed accounted for 32.1%; (4) High school and below accounted for 13.4%, College graduate accounted for 48.5%, Master degree or above accounted for 38.1%; (5) Monthly income < The proportion of those <2500 yuan is 12.1%, the proportion of those with monthly income in the range of 2501-5000 yuan is 26.4%, the proportion of those in the range of 5001-10000 yuan is 42.1%, and the proportion of those >10000 yuan is 19.3%.

The mean values of the 916 respondents for each variable of emotional design are as follows: "Safety"=8.55, "Privacy"=8.45, "Comfort"=8.39, "Rich visual effects"=7.96, "Cultural characteristics"=7.87, 8.39, "Rich visual effects" = 7.96, "Cultural characteristics" = 7.87, "personalization" = 7.75, "Novel visual effects" = 7.71, "Fashion" = 7.67, "Visual sense of order" = 7.63, "Efficacy" = 7.49.

4.2 PREPARATION OF DATA PRIOR TO ANALYSIS

In order to ensure the reliability of the data analysis, several attributes of the sample data need to be specified before the data analysis is carried out: the type of variable, the normality of the data, and the variance alignment of the data. Depending on the results of these attributes, it is crucial to choose the appropriate method of analysis.

4.2.1 Types of variables

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(1) Demographic Characteristics Variables

Five demographic characteristics were included in this study: gender (2 groups), age group (3 groups), type of occupation (4 groups), level of education (3 groups), and level of income (4 groups), all of which are subtyped variables. In statistics and data analysis, subtype variables are used to describe the category to which an individual belongs and are often used to group and compare differences between categories.

(2) Emotional design variables

This study contains 10 variable of emotional design and the form of observation variable is a 10-point Likert scale. Therefore, variable can be regarded as numerical variables.

Therefore, the variables in this study contain a total of 5 sub-typed variables and 10 numerical variables.

4.2.2 Homogeneity of variance test

Criteria for variance alignment test: if the significance of the variance alignment test $p > 0.05$, the original hypothesis is established and can be considered to have passed the variance alignment test; if the significance of the variance alignment test $p < 0.05$, the original hypothesis is rejected, and the variance alignment hypothesis is not established.

Table 4.7 Levene's Test for Equality of Variances -- Gender

		F	p
"Efficacy"	Equal variances assumed	3.331	0.068
	Equal variances not assumed		
"Safety"	Equal variances assumed	3.171	0.075
	Equal variances not assumed		
"Comfort"	Equal variances assumed	2.402	0.122
	Equal variances not assumed		
"Privacy"	Equal variances assumed	0.165	0.685
	Equal variances not assumed		
"Rich visual effects"	Equal variances assumed	0.376	0.540
	Equal variances not assumed		
"Visual sense of order"	Equal variances assumed	0.031	0.860
	Equal variances not assumed		
"Novel visual effects"	Equal variances assumed	0.177	0.674
	Equal variances not assumed		
"Cultural characteristics"	Equal variances assumed	0.042	0.838
	Equal variances not assumed		
"personalization"	Equal variances assumed	0.025	0.875
	Equal variances not assumed		
"Fashion sense"	Equal variances assumed	0.070	0.792
	Equal variances not assumed		

Table 4.7 is Levene's Test, which is used to test whether the variances of different genders are equal on each variable ("Efficacy", "Safety", " Comfort", etc.) to see if the variances of different genders on each variable ("Efficacy", "Safety", "Comfort", etc.) are equal.

For "Efficacy", its $F = 3.331$, corresponding to a p-value of $0.068 > 0.05$, accepting the null hypothesis; "Safety", its $F = 3.171$, with a p-value of $0.075 > 0.05$, accepting the null hypothesis ; "Comfort", whose $F=2.402$, with a p-value of $0.122 > 0.05$, accepting the null hypothesis; "Privacy", whose $F=0.165$, with a p-value of $0.685 > 0.05$, accepting the null hypothesis; " Rich visual effects", which has an

F=0.376 and a p-value of 0.540 > 0.05, accepting the null hypothesis; "Visual sense of order", which has an F=0.031 and a p-value of 0.860 > 0.05, accepting the null hypothesis; "Novel visual effects", whose F = 0.177 and p-value is 0.674 > 0.05, accepting the null hypothesis; "Cultural characteristics", whose F = 0.042, with a p-value of 0.838 > 0.05, accepting the null hypothesis; "personalization", with F = 0.025, with a p-value of 0.875 > 0.05, accepting the null hypothesis; and "Fashion sense", whose F = 0.070, with a p-value of 0.792 > 0.05, accepting the null hypothesis;

In summary, the results of Levene's Test imply that the p-value for both males and females on the 10 variables of emotional design is greater than 0.05 and the null hypothesis is accepted.

Table 4.8 Test of Homogeneity of Variances-Age group

		Levene Statistic	df1	df2	p
"Efficacy"	Based on Mean	1.945	2	913.00	0.144
	Based on Median	1.187	2	913.00	0.306
	Based on Median and with adjusted df	1.187	2	899.63	0.306
	Based on trimmed mean	2.015	2	913.00	0.134
"Safety"	Based on Mean	8.346	2	913.00	0.000
	Based on Median	3.692	2	913.00	0.025
	Based on Median and with adjusted df	3.692	2	895.37	0.025
	Based on trimmed mean	7.146	2	913.00	0.001
"Comfort"	Based on Mean	5.506	2	913.00	0.004
	Based on Median	3.162	2	913.00	0.043
	Based on Median and with adjusted df	3.162	2	899.68	0.043
	Based on trimmed mean	5.580	2	913.00	0.004
"Privacy"	Based on Mean	3.577	2	913.00	0.028
	Based on Median	3.516	2	913.00	0.030
	Based on Median and with adjusted df	3.516	2	886.17	0.030
	Based on trimmed mean	4.006	2	913.00	0.019

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Table 4.8 (Continue) Test of Homogeneity of Variances-Age group

"Rich visual effects"	Based on Mean	2.124	2	913.00	0.120
	Based on Median	1.481	2	913.00	0.228
	Based on Median and with adjusted df	1.481	2	909.00	0.228
	Based on trimmed mean	1.436	2	913.00	0.238
"Visual sense of order"	Based on Mean	2.043	2	913.00	0.130
	Based on Median	1.066	2	913.00	0.345
	Based on Median and with adjusted df	1.066	2	884.40	0.345
	Based on trimmed mean	1.523	2	913.00	0.219
"Novel visual effects"	Based on Mean	1.936	2	913.00	0.145
	Based on Median	1.537	2	913.00	0.216
	Based on Median and with adjusted df	1.537	2	907.51	0.216
	Based on trimmed mean	1.750	2	913.00	0.174
"Cultural characteristics"	Based on Mean	2.719	2	913.00	0.066
	Based on Median	1.560	2	913.00	0.211
	Based on Median and with adjusted df	1.560	2	891.27	0.211
	Based on trimmed mean	1.956	2	913.00	0.142
"personalization"	Based on Mean	0.740	2	913.00	0.477
	Based on Median	0.410	2	913.00	0.664
	Based on Median and with adjusted df	0.410	2	887.04	0.664
	Based on trimmed mean	0.495	2	913.00	0.610
"Fashion sense"	Based on Mean	0.109	2	913.00	0.897
	Based on Median	0.035	2	913.00	0.966
	Based on Median and with adjusted df	0.035	2	909.99	0.966
	Based on trimmed mean	0.050	2	913.00	0.951

Table 4.8 shows the results of the test of chi-square between the different age groups. Levene's Test was used to test whether there is a significant difference in the variance of the 10 dependent variables between the different age groups.

The test results show that (Based on Mean): $p=0.144 > 0.05$ for "Efficiency"; $P=0.000 < 0.05$ for "Safety"; The p of "Comfort" is $0.004 < 0.05$; The p -value of "Privacy" is $0.028 < 0.05$; The p value of "Rich visual effects" is $0.120 > 0.05$; The p value of "Visual sense of order" is $0.130 > 0.05$; $P=0.145 > 0.05$ for "New visual effects";

$P=0.066>0.05$ for "Cultural"; $P=0.477>0.05$ for "Personalization"; The p value of "Fashion" is $0.897>0.05$.

In conclusion, only the p-value of "Safety", "Comfort" and "Privacy" is less than 0.05 and the original hypothesis is rejected. For the other variables, there is not enough evidence to reject the original hypothesis.

Table 4.9 Test of Homogeneity of Variances --- Occupation type

		Levene Statistic	df1	df2	p
"efficacy"	Based on Mean	2.475	3	912.00	0.060
	Based on Median	2.209	3	912.00	0.086
	Based on Median and with adjusted df	2.209	3	903.60	0.086
	Based on trimmed mean	2.916	3	912.00	0.033
"safety"	Based on Mean	8.512	3	912.00	0.000
	Based on Median	5.911	3	912.00	0.001
	Based on Median and with adjusted df	5.911	3	832.49	0.001
	Based on trimmed mean	7.540	3	912.00	0.000
"comfort"	Based on Mean	5.444	3	912.00	0.001
	Based on Median	5.012	3	912.00	0.002
	Based on Median and with adjusted df	5.012	3	844.79	0.002
	Based on trimmed mean	6.376	3	912.00	0.000
"privacy"	Based on Mean	6.446	3	912.00	0.000
	Based on Median	3.548	3	912.00	0.014
	Based on Median and with adjusted df	3.548	3	874.83	0.014
	Based on trimmed mean	6.621	3	912.00	0.000
"Rich visual effects"	Based on Mean	3.932	3	912.00	0.008
	Based on Median	3.730	3	912.00	0.011
	Based on Median and with adjusted df	3.730	3	902.03	0.011
	Based on trimmed mean	3.471	3	912.00	0.016
"visual sense of order"	Based on Mean	0.729	3	912.00	0.535
	Based on Median	0.607	3	912.00	0.610
	Based on Median and with adjusted df	0.607	3	884.45	0.610
	Based on trimmed mean	1.087	3	912.00	0.354
"novel visual effects"	Based on Mean	0.386	3	912.00	0.763
	Based on Median	0.307	3	912.00	0.821
	Based on Median and with adjusted df	0.307	3	908.75	0.821
	Based on trimmed mean	0.423	3	912.00	0.736

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Table 4.9 (Continue) Test of Homogeneity of Variances --- Occupation type

"Cultural characteristics"	Based on Mean	6.252	3	912.00	0.000
	Based on Median	5.555	3	912.00	0.001
	Based on Median and with adjusted df	5.555	3	899.86	0.001
	Based on trimmed mean	5.652	3	912.00	0.001
"personalization"	Based on Mean	3.880	3	912.00	0.009
	Based on Median	2.499	3	912.00	0.058
	Based on Median and with adjusted df	2.499	3	893.61	0.058
	Based on trimmed mean	3.115	3	912.00	0.026
"Fashion sense"	Based on Mean	4.485	3	912.00	0.004
	Based on Median	3.216	3	912.00	0.022
	Based on Median and with adjusted df	3.216	3	897.21	0.022
	Based on trimmed mean	3.948	3	912.00	0.008

Table 4.9 presents the results of the Levene's Test for homogeneity of differences across various dependent variables for different Occupation types. The p-values of "Efficiency", "Visual sense of order", and "New visual effects" are all greater than 0.05, indicating acceptance of the original hypothesis. The p-values of seven variables, including Safety, Comfort, Privacy, Rich visual effects, Cultural characteristics, Personalization, and Fashion sense, are all less than 0.05, rejecting the null hypothesis.

Table 4.10 Test of Homogeneity of Variances-education

		Levene Statistic	df1	df2	p
"efficacy"	Based on Mean	1.938	2	913.00	0.145
	Based on Median	0.912	2	913.00	0.402
	Based on Median and with adjusted df	0.912	2	905.11	0.402
	Based on trimmed mean	1.616	2	913.00	0.199

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Table 4.10 (Continue) Test of Homogeneity of Variances-education

"safety"	Based on Mean	14.408	2	913.00	0.000
	Based on Median	20.233	2	913.00	0.000
	Based on Median and with adjusted df	20.233	2	867.40	0.000
	Based on trimmed mean	15.727	2	913.00	0.000
"comfort"	Based on Mean	14.277	2	913.00	0.000
	Based on Median	8.411	2	913.00	0.000
	Based on Median and with adjusted df	8.411	2	863.15	0.000
	Based on trimmed mean	15.103	2	913.00	0.000
"privacy"	Based on Mean	10.004	2	913.00	0.000
	Based on Median	9.537	2	913.00	0.000
	Based on Median and with adjusted df	9.537	2	853.11	0.000
	Based on trimmed mean	11.637	2	913.00	0.000
"Rich visual effects"	Based on Mean	0.904	2	913.00	0.405
	Based on Median	0.267	2	913.00	0.766
	Based on Median and with adjusted df	0.267	2	885.81	0.766
	Based on trimmed mean	0.741	2	913.00	0.477
"visual sense of order"	Based on Mean	3.204	2	913.00	0.041
	Based on Median	2.973	2	913.00	0.052
	Based on Median and with adjusted df	2.973	2	890.81	0.052
	Based on trimmed mean	3.388	2	913.00	0.034
"novel visual effects"	Based on Mean	0.935	2	913.00	0.393
	Based on Median	1.185	2	913.00	0.306
	Based on Median and with adjusted df	1.185	2	909.34	0.306
	Based on trimmed mean	0.844	2	913.00	0.430
"Cultural characteristics"	Based on Mean	2.602	2	913.00	0.075
	Based on Median	2.092	2	913.00	0.124
	Based on Median and with adjusted df	2.092	2	912.42	0.124
	Based on trimmed mean	2.924	2	913.00	0.054
"personalization"	Based on Mean	2.168	2	913.00	0.115
	Based on Median	1.860	2	913.00	0.156
	Based on Median and with adjusted df	1.860	2	897.77	0.156
	Based on trimmed mean	2.337	2	913.00	0.097
"Fashion sense"	Based on Mean	0.992	2	913.00	0.371
	Based on Median	0.459	2	913.00	0.632
	Based on Median and with adjusted df	0.459	2	911.37	0.632
	Based on trimmed mean	0.998	2	913.00	0.369

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Table 4.10 presents the results of the Levene's Test for homogeneity of differences across various dependent variables at different levels of education. Specifically, the p-values of the six variables "Efficiency", "Rich visual effects", "New visual effects", "Cultural characteristics", "Personalization", and "Fashion sense" are all greater than 0.05, indicating acceptance of the null hypothesis; The p-values of the four variables "Safety", "Comfort", "Privacy", and "Visual sense of order" are all less than 0.05, rejecting the null hypothesis.

Table 4.11 Test of Homogeneity of Variances-Income level

		Levene Statistic	df1	df2	p
"Efficacy"	Based on Mean	4.877	3	912.00	0.002
	Based on Median	3.923	3	912.00	0.008
	Based on Median and with adjusted df	3.923	3	907.89	0.008
	Based on trimmed mean	5.100	3	912.00	0.002
"Safety"	Based on Mean	6.447	3	912.00	0.000
	Based on Median	3.598	3	912.00	0.013
	Based on Median and with adjusted df	3.598	3	814.02	0.013
	Based on trimmed mean	6.275	3	912.00	0.000
"Comfort"	Based on Mean	1.963	3	912.00	0.118
	Based on Median	1.824	3	912.00	0.141
	Based on Median and with adjusted df	1.824	3	865.44	0.141
	Based on trimmed mean	2.087	3	912.00	0.100
"Privacy"	Based on Mean	1.891	3	912.00	0.129
	Based on Median	1.056	3	912.00	0.367
	Based on Median and with adjusted df	1.056	3	884.10	0.367
	Based on trimmed mean	1.891	3	912.00	0.129
"Rich visual effects"	Based on Mean	1.899	3	912.00	0.128
	Based on Median	1.518	3	912.00	0.208
	Based on Median and with adjusted df	1.518	3	892.59	0.208
	Based on trimmed mean	1.686	3	912.00	0.168
"Visual sense of order"	Based on Mean	2.289	3	912.00	0.077
	Based on Median	2.357	3	912.00	0.070
	Based on Median and with adjusted df	2.357	3	904.63	0.070
	Based on trimmed mean	2.473	3	912.00	0.060

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Table 4.11 (Continue) Test of Homogeneity of Variances-Income level

"Novel visual effects"	Based on Mean	0.329	3	912.00	0.805
	Based on Median	0.175	3	912.00	0.913
	Based on Median and with adjusted df	0.175	3	910.36	0.913
	Based on trimmed mean	0.227	3	912.00	0.877
"Cultural characteristics"	Based on Mean	2.917	3	912.00	0.033
	Based on Median	1.731	3	912.00	0.159
	Based on Median and with adjusted df	1.731	3	887.69	0.159
	Based on trimmed mean	2.268	3	912.00	0.079
"personalization"	Based on Mean	0.696	3	912.00	0.555
	Based on Median	0.260	3	912.00	0.855
	Based on Median and with adjusted df	0.260	3	901.05	0.855
	Based on trimmed mean	0.426	3	912.00	0.734
"Fashion sense"	Based on Mean	0.009	3	912.00	0.999
	Based on Median	0.075	3	912.00	0.974
	Based on Median and with adjusted df	0.075	3	908.93	0.974
	Based on trimmed mean	0.022	3	912.00	0.995

Table 4.11 presents the results of the Levene's Test for homogeneity of variance across various variables at different income levels. The p-values of the seven variables "Comfort", "Privacy", "Rich visual effects", "Visual sense of order", "New visual effects", "Personalization", and "Fashion sense" are all greater than 0.05, indicating acceptance of the null hypothesis. The p-values of the three variables "Efficiency", "Safety", and "Cultural characteristics" are all less than 0.05, rejecting the null hypothesis.

The results from Table 4.7 to Table 4.11 indicate that only gender meets the requirement for homogeneity of variance. Therefore, the requirement for homogeneity of variance in the sample data was not met.

4.2.3 Normality test

Table 4.12 Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	statistic	df	p	statistic	df	p
"Efficacy"	0.158	916	0.000	0.893	916	0.000
"Safety"	0.298	916	0.000	0.76	916	0.000
"Comfort"	0.236	916	0.000	0.819	916	0.000
"Privacy"	0.249	916	0.000	0.798	916	0.000
"Rich visual effects"	0.158	916	0.000	0.884	916	0.000
"Visual sense of order"	0.134	916	0.000	0.915	916	0.000
"Novel visual effects"	0.145	916	0.000	0.913	916	0.000
"Cultural characteristics"	0.157	916	0.000	0.886	916	0.000
"personalization"	0.155	916	0.000	0.902	916	0.000
"Fashion sense"	0.16	916	0.000	0.908	916	0.000

a Lilliefors Significance Correction

Table 4.12 shows the normality test results for all dependent variables ("Efficiency", "Safety", "Comfort", "Privacy", "Rich visual effects", "Visual sense of order", "New visual effects", "Cultural characteristics", "Personalization", "Fashion sense") using Kolmogorov Smirnov and Shapiro Wilk test methods. Overall, according to two different normality testing methods, all dependent variable data ($p=0.000 < 0.005$) do not follow a normal distribution in statistical significance.

4.2.4 Summary

Due to the data not meeting the requirement of homogeneity of variance and exhibiting a non normal distribution, this study is suitable for using non parametric testing methods for data analysis (Wayne, 1990; Field, 2009; Pallant, 2015; Kim, 2015).

4.3 DATA ANALYSIS -NON-PARAMETRIC TEST

4.3.1 Two Independent Samples Non-Parametric Tests on Gender

Table 4.13 Two independent sample non parametric tests

Variable	Gender	Percentiles 50 per cent (25 per cent, 75 per cent)	Z	p
"efficacy"	male	8 (6, 10)	-0.855	0.393
	female	8 (5, 10)		
"safety"	male	9 (7, 10)	-2.043	0.041*
	female	10 (8, 10)		
"comfort"	male	9 (7, 10)	-1.262	0.207
	female	9 (7,10)		
"privacy"	male	9 (7, 10)	-1.334	0.182
	female	9 (7, 10)		
"Rich visual effects"	male	8 (7, 10)	-0.155	0.877
	female	8 (7, 10)		
"visual sense of order"	male	8 (7, 9.5)	-0.605	0.545
	female	8 (6, 9)		
"novel visual effects"	male	8 (6, 10)	-0.573	0.567
	female	8 (6, 9)		
"Cultural characteristics"	male	8 (7, 10)	-0.745	0.457
	female	8 (7, 10)		
"personalization"	male	8 (6, 10)	-0.617	0.537
	female	8 (6, 10)		
"Fashion"	male	8 (6, 10)	-0.681	0.496
	female	8 (6, 9)		

Table 4.13 is a description of the median and its confidence intervals, z-values and p-values for the different genders on each variable.

The results showed that in the emotional variable "safety", the median for males was 9 (confidence interval: 7,10), while the median for females was 10

(confidence interval: 8,10). The Z-value of the Mann Whitney U-test is -2.043, and the p-value is $0.041 < 0.05$, indicating a significant difference between males and females.

4.3.2 K Independent sample non parametric tests on age

Table 4.14 Kruskal Wallis Test of Age

Variable	N	Median (25 per cent, 75 per cent)	Min	Max	Kruskal-Wallis H	df	p
"Efficacy"	916	8 (6, 10)	1	10	4.924	2	0.085
"Safety"	916	10 (7, 10)	1	10	6.350	2	0.042*
"Comfort"	916	9 (7, 10)	1	10	4.915	2	0.086
"Privacy"	916	9 (7, 10)	1	10	7.818	2	0.020*
"Rich visual effects"	916	8 (7, 10)	1	10	4.568	2	0.102
"Visual sense of order"	916	8 (6, 9)	1	10	3.622	2	0.163
"Novel visual effects"	916	8 (6, 9)	1	10	0.912	2	0.634
"Cultural characteristics"	916	8 (7, 10)	1	10	3.023	2	0.221
"personalization"	916	8 (6, 10)	1	10	0.778	2	0.678
"Fashion sense"	916	8 (6, 9)	1	10	0.248	2	0.883

a Kruskal Wallis Test

b Grouping Variable: Age

Table 4.14 presents the results of the Kruskal Wallis test for different age groups (≥ 3 groups), which is used to examine whether there are differences in the median of different age groups on different emotional design variables. The analysis results are as follows:

The P value of "Safety" is $0.042 < 0.05$, indicating significant differences in "Safety" among different age groups; The P value of "Privacy" is $0.020 < 0.05$, indicating significant differences in "Privacy" among different age groups;

4.3.3 K Independent Samples Non-Parametric Tests

Table 4.15 Kruskal Wallis Test of Occupation type

	N	Median (25 per cent, 75 per cent)	Min	Max	Kruskal-Wallis H	df	p
"Efficacy"	916	8 (6, 10)	1	10	12.950	3	0.005*
"Safety"	916	10 (7, 10)	1	10	19.879	3	0.000*
"Comfort"	916	9 (7, 10)	1	10	10.743	3	0.013*
"Privacy"	916	9 (7, 10)	1	10	9.877	3	0.020*
"Rich visual effects"	916	8 (7, 10)	1	10	6.743	3	0.081
"Visual sense of order"	916	8 (6, 9)	1	10	5.327	3	0.149
"Novel visual effects"	916	8 (6, 9)	1	10	0.717	3	0.869
"Cultural characteristics"	916	8 (7, 10)	1	10	19.922	3	0.000*
"personalization"	916	8 (6, 10)	1	10	2.301	3	0.512
"Fashion sense"	916	8 (6, 9)	1	10	4.813	3	0.186

a Kruskal Wallis Test

b Grouping Variable: Occupation

Table 4.15 shows the results of the Kruskal-Wallis test on different occupational types for comparing whether there is a significant difference between different occupational types on different emotional design variable. The results of the analysis are as follows:

The P value of "Efficiency" is $0.005 < 0.05$, indicating significant differences between different occupational types; The P value of "Safety" is $0.000 < 0.05$, indicating significant differences between different occupational types; The P value of "Comfort" is $0.013 < 0.05$, indicating significant differences between different occupational types; The P value of "Privacy" is $0.020 < 0.05$, indicating significant differences between different occupational types; the P value of "Cultural

characteristics" is $0.000 < 0.05$, indicating significant differences between different occupational types;

4.3.4 Non-parametric Test of K Independent Samples on Education level

Table 4.16 Kruskal Wallis Test of Education level

	N	Median (25 per cent, 75 per cent)	Min	Max	Kruskal-Wallis H	df	p
"Efficacy"	916	8 (6, 10)	1	10	2.809	2	0.245
"Safety"	916	10 (7, 10)	1	10	56.556	2	0.000*
"Comfort"	916	9 (7, 10)	1	10	30.555	2	0.000*
"Privacy"	916	9 (7, 10)	1	10	37.152	2	0.000*
"Rich visual effects"	916	8 (7, 10)	1	10	8.995	2	0.011*
"Visual sense of order"	916	8 (6, 9)	1	10	6.428	2	0.040*
"Novel visual effects"	916	8 (6, 9)	1	10	1.012	2	0.603
"Cultural characteristics"	916	8 (7, 10)	1	10	7.639	2	0.022*
"personalization"	916	8 (6, 10)	1	10	3.760	2	0.153
"Fashion sense"	916	8 (6, 9)	1	10	1.190	2	0.552

a Kruskal Wallis Test

b Grouping Variable: Educational level

Table 4.16 shows the results of Pairwise Comparisons for different levels of education, which are used to compare whether there is a significant difference between consumers with different levels of education in terms of emotional design variable. The results of the analysis are as follows:

The six variables "Safety", "Comfort", "Privacy", "Rich visual effects", "Visual sense of order", and "Cultural characteristics", their p-values are 0.000, 0.000, 0.000, 0.000, 0.011, 0.040, 0.022, which are less than the significance level of 0.05, rejecting the null hypothesis. It means that there are significant differences in the six variables

of "Safety", "Comfort", "Privacy", "Rich visual effects", "Visual sense of order" and "Cultural characteristics" among consumers with different education levels.

4.3.5 K Independent Samples Non-Parametric Tests on Monthly income

Table 4.17 Kruskal Wallis Test of Monthly Income

	N	Median (25 per cent, 75 per cent)	Min	Max	Kruskal-Wallis H	df	p
"Efficacy"	916	8 (6, 10)	1	10	7.423	3	0.060
"Safety"	916	10 (7, 10)	1	10	8.719	3	0.033*
"Comfort"	916	9 (7, 10)	1	10	2.830	3	0.419
"Privacy"	916	9 (7, 10)	1	10	1.371	3	0.712
"Rich visual effects"	916	8 (7, 10)	1	10	6.510	3	0.089
"Visual sense of order"	916	8 (6, 9)	1	10	8.057	3	0.045*
"Novel visual effects"	916	8 (6, 9)	1	10	3.241	3	0.356
"Cultural characteristics"	916	8 (7, 10)	1	10	10.846	3	0.013*
"personalization"	916	8 (6, 10)	1	10	3.526	3	0.317
"Fashion sense"	916	8 (6, 9)	1	10	4.037	3	0.257

a Kruskal Wallis Test

b Grouping Variable: Monthly Income

Table 4.17 presents the results of the Kruskal Wallis test for different income levels, used to compare whether there are significant differences in emotional variables among consumers with different monthly income levels. According to the table, the following results can be obtained: "Safety", "Visual sense of order", "Cultural characteristics" These three variables have p-values of 0.033, 0.045, and 0.013, respectively, which are less than the significance level of 0.05, indicating significant differences in these three variables among groups with different income levels.

4.3.6 Summary

Data collection was conducted to test the research hypothesis that there are differences in the emotional design of consumers of different age groups in homestay inn spaces. However, the data collected did not satisfy the assumptions of normal distribution and chi-square, so a non-parametric test was chosen. The specific results of the analysis are presented below:

(1) In terms of gender, there is a significant difference between men and women in terms of the need for the "safety" variable;

(2) In terms of age, there is a significant difference in the needs of "Safety" and "Privacy" between consumers

(3) In terms of type of occupation, there are significant differences among consumers in the four indicators of "Comfort", "Safety", "Privacy", and "Cultural characteristics";

(4) In terms of education level, there are significant differences in consumer demand for six variables: "Safety," "Comfort," "Privacy," "Rich visual effects," "Visual sense of order," and "Cultural characteristics"

(5) There were no significant differences in the emotional design variables for consumers of different income levels.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 FINDINGS

5.1.1 Demographic variable - Descriptive Statistics

Through descriptive statistics of the research subjects, it was found that there is a clear trend among consumers of homestay inns, as follows: (1) the gender ratio of consumers of homestay inns is basically equal; (2) Homestay Inn's consumer group is mainly young people; (3) Consumers have a variety of "occupational types"; (4) The overall educational level of Consumers of Homestay Inns is relatively high; (5) The overall income level (monthly) of Consumers of Homestay Inns is relatively high.

5.1.2 Emotional variable- Descriptive Statistics

Through the descriptive statistics of variables of emotional design, it was found that the average score of all variables of emotional design was above 7.49 points (total score of 10 points), indicating that respondents generally have a high evaluation of variables of emotional design.

5.1.3 non-parametric Tests

Through non-parametric tests, it was found that there are significant differences in emotional design variables among different consumer groups of

homestay inns.

Specific differences include (table5.1): (1) significant differences in the "safety" indicator among consumers of different genders; (2) There are significant differences in the demand for "Safety" and "Privacy" among consumers of different age groups; (3) There are significant differences in "Safety", "Comfort", "Privacy", and "Cultural" among consumers of different "Occupational types"; (4) Consumers at different educational levels show significant differences in six variables: "Safety," "Privacy," and "Comfort," followed by culture, order, and richness; (5) There is no significant difference in emotional needs among consumers with different income levels.

Table 5.1 Emotional variables with differences among different demographic variables

Demographic variables	Emotional variables with differences 01	Emotional variables with differences 02	Emotional variables with differences 03	Emotional variables with differences 04	Emotional variables with differences 05	Emotional variables with differences 06
gender	safety	/	/	/	/	/
Age	safety	privacy	/	/	/	/
occupation	safety	privacy	comfort	Cultural	/	/
educational level	safety	privacy	comfort	Cultural	Rich in visual effects	Ordered visual effects
Income level	/	/	/	/	/	/

Table 5.1 shows that among the emotional variables with differences, "safety" is mentioned 4 times, "privacy" is mentioned 3 times, "comfort" is mentioned 2 times,

"culture" is mentioned 2 times, and "rich visual effects" and "orderly visual effects" are mentioned 1 time each. In summary, the variables that have a significant impact on consumers in Dali homestays are "Safety," "Privacy," "Comfort," and "cultural characteristics," followed by "the order of visual aesthetics" and "the richness of visual aesthetics." Therefore, I believe that Dali homestays should first pay attention to these variables.

5.2 CONCLUSION

The study used Consumer's satisfaction of homestay inns and Emotional design as an entry point to propose a quantitative research strategy using a positivist deductive approach. The data was collected through questionnaire, the sampling method was random sampling and the data was analysed using IBM SPSS Statistics 26, the main methods of data analysis used were Descriptive Statistics, non-parametric Tests and Pairwise Comparisons.

The findings suggest that Consumers of homestay inns have higher emotional design in general and that there are differences in emotional design between different consumer groups of homestay inns. This finding is similar to that of Ju Min (2022), Sun Xiaorui (2019), Lin Pinpin & Lin Xi (2023), Shen Luxin (2020), Pu Yingjie (2020), and Fan Hongfei (2022). Sun Xiaorui (2019) pointed out that there are significant differences in the demand for emotional design among Consumers of homestay inns with different "Age groups" and backgrounds. Young people tend to

prefer personalised and stylish designs, while older people prefer a warm and comfortable atmosphere. According to Shen Luxin (2020), tourists' cultural background and travelling purpose influence their needs for Emotional design. Pu Yingjie (2020) found that there are differences in the emotional design of homestay inn brand visual identity among different "Age group" consumers. For example, young people prefer fashionable and innovative visual images, while older people prefer traditional and stable design styles. Fan Hongfei (2022) showed that users with different "Age group" and health status have different Emotional design needs for wellness centres. Younger users prefer interactive and entertaining design, while older users are more interested in a peaceful and comfortable environment. Min Ju (2022) concluded that there are differences in consumers' needs for rural homestay inn Emotional design across different geographical and cultural backgrounds. The results of this study support my research hypothesis that Consumers of homestay inns with different characteristics have significant differences in emotional design.

5.2.1 Consumers of homestay inns for emotional design

Consumer demand for homestay inns is generally high on the emotional side, and there are possible causes behind this phenomenon:

(1) Unique accommodation experience: homestay inns usually offer accommodation experiences that are different from those of traditional hotels, such as family-style services and local culture displays, etc. These features enable consumers to feel more emotionally connected during their stay. Compared with

standardised hotels, homestay inns tend to have more personalised decorations and layouts, and these elements can stimulate consumers' emotional resonance and enhance the comfort and sense of belonging during their stay.

2) Local culture experience: Homestay inn hosts usually provide guests with an introduction to local culture, history and customs, and this kind of in-depth experience enables consumers to have a deeper understanding of the local culture, thus creating an emotional connection. Homestay inns are often located in the vicinity of neighbourhoods or attractions with unique cultural and historical backgrounds, so consumers can have more direct contact with and experience these cultural elements, satisfying their emotional design for cultural exploration. This allows consumers to more directly access and experience these cultural elements, fulfilling their emotional design for cultural discovery.

3) Demand for interpersonal communication: In homestay inns, consumers have the opportunity to have more in-depth communication with the host of the homestay inn or other guests, and this interpersonal communication can bring emotional satisfaction and pleasure. Compared with traditional hotels, homestay inns usually have a more relaxed and friendly atmosphere, which can promote communication and interaction between consumers and enhance their emotional ties.

4) The need to escape from daily life: For many consumers, choosing a homestay inn is a way to escape from daily life and find solace in their souls. In

homestay inns, they can temporarily escape from the pressure of work and life, and enjoy a period of peace and relaxation. homestay inns provide family-style services and personalised experiences to meet the consumers' emotional design for comfort and relaxation, so that they can find a sense of belonging and satisfaction during the trip.

5) Influence of social media: With the development of social media, more and more consumers share their travelling experiences and feelings through social media. homestay inn, as a unique homestay inn experience, is often able to become a hot topic and shared content on social media. When choosing a homestay inn, consumers are often influenced by the shares and recommendations of other users on social media. These shares and recommendations can inspire emotional resonance and curiosity in consumers, prompting them to choose a homestay inn as their accommodation option.

6) Demand for customised services: Homestay inns are usually able to provide more personalised services, such as customised itinerary planning, exclusive catering services, etc. These services are able to meet the emotional design of consumers for special needs and experiences. These services can meet the consumer's emotional design for special needs and personalised experience. in the homestay inn, consumers can feel more attention and care, this feeling of being valued can bring emotional satisfaction and pleasure.

In summary, Consumers of homestay inns have a high level of emotional

design overall, which is largely due to a combination of the unique accommodation experience offered by homestay inns, the local cultural experience, interpersonal opportunities, the need to escape from everyday life, and the impact of social media and customised services.

5.2.2 Application of research results

Through non-parametric tests, it was found that different consumer groups (different "Gender", "Age group", "Occupational type", and "Educational level") have varying needs for different emotional variables, particularly in the six variables of "safety", "privacy", "comfort", "culture", "rich visual effects", and "visual order". By providing design suggestions for these six important variables, the performance of homestays in terms of emotional needs can be significantly improved, meeting the needs of different consumer groups, and enhancing customer satisfaction and loyalty. Here are design suggestions based on these six important variables:

1) Security

(1) Physical security: Ensure that the doors and windows of the homestay are sturdy, the locks are reliable, and equipped with safety devices such as smoke alarms and carbon monoxide alarms. Set up surveillance cameras in public areas, but be careful not to violate guest privacy.

(2) Emergency response: Develop detailed emergency plans, including response measures for natural disasters such as fires and earthquakes, and ensure

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that all employees are aware of and able to act quickly in emergency situations.

(3) Safety information: Provide safety manuals or guidelines within the homestay, including emergency contact information, escape routes, and other information, to enhance guests' sense of safety.

2) Privacy

(1) Space layout: Reasonably layout the homestay space to ensure that each room can obtain good privacy and avoid visual interference. Set up screens or partitions in public areas to protect guest privacy.

(2) Sound insulation measures: Using sound insulation materials or techniques to reduce noise interference between rooms and enhance guests' living experience.

(3) Personal information protection: Strictly comply with relevant laws and regulations when collecting and using customer personal information to ensure that customer privacy is not violated.

3) Comfortable

(1) Indoor environment: Optimize the indoor environment, including temperature, humidity, lighting, etc., to ensure that guests can rest and relax in a comfortable environment.

(2) Furniture and Decoration: Choose furniture that conforms to ergonomics and comfortable decorations, such as soft mattresses, warm lighting, etc., to enhance

guests' living comfort.

(3) Sound environment: Play soft background music in the homestay or provide music playback devices to allow guests to choose music according to their preferences and create a comfortable atmosphere.

4) Culture

(1) Local characteristics: Incorporating local cultural elements such as traditional patterns and handicrafts into the design of homestays, allowing guests to experience the local cultural atmosphere.

(1) Cultural exchange: Organize cultural exchange activities, such as handicraft making, local food experiences, etc., to allow guests to have a deeper understanding of local culture.

(1) Cultural Exhibition: Set up a cultural exhibition area in the homestay to showcase local history, customs, art, etc., enhancing guests' cultural experience.

5) Rich visual effects

(1) Color matching: Using rich color matching to create a visual sense of hierarchy, allowing guests to feel the vitality and diversity of the space.

(2) Art Decoration: Placing artworks or decorative paintings in the homestay to enhance the artistic atmosphere of the space and allow guests to enjoy the beauty.

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(3) Natural Landscape: By utilizing the natural landscapes around the homestay, such as mountains, rivers, lakes, etc., and designing windows, balconies, etc., guests can enjoy the beautiful natural scenery.

6) Visual sense of order

(1) Space layout: Through reasonable space layout and furniture placement, create an orderly visual effect, allowing guests to feel the cleanliness and orderliness of the space.

(2) Color and Material: Use unified colors and materials to create a sense of unity and avoid overly chaotic designs.

(3) Detail processing: Pay attention to detail processing, such as wall decoration, curtain design, etc., to maintain the unity and coordination of the overall style and enhance the visual sense of order.

5.3 SIGNIFICANCE

The finding that "All Consumers of homestay inns from different backgrounds have high emotional needs and that there are significant differences between consumers" has both practical and theoretical implications:

5.3.1 Practical implications

(1) Enhance customer satisfaction and loyalty: By gaining a deeper

understanding of the emotional need of consumers from different backgrounds, homestay inn operators can provide personalised services that are more in line with their customers' expectations and enhance customer satisfaction and loyalty, thereby increasing repurchase rates and word-of-mouth communication.

(2) Market segmentation and precise marketing: Based on the difference of emotional need, homestay inn operators can carry out market segmentation and positioning more accurately, formulate targeted marketing strategies to effectively attract different consumer groups and enhance market competitiveness.

(3) Optimal allocation of resources: Understanding the emotional need of different consumers will help homestay inn operators to optimize the allocation of facilities, services and staff training, improve the efficiency of resource utilization, reduce unnecessary expenditure and maximize the return on investment.

(4) Product and service innovation: to meet the differences in emotional need can promote homestay inn to innovate in products and services, and introduce more attractive special services and facilities to meet the diversified market demand.

(5) Enhance brand competitiveness: by providing personalised services that meet the emotional need of different consumers, homestay inn can establish a unique brand image and competitive advantage, stand out in the fierce market competition and attract more loyal customers.

5.3.2 Theoretical implications

1) Enrich user experience theory: This conclusion provides a new perspective for user experience theory, i.e., not only focusing on functional needs, but also paying attention to emotional need, which injects more dimensions into user experience research and promotes the in-depth development of the theory.

2) Consumer Behaviour Research: This conclusion expands the scope of consumer behaviour research, stresses the importance of emotional need in consumer decision-making, and prompts scholars to further explore the mechanism of emotional need influence on consumer behaviour.

3) Market Segmentation Theory: By studying the differences in emotional need of consumers from different backgrounds, it can provide empirical support for the market segmentation theory, promote the refinement of market segmentation research, and improve the application value of the theory.

4) Service Management Theory: In the field of service management, this finding emphasizes the key role of emotional need in service quality and customer satisfaction, and pushes service management theory in the direction of a greater focus on emotional experience.

5) Interdisciplinary research: The study of emotional need involves a number of disciplines such as psychology, sociology and marketing, etc. This finding provides a new entry point for interdisciplinary research and promotes theoretical integration

and synergistic development among different disciplines.

In conclusion, the findings of this study are both practically and theoretically significant, guiding the formulation of practical operations and market strategies and promoting academic research and theoretical innovation in related fields.

5.4 LIMITATION

The results of this study, while providing valuable insights, still have some shortcomings, which can be summarized in the following areas:

1) Limitations of sample selection: the samples in this study were all from consumers of Dali homestay inns, and it is possible that these consumers only have specific requirements for Dali homestay inns, which are different from homestay inns in other regions. In addition, the study samples were all Chinese, and the foreigner samples were not included. This selection may limit the generalizability of the findings.

2) Data collection method: the data collection mainly adopts the questionnaire method, which is quantitative data and may not be able to dig deep into the essence and complexity of the problem. It is recommended to combine other research methods, such as interview method, experimental method, case study method, etc., to make up for the above limitations.

3) The subjectivity of emotional variables: The 10 variables of emotional needs are measured through subjective ratings, which means that the results may be

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influenced by individual feelings, biases, or misunderstandings of the participants. In addition, different participants may have different understandings of the same variable, which may affect the inconsistency and uncertainty of the results.

4) Other variables not considered: The research results focused on demographic characteristics and emotional variables, but there may be other important variables that have not been considered, such as regional differences, motivational purposes, etc.

5.5 FUTURE RESEARCH

Firstly, future research can adopt multiple data collection methods: combining questionnaires, interviews, observations and other data collection methods in order to obtain more comprehensive and in-depth information, thus improving the reliability of the research results.

Second, consider more relevant variables: Consider more relevant variables in the study, such as geographical differences and consumption motives, in order to gain a more comprehensive understanding of the characteristics and needs of the target group.

In addition, by conducting long-term tracking studies on the target group, it is possible to observe the trends of their needs and experiences over time, thus providing a basis for companies to develop long-term strategies.

REFERENCE

- Byderovsky. (1981). *General psychology* (Zhu Zhixian, Lu Shengzhong, & Zhang Shichen, Trans.). Beijing: People's Education Publishing House.
- Bell, E., Bryman, A., & Harley, B. (2018). *Business Research Methods*. Oxford University Press.
- Blalock, H. M. (1972). *Social Statistics* (2nd ed.). Tokyo: McGraw-Hill, Kogakusha.
- Bluman, A. G. (2012). *Elementary Statistics: A Step by Step Approach* (8th ed.). New York: McGraw-Hill.
- Borgatta, E. F. (1961). *Emotions and social behavior*. Aldine Publishing Company.
- Choi, E.-S. (2016). A study on emotional design expression in Expo pavilions. *Journal of the Korean Society of Design Culture*, 22(3), 587-598.
- Cho, J. Y., & Lee, E.-J. (2016). Impact of interior colours in retail store atmosphere on consumers' perceived store luxury, emotions, and preference. *Clothing and Textiles Research Journal*, 1-16. <https://doi.org/10.1177/0887302X16675052>
- Chen, Y.-K., Jiang, Y.-H., He, R.-K., & Wu, X.-T. (2022). Progress, hotspots and trend analysis of bibliometrics-based emotional design research. *Packaging Engineering*, (06), 32-40. <https://doi.org/10.19554/j.cnki.1001-3563.2022.06.004>
- Comrey, A. L., & Lee, H. B. (1992). *A First Course in Factor Analysis* (2nd ed.). Lawrence Erlbaum Associates.

- Chan, S. S. (2017). Research on the emotional design of folk homestay inns - A case study of Baileqiao Village in Hangzhou. *Art Education*, *Z6*, 211-212.
- Chen, H. (2018). Research on the design of emotional experience in B&B. *Residence*, *02*, 54-55.
- Cha, S. H., Zhang, S., & Kim, T. W. (2020). Effects of interior colour schemes on emotion, task performance, and heart rate in immersive virtual environments. *Journal of Interior Design*
- China Business Industrial Research Institute. (2020, January 17). Analysis of residents' income and consumption expenditure data in 2019. <https://www.askci.com/news/chanye/20200117/1756571156440.shtml>
- Chinese Academy of Social Sciences, & Tencent Cultural Tourism. (2020, December 21). Survey of Chinese national leisure conditions (2020). <https://www.vzkoo.com/document/0e72e43bc984abf448fd98ce0f5f390f.html>.
- Chen, Z. (2017). Research on emotional design of homestay: A case study of Baileqiao Village, Hangzhou. *Art Education* (*Z6*), 211-212.
- Farrimond, H. (2012). *Doing Ethical Research*. Bloomsbury Publishing.
- Fink, A., & Litwin, M. S. (1995). *How to Measure Survey Reliability and Validity* (Vol. 7). Sage.
- Feng, Y. (2015). *SPSS22.0 Statistical Analysis Application Tutorial*. Beijing: Tsinghua University Publishing.

Feng, S. Y., Ni, J. X., & Zou, K. H. (2012). *Sample Survey Theory and Method* (2nd ed.). Statistics China.

Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. McGraw-Hill Book Company.

Fokkinga, S. F., Desmet, P. M. A., & Hoonhout, H. C. M. (2010). The dark side of enjoyment: Using negative emotions to design for rich user experiences. In *Proceedings of the 7th International Conference on Design & Emotion*.

Global Times Cultural Tourism Channel. (2020, December 9). Leisure green paper: Report on China's leisure development from 2019 to 2020. https://www.sohu.com/a/437216476_162522

Grace. (2008). The room with a view (about itself). In *Proceedings of the 6th International Conference on Design & Emotion*, Hong Kong: Hong Kong Polytechnic University.

Gorsuch, R. L. (1983). *Factor Analysis* (2nd ed.). Lawrence Erlbaum Associates.

Gürbüz, S. (2017). Survey as a quantitative research method. In *Research Methods and Techniques in Public Relations and Advertising* (pp. 141-162).

Grove, S. K., Gray, J., & Burns, N. (2015). *Understanding Nursing Research: Building an Evidence Based Practice*. Kundli: Reed Elsevier India.

Hou, Y. (2021). Research on the development situation and countermeasure mechanism of Guangxi B&B industry from the perspective of stakeholder theory. *Journal of Liaoning University of Technology (Social Science Edition)*, 23(4), 11-15.

- Hou, Y., Hu, H., & Wei, Y. (2021). Study on the influencing factors of B&B tourist experience based on rootedness theory: Taking Shanghai as an example. *Market Weekly*, (08), 35-38.
- Hakatie, A. T. R. (2006). Product attributes and the model of emotional design: How the product development engineers perceive product features? In *Proceedings of the Fifth International Conference on Design and Emotion*, Gothenburg, Sweden.
- Houser, J. (2011). *Nursing Research: Reading, Using, and Creating Evidence*. Kundli: Sanat Printers.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (7th ed.). Harlow, England: Pearson.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). NJ: Prentice-Hall.
- Izard, C. E. (1977). *The psychology of emotions*. Plenum Press.
- Jiang, J., & Li, Y. (2014). A review of domestic and international tourism "B&B" research. *Tourism Research*, 6(4), 16-22.
- Jakobsson, A. (1988). *Psychology of emotions* (Meng Zhaolan, Trans.). Heilongjiang People's Publishing House.
- Jumin. (2022). Master of emotional design in Yangzhou area rural B&B space (Master's thesis, Changzhou University). CNKI. <https://link.cnki.net/doi/10.27739/d.cnki.gjsgy.2022.000105>

- Johnson, A. W. (1978). *Quantification in Cultural Anthropology: An Introduction to Research Design*. Stanford: Stanford University Press.
- Johnson, R. A., & Wichern, D. W. (2007). *Applied Multivariate Statistical Analysis* (6th ed.). USA: Pearson Education.
- Knapp, T. R., & Mueller, R. O. (2010). Reliability and validity of instruments. In *The Reviewer's Guide to Quantitative Methods in the Social Sciences* (pp. 337-342).
- Kan, C.-G. (2006). Emotional factors in product design. *Journal of Changchun University of Technology: Social Science Edition*, 19(11), 75-77.
- Kim, M.-D. (2005). A study of spatial performance characteristics of Jerde Partnership shopping centre. *Journal of Korean Society of Interior Design*, 14(6), 86-94.
- Kim, D., Hyun, H., & Park, J. (2020). The effect of interior colour on customers' aesthetic perception, emotion, and behaviour in the luxury service. *Journal of Retailing and Consumer Services*, 57, 102252.
<https://doi.org/10.1016/j.jretconser.2020.102252>
- Kline, P. (1994). *An Easy Guide to Factor Analysis*. Routledge.
- Kim, T. K. (2015). Understanding one-way ANOVA using conceptual figures. *Korean Journal of Anesthesiology*, 70(1), 22-26.
- Kang, S.-J. (2011). Analysis of small house demand (by household preference type) emotional design. *Journal of the Korean Institute of Interior Design*, 20(6), 19-26.
- Krech, D. (1949). *The problem of anxiety*. McGraw-Hill.

- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology, 14*(1), 1-55.
- Liusha. (2009). *Psychology of design*. Shanghai: Shanghai People's Art Publishing House.
- Lazarus, A. A. (1966). *Psychological stress and the coping process*. McGraw-Hill.
- Lin, Y. (2003). The application of traditional living culture in the development of residential hotels. *Journal of Guilin Tourism College, (05)*, 63-67.
- Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press.
- Luo, S., & Pan, Y. (2007). Research progress on the theory, technology, and application of perceptual imagery in product design. *Journal of Mechanical Engineering, 43*(3), 8-12.
- Lévy, P. D. (2013). Beyond Kansei engineering: The emancipation of Kansei design. *International Journal of Design, 7*(2), 83-94.
- Li, Y., Liang, C., & Liu, S. L. (2016). Current status and insights of perceptual engineering research in China and Japan. *Decoration, (06)*, 92-95.
<https://doi.org/10.16272/j.cnki.cn11-1392/j.2016.06.022>
- Lombana, M., & Tonello, G. L. (2017). Perceptual and emotional effects of light and colour in a simulated retail space. *Color Research and Application, 42*(5), 619-630.
- Liang, B. (2008). Emotional design of interior space. *Art Observation, 00*(002), 116.
<https://doi.org/10.3969/j.issn.1006-8899.2008.02.044>

- Li, L. (2021). The application of emotional design of ceramic plastic ornaments in the emotional expression of interior space. *Architectural Science*, 37(5), 2.
- Li, X., Ren, X., & Cen, Y.-T. (2021). Research on the application of vernacular materials in B&B interior design. *Furniture and Interior Decoration*, 12, 49-53.
<https://doi.org/10.16771/j.cn43-1247/ts.2021.12.011>
- Lin, P., & Lin, X. (2023). Research on brand image design of B&B based on emotional design. *Industrial Design*, 05, 90-92.
- Lee, H. (2021). Exploration of interior space design of folk homestay inn in northern Shaanxi based on the concept of localization and emotion. *Artist*, 05, 48-49.
- Liu, S. (2012). Analyzing the importance of emotion in interior art design. *Heilongjiang Science and Technology Information*, (17), 240.
- Li, L. X. (2010). *Design Art Study Methodology*. Jiangsu Fine Arts Publishing House.
- Lo, K. P. Y. (2010). Hotel stay scenarios based on emotional design research. In *Proceedings of the 7th International Conference on Design & Emotion*.
- Marx, K. (1965). *Capital: A critique of political economy* (Vol. 1). Progress Publishers.
- McDougall, W. (1926). *An introduction to social psychology*. Methuen & Co.
- Manav, B. (2006). Colour-emotion associations and colour preferences: A case study for residences. *Color Research & Application*, 31(2), 146-151.
- Mohammadpour, N., Aslefallah, M., & Esmacil, M. M. (2010). Designing a creative playground with positive affects. In *Proceedings of the 7th International Conference on Design & Emotion*.

- Min, M.-J. (2011). A study on emotional design characteristics of intelligent spaces - Focusing on the exhibition halls of architectural companies centered on future residences. *Journal of the Korean Institute of Interior Design*, 20(6), 27-35.
- Ma, H. (2010). Emotional interior design and its spatial representation. *Journal of Harbin Institute of Technology: Social Science Edition*, (2), 25-29.
- Mei, Z. (2018). Research on the application of emotional concept in B&B space design. *Rural Science and Technology*, 15, 125-126.
<https://doi.org/10.19345/j.cnki.1674-7909.2018.15.074>
- Meng, Z. (2005). *Emotional psychology*. Beijing: Peking University Press.
- Norman, D. A. (2005). *Emotional design* (Fu Qiufang & Cheng Jinsan, Trans.). Beijing: Electronic Industry Press.
- Norman, D. A. (2004). *Emotional design: Why we love (or hate) everyday things*. Basic Books.
- Norman, D. A., & Draper, S. W. (Eds.). (1986). *User-centered system design: New perspectives on human-computer interaction*. Lawrence Erlbaum Associates.
- Nahm, F. S. (2015). non-parametric statistical tests for the continuous data: The basic concept and the practical use. *Korean Journal of Anesthesiology*, 69(1), 8-14.
- Nagamachi, M. (1995). *Kansei engineering: A new ergonomic consumer-oriented technology for product*. Osaka: Japanese Society of Kansei Engineering.
- Nagamachi, M. (2002). Kansei engineering as a powerful consumer-oriented technology for product development. *Applied Ergonomics*, 33(3), 289-294.

- Ong, M. H. A., & Puteh, F. (2017). Quantitative data analysis: Choosing between SPSS, PLS, and AMOS in social science research. *International Interdisciplinary Journal of Scientific Research*, 3(1), 14-25.
- Olken, F., & Rotem, D. (1986). Simple random sampling from relational databases.
- Öksüzoglu-Güven, G. (2016). Objectivity and research ethics in participant observation. *The Anthropologist*, 25(1-2), 52-59.
- O'Connor, K. (1993). *The origins of human emotions: A socio-evolutionary perspective*. Guilford Press.
- Pallant, J. (2015). *SPSS Survival Manual*. Open University Press.
- Plutchik, R. (1980). *Emotion: A psychoevolutionary synthesis*. Harper & Row.
- Picard, R. W. (2003). Affective computing: Challenges. *International Journal of Human-Computer Studies*, 59(1-2), 55-64.
- Pan, Z. (2011). Emotional design of indoor environment. *Journal of Guangdong Light Industry Vocational and Technical College*, 10(2), 72-74.
- Pu, Y. (2020). Research on emotional design of B&B brand visual image under the background of "Internet+" (Master's thesis, Soochow University). CNKI. <https://link.cnki.net/doi/10.27351/d.cnki.gszhu.2020.002420>
- Polit, D. F., & Beck, C. T. (2015). *Essentials of Nursing Research: Applying Evidence for Nursing Practice*. New Delhi: Wolters Kluwer.
- Polit, D. F., & Beck, C. T. (2017). *Nursing Research: Generating and Assessing Evidence for Nursing*. Philadelphia: Lippincott Williams & Wilkins.

- Qin and Yang. (2013). Research on interior environment design based on emotional needs (doctoral dissertation, Wuhan University of Technology). doctor. <http://gfffbb8353bb55a248bbs6009qwp6nb5v659o.fffg.dali.cwkeji.cn/kcms2/article/abstract?v=W694F5cljyASERYMGpp3XCD4KZpQkkCtoLtxWJR0bFmDXPid6hLTdQ389k1oNv25xcf1rUH1OcoP7Md6bDFJNCmEvkQzYOUzwLGDBRLDZg9SNNGNWd1X4xsdDwsTrW95g3AHoaE7brqjUvgAM5lFbp4uKEKtAw8cXYVJu40I1k3P0vS7Yp63dq39uYtkR6&uniplatform=NZKPT&language=CHS>
- Ren, L. S. (2005). *Design psychology*. Beijing: Chemical Industry Press.
- Reg. (2019). *Research on the formation mechanism of B&B inn cluster in Dali City* (Doctoral dissertation, Dali University).
- Ravindran, V. (2019). Data analysis in qualitative research. *Indian Journal of Continuing Nursing Education*, 20(1), 40-45. https://doi.org/10.4103/IJCN.IJCN_1_19
- Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39(6), 1161-1178.
- Reddy, S. M., Chakrabarti, D., & Karmakar, S. (2012). Emotion and interior space design: An ergonomic perspective. *Work: A Journal of Prevention, Assessment & Rehabilitation*, 41, 1072-1078. <https://doi.org/10.3233/WOR-2012-0284-1072>
- Su, J. N., & Li, H. Q. (2004). Research on product modeling design method based on perceptual imagery. *Journal of Mechanical Engineering*, 40(4), 164-167.
- Seuntiens, P. J. H., & Vogels, I. M. L. C. (2008). Atmosphere creation: The relation between atmosphere and light characteristics. *Journal of Lighting Research and Technology*, 40(3), 243-255.

- Seuntiens, P. J. H., & Vogels, I. M. L. C. (2008). Atmosphere creation: The relation between atmosphere and light characteristics. In *Proceedings of the 6th International Conference on Design & Emotion*.
- Shen, L.-X. (2020). Research on optimization design strategy of B&B in Wuyi Mountain Scenic Area based on emotional design (Master's thesis, Huaqiao University). CNKI. <https://link.cnki.net/doi/10.27155/d.cnki.ghqiu.2020.001014>
- Sun, X. (2019). Research on soft decoration design of B&B hotel based on emotional perception (Master's thesis, Dalian University of Technology). CNKI. <https://link.cnki.net/doi/10.26992/d.cnki.gdlqc.2019.000159>
- Sadan, V. (2017). Data collection methods in quantitative research. *Indian Journal of Continuing Nursing Education*, 18(2), 58-63.
- Sinclair, M. A. (1975). Questionnaire design. *Applied Ergonomics*, 6(2), 73-80.
- Sheridan, J. C., Lyndall, S., & Ong, C. (2010). *SPSS Version 17.0 for Windows: Analysis Without Anguish*. Australia: John Wiley & Sons.
- Tomkins, S. S. (1962). *Affect, imagery, consciousness: The positive affects* (Vol. 1). Springer Publishing Company.
- Tao, J., & Tan, T. (2005). Affective computing: A review. In *Lecture Notes in Computer Science* (pp. 294-308). Berlin, Heidelberg: Springer.
- Tao, Z. Y. (2022). Master's degree in emotional design of historical and cultural theme hotel interior space (Master's thesis, Sichuan Fine Arts Institute). CNKI. <https://link.cnki.net/doi/10.27344/d.cnki.gscmc.2022.000014>

- Tian, Y. (2013). Expression of emotion in interior design - The expression of emotion in interior design from the design of Japanese children's café. *Modern Decoration: Theory*, (9), 47-48.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). Boston, MA: Allyn & Bacon.
- Tuszyńska-Bogucka, W., Kwiatkowski, B., Chmielewska, M., Dzieńkowski, M., Kocki, W., Petka, J., ... & Galkowski, D. (2020). The effects of interior design on wellness—Eye tracking analysis in determining emotional experience of architectural space. A survey on a group of volunteers from the Lublin Region, Eastern Poland. *Annals of Agricultural and Environmental Medicine*, 27(1), 113-122.
- Wu, W. C. (2018). *Overview of homestay inn*. Shanghai: Shanghai Jiaotong University Press.
- Weiss, H. M. (2002). Deconstructing job satisfaction: Separating evaluations, beliefs, and affective experiences. *Human Resource Management Review*, 12(2), 173-194.
- Wang, X. (2016). *Fundamentals of Statistics*. Beijing: Tsinghua University Press.
- Wu, S., & Pan, I. (2014). *SPSS Statistical Analysis Book*. Beijing: Tsinghua University Press.
- Wayne, W. D. (1990). *Applied non-parametric Statistics* (2nd ed.). CA: Duxbury Classic Series, Thomson Learning.

- Wen, Q. (2004). The pursuit of emotion in interior design. *Journal of Chengdu Textile College*, 21(2), 8-11.
- Xue, W. (2014). *SPSS-Based Data Analysis* (3rd ed.). Beijing: People's University of China Publishing.
- Xia, Y. (2019). Emotional design thinking in museum digital media exhibition design. *Art Observation*, (10), 2. <https://doi.org/CNKI:SUN:MSGC.0.2019-10-031>
- Xu, J., Zhang, B., & Wang, Y. (2017). Research on emotional design of subway interior facilities. *Packaging Engineering*, 38(16), 5. <https://doi.org/CNKI:SUN:BZGC.0.2017-16-039>
- Xiang, L. F., & Zhang, Y. S. (2023). Research on the application of Changsha kiln ceramic cultural elements in B&B interior design. *Furniture and Interior Decoration*, (08), 128-132. <https://doi.org/10.16771/j.cn43-1247/ts.2023.08.023>
- Xu, Y., & Wu, S. (2022). Indoor color and space humanized design based on emotional needs. *Frontiers in Psychology*, 13, 926301. <https://doi.org/10.3389/fpsyg.2022.926301>
- Yang, G., & Long, X. (2008). A comparative study on the basic characteristics of Chinese and foreign tourists in residential inns in Dali ancient city. *Human Geography*, 18(5), 807-810.
- Yamamoto, K. (1986). *Kansei engineering: The art of automotive development at Mazda*. Ann Arbor: University of Michigan.

- Yoon, Y., & Yoon, J. (2010). A study on the trends of emotional design in the interior and exterior spaces of residential culture centres. *Journal of Exhibition Design Research*, 7(2), 59-72.
- Yang, Y., & Yang, Y. (2017). Research on the use of emotional design in public space. *Packaging Engineering*, 38(16), 6. <https://doi.org/CNKI:SUN:BZGC.0.2017-16-004>
- Zou, Y., & Xiao, D. R. (2017). Research on the application of emotional concept in B&B space design. *Furniture and Interior Decoration*, (06), 68-69. <https://doi.org/10.16771/j.cn43-1247/ts.2017.06.014>
- Zhang, C. (1998). *Modern psychology*. Shanghai Education Press.
- Zhou, M. Y. (2005). Perceptually driven product design. *Journal of Donghua University: Natural Science Edition*, 31(4), 140-142.
- Zhu, B., Jiang, P. Z., & Su, J. N. (2004). A research on a method of identifying product platform parameters based on perceptual design. *Journal of Mechanical Engineering*, 40(2), 87-91.
- Zhang, F., & Tang, J. (2004). Industrial design and emotion. *Journal of Engineering Design*, 11(3), 167-168.
- Zou, K. (2017). Master's degree on the expression of folk homestay inn vernacular culture under emotional experience (Master's thesis, Jiangxi Agricultural University). CNKI. https://kns.cnki.net/kcms2/article/abstract?v=RkYMyaebi8WHTYZacw_E-LZEd4wBOIsqPACLOo-pahQ9JK7kY0oOiuVYKlH1FvnlGiouPTIH-QXLreObJJzg6xGESE5ez_

UnoQzcVkj_p_dM97hJgK8JCLsZGx8kONkLJZff1kKdgE-ji8FZf25FuF14od3l-Y&unip
latform=NZKPT&language=CHS

Zhang, W. T., & Kwong, C. W. (2011). *SPSS Statistical Analysis Basic Tutorial* (2nd ed.).
Beijing: Higher Education Press.

Zou, Y., & Xiao, D. (2017). Application research of emotional concept in homestay
space design. *Furniture and Interior Decoration* (06), 68-69.
<https://doi.org/10.16771/j.cn43-1247/ts.2017.06.014>



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APPENDIX A

A Survey of Consumer emotional design in Homestay inn Spaces

Dear Volunteers,

Thank you for your willingness to participate in our survey!

The purpose of this questionnaire is to investigate consumer perceptions of the emotional design of Homestay inns. The survey will be conducted anonymously and your personal information will be kept confidential and will not be disclosed to any third party. Your responses will be used for research purposes only and will not be used for commercial purposes. The questionnaire involves no risk, but may consume a few minutes of your time. In the results of the study, we will present them in summary form and will not disclose any information that can identify you personally.

Thank you for your support and help!

I. Personal information

1. Your Gender: [Single choice]*

Male

Female

2. Your age group is: [Single choice]*

18-30 years old

31-45 years old

> 45 years old

3. Your Occupation: [Single choice]*

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- Student
- Public official
- Company employee
- Self-employed

4. Your educational level: [Single choice]*

- High school or below
- Associate and bachelor's degree
- Master's degree and above

5. In which of the following ranges is your monthly income? [Single-choice question] *

- < ¥ 2500
- ¥ 2500-5000
- ¥ 5001-10000
- > ¥ 10,000

II. Usage Dimensions of Emotional Design

6. In your opinion, do you think that a homestay inn design with good "Efficacy" will bring you pleasure at the level of use? Please rate the importance of this (1 being very unimportant, 10 being very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

7. In your opinion, does a good "Safety" design of a homestay inn bring you pleasure at the level of use? Please rate the importance of this (1 being very unimportant, 10 being very important).

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unimportant, 10 being very important).

[Enter numbers from 1 (not significant) to 10 (significant)]*

8. In your opinion, does a well-designed homestay inn with "Comfort" bring you pleasure at the level of use? Please rate the importance of this (1 being very unimportant, 10 being very important).

[Enter numbers from 1 (not significant) to 10 (significant)]*

9. In your opinion, does a well-designed homestay inn with good "Privacy" bring you pleasure at the level of use? Please rate the importance of this (1 being very unimportant, 10 being very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

III. The visual aesthetic dimension of emotional design

10. In your opinion, does a homestay inn design that focuses on "Rich visual effects (rich colours, materials, shapes, decorations, etc.)" bring you pleasure on an aesthetic level? Please rate the importance of this (1 being very unimportant, 10 being very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

11. Do you think that a homestay inn design that focuses on the "visual sense of order (i.e., forms with a certain degree of regularity, such as regular arrangement, This material is reserved for educational use only, not allowed for commercial use.

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symmetrical shapes, etc.)" can bring you a sense of pleasure on an aesthetic level?

Please rate the importance of this (1 is very unimportant, 10 is very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

12. In your opinion, does a homestay inn design that focuses on "Novel visual effects" bring you pleasure on an aesthetic level? Please rate the importance of this (1 being very unimportant, 10 being very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

IV. Reflective Dimensions of Emotional Design

13. In your opinion, do you think that a homestay inn design that focuses on "cultural characteristics" can bring you a sense of spiritual pleasure? Please rate the importance of this (1 being very unimportant and 10 being very important).

[Enter a number from 1 (not significant) to 10 (significant)]*

14. In your opinion, does the design of a homestay inn that focuses on "personalization" give you a sense of spiritual pleasure? Please rate the importance of this (1 being very unimportant and 10 being very important).

[Enter numbers from 1 (not significant) to 10 (significant)]*

15. In your opinion, does a homestay inn design that focuses on "Fashion" bring you a sense of spiritual pleasure? Please rate the importance of this (1 being

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very unimportant, 10 being very important).

[Enter numbers from 1 (not significant) to 10 (significant)]*

Questionnaire is over,thank you very much!



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