

# A Smart Shopping Platform for the Elderly under the New Mode of Five-sense Experience

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## Abstract:

Based on Donald Norman's three-level theory of emotion and Maslow's hierarchy of Needs, combined with the current era background of homogenization of commercial space and aging of population structure, this paper puts forward of the new experience mode of Five Senses theory: security, comfort, freshness, sense of achievement and sense of nobility. By satisfying the special physiological and psychological needs of the elderly group through the five senses, combined with emerging science and technology, this paper creates a new retail commercial space and creates immersive, personalized and humanized shopping experience, in order to provide new ideas for future experiential commercial space.

## Keywords:

The New Experience Mode of Five Senses, Experiential Commercial Space, The Elderly, New Retail

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## 1. Introduction

### 1.1. Realistic Background

On the one hand, there are serious problems of homogenization and boring experience in the current commercial space, which is in contradiction with the humanization and personalization advocated in the era of experience economy. On the other hand, China's population structure is aging at an accelerating pace and the scale of new retail sales in China continues to expand. Therefore, commercial space designed for the elderly group has great consumption potential.

### 1.2. Research Status

As for the theory of experience design, the most representative one is Donald Norman's three-level theory of emotional design. However, this theory is mainly applied in the field of product design, and there are few relevant researches in the field of space design. About the experience of commercial space design, the domestic

and foreign research mainly concentrated in the large shopping center, and some research tends to support by reducing the number of mall stores, increase the space of leisure, catering ratios of improving consumption experience, in the form of retail is given priority to the experience of commercial space research is in a state of a relatively lack.

### ***1.3. Purpose and Innovation Points of the Research***

#### ***1.3.1. Research Purpose***

The purpose of this course is to improve the situation that the commercial space lacks of care for the elderly and good shopping experience, and to design a commercial space specially serving the elderly and meeting their needs by immersive experience, humanized care and personalized customization. In addition, this project focuses on intelligence and service, and enhances the convenience of shopping for the elderly through the application of new technologies and service processes specially designed for the elderly, so as to improve the shopping experience of the elderly, in order to provide new ideas for the future experiential commercial space.

#### ***1.3.2. Research Innovation Points***

Combining the elements of “elderly group, experiential commercial space and new retail” and based on Donald Norman’s three-level theory of emotionalization and Maslow’s hierarchy of needs, the new five-sense experience theory is proposed in connection with the current era background of homogenization of commercial space and aging of population structure. Namely, comfort, security, novelty, a sense of accomplishment, noble feeling, through the five senses to meet the elderly special physiological and psychological needs, combined with the emerging science and technology, the architectural design, interior design, product design, interaction design, and other areas of the many new retail business together to create a new space, manufacturing immersion and shopping experience with individuation and humanization.

### ***1.4. Research Methods***

Firstly, the research framework is sorted out through literature research, data analysis and data collection at home and abroad. Secondly, specific investigation and analysis are carried out through domestic and foreign cases and questionnaire surveys. Then, design schemes are proposed and spatial modeling is carried out according to the results of analysis and research.

## **2. Overview**

### ***2.1. Relevant Concepts***

According to the relevant regulations of the Design Health Organization (WHO), people aged 60 years and over may be defined as elderly in developing countries and people aged 65 years and over in developed countries.

Experience and experience Economic experience, also known as experience, is the innate ability of human beings. It is internal and non-materialized, while external and materialized products, services and space are carriers of experience. Customer participation and interaction is the cornerstone of experience generation and the fourth

economic provider in human history. And experience economy is the fourth economic mode after agricultural economy, industrial economy and service economy.

Experiential commerce is a commercial model based on the theory of “experience economy”, which is divided into three stages from the level of development [2]: the initial stage of reasonable combination of formats; Intermediate stage with good environment and specific space quality; Get involved in the advanced stage of unique cultural experience. [2]

New retail, also known as new retail model, relies on the Internet and USES advanced technology such as big data and artificial intelligence to upgrade and transform the production, circulation and sales process of goods, thus reshaping the business structure and ecosystem, and deeply integrating online service, offline experience and modern logistics. Its core meaning is to promote the integration process of online and offline, breaking the boundaries between online and offline.

The new experience mode of Five Senses consist of security, freshness, comfort, sense of achievement and sense of nobility are respectively experienced, that is, feel comfortable and safe in the space, rest assured about the purchased quality products, and have the experience of freshness, sense of achievement and sense of nobility in the consumption process. Among them, the sense of security, freshness and comfort are more in line with the basic needs of Maslow’s hierarchy of needs theory, while the sense of accomplishment and nobility is more in line with the psychological needs. The three-level theory of emotional design is mainly reflected in the design of some characteristic interactive jewelry booth inside the space design.

## ***2.2. Commercial Space Experience Design***

### ***2.2.1. Relationship Between Experience and Commercial Space***

Commercial space consists of three elements: people, things and space. There will be someone’s experience. When people-oriented becomes the core element of design, experience plays an important role in design, and thus the concept of experiential commercial space emerges.

### ***2.2.2. Research Object of Experience Design***

The main research object of experience design is the emotional needs and preferences of customers, such as psychology and emotion. The essence of experience design is to trigger certain behaviors and psychological activities of people in specific situations through reasonable design of contact and interaction between customers and products, services and Spaces, so as to achieve the experience goal.

## ***2.3. Feature Model of the Elderly***

### ***2.3.1. Social Status of the Elderly Group***

For a long time, the society has recognized the status of the elderly as a vulnerable group and taken some legal measures to protect the special rights and interests of the elderly. However, there is still a lack of social attention and care for the elderly, and there are many problems that the needs or reasonable appeals of the elderly are not valued or can not be met, which are mainly manifested in the dilution of traditional filial piety, respect for the elderly and love for the young. The one-sided concept of maintenance, giving material support without paying attention to spiritual support [5];

In addition, there is also a part of the “old age group is a social problem” misconception. In the opinion of the author’s team, middle-aged and elderly people in the design should not be treated as problems to be solved, but from an equal perspective, give them full respect and care, and let them feel the temperature of the design and the brand.

### ***2.3.2. Physiological Characteristics and Requirements***

With the growth of age, the human body function will have different degrees of decline, the most obvious is the elderly population activity and adaptability of the decline. In terms of activity ability, it is mainly manifested as decreased physical strength, increased difficulty in limb activities (such as joint pain caused by decreased synovium secretion in the joint capsule of the elderly, muscle weakness caused by decreased muscle vitality, etc.), while in terms of adaptability, it is often manifested as disorientation, reduced reaction ability, memory decline, etc.

Based on the analysis and summary of user research, it is concluded that the physiological characteristics and needs of the elderly are as follows:

Joint pain, muscle activity decline, reduced activity. Therefore, indoor multi-store spaces need to install elevators to reduce joint wear and physical exertion.

Blurred vision, weak photosensitivity. Therefore, the room needs to be equipped with sufficient movable magnifying glass, and the information that needs customers’ attention needs to be stimulated with bright colors to the elderly’s vision and deepen the impression.

The ability of short-term memory decreases, and the sense of direction decreases. Therefore, it is necessary to design clear directional navigation.

### ***2.3.3. Psychological Characteristics and Needs***

Through the analysis and summary of user research, it is concluded that the psychological characteristics and needs of the elderly are as follows:

Anxiety about physical conditions. With the decline of the body function or suffering from diseases of old age, the elderly population is very concerned and sensitive to their own health problems. Therefore, some methods should be adopted in the design to relieve the anxiety of the elderly, so as to enhance their sense of security and comfort in the space.

Feeling of loneliness and social uselessness. Many older people experience physical problems with memory loss, forgetting things and lack of concentration, which can lead to insecurity and emotional numbness. Some old people may not adapt to the changes of social roles and environment, and correspondingly, they will produce a series of negative psychology, especially the sense of social uselessness. [4] Therefore, more space and opportunities should be provided in the design, so that the elderly can share, communicate and learn with each other, and alleviate the sense of loneliness and social uselessness.

## **3. Design Strategy**

### ***3.1. Security and Comfort Design Strategy***

In the process of consumption, consumers feel safe and comfortable in the shopping space will have a direct impact on the overall consumption experience. Security and

comfort are derived from the instinctive level in the three-level theory of emotional design and the basic needs of safety, belonging and love in Maslow's need theory. In the field of product design, instinct layer mainly refers to the appearance of the product. The author's team believes that in interior design, this level can refer to the instinctive feeling given by the indoor space environment, in which the space area, the color and material applied inside will all affect the design of this level.

In addition, the author's team found in the survey that the main concern of the elderly group in the consumption process is product quality, that is, in shopping, customers need to be provided with a safe and comfortable space environment, as well as quality assurance and comfortable products. Based on this, the design strategy of sense of security and comfort mainly focuses on building the indoor warm atmosphere, providing physiological protection for the elderly and ensuring the quality and safety of products, which are as follows:

a. Indoor warm atmosphere construction: beige, beige, light green, ivory and other soft colors, often bring people comfortable, warm, comfortable feeling, easy to enhance the elderly's willingness to communicate. Bright colors such as orange and grass green are used to make the objects easy to be recognized by customers and prevent the elderly from knocking against and tripping [6]. Based on this, in terms of tone, this scheme adopts flexible colors such as beige and rose powder in the space, appropriately supplemented by dark green and light green to increase the vitality of the space. In terms of lighting design, the multimedia display area is dark in order to highlight the effect of lighting design, and the rest of the space is equipped with sufficient lighting to enhance the sense of security of the space. In terms of materials, the traditional commercial space of marble or ceramic tiles in favor of warm wood materials, sofa seats have been soft materials. In terms of details, humanized handrails, anti-skid carpets, self-help magnifying glass and other designs are added to reflect the care for the elderly and provide convenience in the space as far as possible.

In addition, soothing music and characteristic aromatherapy are played in the room to enhance the comfort of the space. The application of multimedia projection and ground guide system can effectively relieve the pressure of the old people's weakened sense of direction.

b. Provide physiological protection for the elderly: personalized reminder Settings, health monitoring, emergency button. According to the physiological characteristics of the elderly population summarized above, it can be found that some changes produced by the body make the elderly easily feel insecure in life. Therefore, the elderly should be equipped with smart health bracelets, medicine taking reminders, sedentary activities reminders (to avoid the elderly too much in space experience forget medication and to reduce the pressure of DIY activities sitting on the spine), real-time temperature, heart rate monitoring and emergency call button functions. Among them, drug taking reminders and sedentary activities remind the elderly to make personalized Settings according to their own conditions, because some of the elderly are more sensitive and self-respect, do not want to receive additional attention and care, such a free setting fully reflects the humanization.

At the same time, equipped with emergency center services, sales staff cardiopulmonary resuscitation, fracture first aid and other skills training, fully prepared for emergencies.

c. Product quality and safety guarantee: after purchasing the product, customers can query the jewelry identification certificate through the mobile phone and track the product production and logistics information to solve the old people's worries and concerns, to achieve a sense of security for product security.

### **3.2. Freshness Design Strategy**

Freshness can trigger consumers' interaction, consumption and other behaviors. The design strategy of freshness can be summarized as variability, story, science and technology and interactivity.

The green plant decoration on the outer wall of the building is not only conducive to environmental protection, but also can change the light and shadow according to the sunshine Angle, reflecting the variability and making the scene beautiful.

Interactive jewelry booth I is considered in terms of instinct layer, behavior layer and reflection layer. Instinct layer, the use of novel display cabinets appearance to attract the eyes of customers, produce a sense of freshness. On the behavior layer, customers can adjust the height of the bar column and the color and brightness of the light in the jewelry booth according to their preferences to distinguish from the traditional display of "no touch" and encourage customers to actively participate in the interaction, so as to gain new experience and deepen customers' impression on the products. The reflective layer shows humanistic care through positive words and patient and gentle pronunciation. The elderly are slow in learning and have a high frequency of mistakes, so they are prone to anxiety and depression. The failure experience in learning and memory will bring negative psychological experience to the elderly. [7] Based on this, the intelligent interactive display cabinet has set up a voice encouragement system to reduce the frustration of the elderly due to failure in trying and other bad emotions, encourage the elderly to have the courage to try, and overcome the psychology of "fear of making mistakes".

Interactive jewelry booth II Break the traditional jewelry booth pattern of regular jewelry display, add theme decoration, create a sense of story, and enhance the sense of experience.

In the space, customers can experience the application of technology equipment such as multimedia digital projection, multi-functional combination runway, etc., and enjoy immersive experience in visual and auditory aspects. Meanwhile, the design provides fresh service mode of DIY customization and transformation of old ornaments.

### **3.3. Design Strategies for Sense of Achievement and Nobility**

The highest level of Maslow's hierarchy of needs theory is self-realization. The reflection layer in the emotional design theory is related to the meaning and value of products, and its application in interior design can be extended to understand the meaning and value of human behavior in this environment. The design strategy focuses on the following aspects:

Design a number of Spaces for the elderly to communicate, share and learn: multi-functional runway show, roof terrace, cafe. The free height adjustment of the catwalk can be used as a table, chair or catwalk, and the whole space is used as a place for regular lecture sharing, salon and catwalk show activities. The elderly can meet new friends, share their knowledge and experience in the field, learn new knowledge, and feel the happiness of doing something old. In terms of deepening the sense of

achievement, this scheme designed the intelligent interactive display case praise voice system, and gave positive feedback after the elderly successfully completed the interactive actions. In addition, certificates are issued to active learning customers or customers are invited to participate in activities to share.

DIY customized jewelry belongs to light luxury products, bringing users a sense of nobility “different”. Whats’ more, extreme weather can provide free ride-hailing services, giving users a surprise and eye-catching experience.

#### 4. Conclusions

The existing commercial space design lacks care and temperature for the elderly, but with the advent of experience economy and silver economy era, the consumption potential of the new generation of elderly is increasing, and the requirements for shopping experience are also increasing. At home and abroad in the field of space environment design, the present study are mainly the elderly intelligent household, and the three hierarchy theory of emotional design research is biased towards the product design, this study combined with Donald Norman's emotional three hierarchy theory and Maslow’s hierarchy of needs, from the comfort, novelty, security, a sense of achievement, noble feeling five angles, combined with the emerging science and technology, build new retail space, to give the elderly shopping experience of immersion, individuation, human nature.

This paper is based on the scheme design proposed by the new retail jewelry store, which may be one-sided and limited. However, it is still hoped that this study can provide some ideas for the design and study of the commercial space for the elderly, so that the elderly can still have a good shopping experience and enjoy an elegant and delicate old life even when they are old.

#### Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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