



Information Fusion Model of Age-Appropriate Home Environment Design in Pervasive Computing Environment

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Abstract

In order to make intelligent products better serve the daily life of the elderly, an information fusion model of age-appropriate home environment design under pervasive computing environment is proposed. Construct the human-computer interaction model of smart home system; Taking the basic framework of traditional behavior prediction system as the starting point, the elderly smart home behavior prediction system is constructed from four levels: acquisition layer, interaction layer, transport layer and service layer. On this basis, the “moderate” intelligent principle and design strategy of smart home products for the aged are put forward, and the design practice and design evaluation of related products are carried out. The results show that the average score of the overall design of intelligent medicine cabinet is 8.75 and 8, respectively. The average score of ten experts is 8.2875, which indicates the experts’ affirmation of the product design scheme to a certain extent. Among them, the average score of functional practicality and interface visibility is 9.1 and 8.5 respectively, which indicates that the design of these two levels is not only feasible but also has certain reference value. Secondly, the average score of innovative function, aesthetic beauty of form, safety of operation and interactivity of interface all reached the expected standard, indicating that it meets the use needs of the elderly and conforms to the construction of the system. However, the average score of color collocation and operation logic is lower than 8 points, indicating that compared with other factors, these two levels need further improvement and improvement. Conclusion: The design method of intelligent products for the aged proposed in this study provides a new solution for home care for the elderly, and makes intelligent products provide high-quality service and guarantee for the happy life of the elderly to the greatest extent.

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1 Introduction

For the aging society, the international standard is generally taken as 10% of the total population over 60 years old or 7% of the total population over 65 years old. According to the Aging Population of China, China will become the country with the highest aging population in the world in 2045. By 2020, China will have more than 245 million users over the age of 60, accounting for 16.61% of the country's total population. With the increasing proportion of elderly users, China is faced with the dilemma of population aging, aging population, empty nest of families, and disability of some elderly people. By the end of 2018, the population of disabled elderly users in China was 40 million, accounting for 19.5% of the elderly user population, and the proportion of disabled population increased year-on-year. Among THE disabled population, 84.3% had MILD disability, 5.1% had moderate disability, and 10.6% had severe disability. The aging of population is becoming more and more serious, which puts forward higher requirements for the product design of suitable home. The exploration of design method and user demand mining is conducive to better solve the growing needs of elderly users. In 2019, the Ministry of Development and Reform, the Ministry of Civil Affairs, and the Ministry of Health and Health jointly issued the Implementation Plan of the Special Action Plan for the Linkage of Cities and Enterprises for Inclusive pension. The release of the plan can give full play to the demonstration and driving role of investment from the central budget and the guiding role of local governments, and improve the social pension service system by stimulating the enthusiasm of social capital. Home products are closely related to people's home life. Its frequent use, extensive coverage, and diverse functions create a broad space for the design of household products. However, the development of domestic residential products is relatively lagging behind. With the continuous heating of the product market, the demand of elderly users is increasing, which puts forward higher requirements for the design of residential products. Design for the elderly users is not only the needs of the elderly users, but also the needs of social civilization and progress. With the rapid development of social economy, more and more people begin to care about the advantages and disadvantages of the living environment. Through the ages, the quality of living occasions is closely related to the development of a person, so the design of the concept of home life began to be more and more attention by people. In today's life, the aging problem is becoming more and more serious. The aging problem has created new challenges for the home design, and more and more people have begun to provide new design ideas for the home of the aged. It has to be said that the integration of senility and universal design is a new breakthrough way for home design, giving a new meaning, so that the world and the society can truly integrate universal design with the development of the new society. It not only caters to the development of society, but also begins to provide new design ideas for the real home design industry, provide new life expectations for the whole elderly group, and add new enjoyment of beauty to the world [1].

2 Literature Review

Based on the phenomenon that ordinary furniture cannot meet the living needs of the elderly, Rf, A. combines the design concept of intelligence and kitchen and bathroom furniture to solve users' needs from the perspective of life and provide convenience [2]. Wk, A. adopts the