

A Discussion on Design Strategies for Aging Services Based on User Experience

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Abstract. In the face of the ever - quickening global aging phenomenon, the requirements for services for the aged have gradually become the focus of social attention and this research article explores the design of services for the elderly from the perspective of user experience; at first, it comprehensively analyzed the physiological, psychological, and social - behavioral characteristics of the elderly, summed up their special needs and common service problems and then, by integrating the user experience theory, the study put forward a number of user - centered design strategies, including improvements in interactive experiences, optimizations in operation processes, strengthenings of emotional connections, and customized service concepts; the results showed that integrating user experience into the design of services for the elderly could greatly improve the service quality and enhance the well - being and satisfaction of the elderly and moreover, it opened up a new path for the service design field; the views in this paper helped to promote the innovative development of services for the elderly and provided both theoretical understanding and practical guidance for creating an elderly - friendly service system.

Keywords: User Experience; Aging Services; Design Strategies.

1. Introduction

The global demographic trend of aging is speeding up quite rapidly, forecasts showed that by 2050, the share of the aged population would exceed 20% and there would be a huge increase in their service needs, their special needs including basic living, healthcare, cultural entertainment and other areas required the urgent improvement of service systems, so the importance of aging - related service design became prominent and by using new methods, it improved service standards and created a comfortable and smooth living experience for the elderly, given that the elderly had reduced visual and auditory sharpness and lower psychological resistance, they often got tired and were unwilling when dealing with complicated service processes, the theory of user experience promoted a user - centered method which was seen as a possible way to meet the challenges of aging services by increasing happiness and satisfaction through interactive design, process improvement and emotional involvement, however, the existing systematic research on aging service design was still not enough and a deep exploration of design strategies based on user experience was needed, from the perspective of user experience, this study explored the needs and challenges of the elderly, put forward targeted measures, helped to set up an elderly - friendly service system and provided both theoretical and practical bases to deal with the global aging problem.

2. Global Aging Trend and Changes in Service Demands

2.1. Current Situation and Challenges of Global Aging

The phenomenon of the world's population getting older has become a crucial social issue in the 21st century, with implications covering various areas like economics, healthcare, and social

structures [1], and as per the United Nations' data, the proportion of people aged 65 and over is increasing at a rate much faster than other age groups, which puts many countries in the difficult situation of rapidly changing population characteristics, and the effects of an aging population include not only a reduction in the workforce and economic slowdown but also stressed medical resources and increased social security burdens, and from the perspective of demand, old people need better professional medical treatment, more comprehensive public facilities, and social support that suits their physical and mental features, so aging societies put higher requirements on technological progress to deal with the problems of accessibility and convenience in service delivery, and a lot of the existing service systems and environmental arrangements are still not good enough to effectively adapt to this change, making the elderly face more and more challenges such as social isolation and difficulties in health management, and the global aging of the population is both an obstacle to social development and a stimulant for industrial innovation, and meeting the various needs of the elderly has become a key point for future development efforts, and this path requires a more organized combination of resources in service design to ensure continuous support for the creation of a service system friendly to the elderly [2].

2.2. Particularity of Service Demands of the Elderly

The demands of services for the elderly show remarkable particularity due to their unique physiological, psychological, and social - environmental changes; physiologically, the deterioration of body functions frequently led to difficulties such as restricted mobility, reduced hearing and vision, thus requiring more convenience and usability in service delivery, and psychologically, these changes showed up as feelings of loneliness and insecurity, making them more eager for emotional support and psychological comfort and also pay more attention to service consistency and respect, and socially, the change of social roles and the shrinking of social networks made the elderly look for services that could promote their sense of social participation and belonging, so meeting these needs was crucial in service design and guided innovative efforts.

2.3. Social Focus and Opportunities for Industrial Development

As the speed of population aging quickens, society has continuously increased its focus on services for the elderly which promotes the industrial prospects in relevant fields, the elderly population has more and more obvious needs for healthcare, elderly care, company, and spiritual satisfaction and service offerings are further diversified and specialized, people from all sectors of society have paid a great deal of attention to improving the quality of life of the elderly which has stimulated the increase of policy support and capital investment, and the growing aging - related service market has attracted corporate innovation and technological research and development resulting in the appearance of new service models such as intelligent and customized ones, so the mutual promotion between this demand and supply has given continuous development vitality to relevant industries.

3. Characteristics of the Elderly from the Perspective of User Experience

3.1. Influence of Physiological Characteristics on Service Design

The service design realm is considerably affected by the physical characteristics of the senior population as they grew older and their body functions showed a marked decline including a lessening in sensory sharpness such as eyesight, hearing, and touch sensitivity along with a drop in muscle power, joint flexibility, and movement abilities which directly made it more difficult and less safe for the elderly to use services so service design had to carefully take into account the limitations brought about by the seniors' physical state; regarding the interactive interface, improvements like larger fonts, high - contrast color combinations, and sound cue functions were used to make up for visual and auditory problems and the designs of equipment and tools should focus on being simple and easy to use, avoiding complicated operations and reducing reliance on fine movements while the physical surroundings should stress the comprehensiveness and safety of barrier - free facilities, creating a

more comfortable service experience for those with movement difficulties and also, too much brightness and loudness might cause discomfort so a moderate design was necessary to meet the sensory needs of the elderly; in the end, service design aimed to lessen the negative impacts of physical limitations on the quality of experience, providing a more senior - friendly operational and interactive environment for users and making sure of smooth service use with high satisfaction and a feeling of security through careful planning.

3.2. Analysis of Psychological Needs and Behavior Patterns

The specific psychological needs of senior citizens have a great impact on service design frameworks. As they grew older, the elderly showed a significant increase in their need for security, preferring services and environments that could ensure reliability and their mental health was especially vulnerable to loneliness and social isolation which led to a stronger desire for emotional care and social interaction and this emotional need was shown not only in the company of family members but also in the search for respect and recognition during service experiences and the behavior of the elderly tended to rely on familiar situations and they liked simple operation and logically consistent process designs and although they didn't adopt technology very much, they were quite willing to accept designs that were proven to be convenient. Therefore, service design had to carefully consider the psychological changes of the elderly, creating service experiences focused on respect, security, and convenience to meet their special psychological and behavioral needs [3].

3.3. Service Pain Points of Social Interaction among the Elderly

Elderly people face a great many challenges in their social interactions as the physical and mental changes they have gone through might impede their access to information and effective communication, thus intensifying their sense of social isolation, and conventional service systems often neglect individualized needs and emotional health, which makes it difficult to provide sufficient support and create interaction opportunities, so these challenges not only damage the old people's quality of life and social participation but also prevent them from integrating into modern society, and it was necessary to address and understand these issues to improve the well - being of the elderly and provided an accurate direction for the design of services related to aging.

4. Core Principles of Aging Service Design

4.1. People-oriented Service Concept

The user - centric service ideology forms the fundamental basis in the conceptualization of aging service designs, highlighting the crucial part that real user needs play in propelling design undertakings and since they are a special demographic with gradually waning physical abilities, the service needs of the elderly cover various aspects like physiological, psychological, and social interactions, in the scope of service design, it was necessary to show the greatest respect for the subjectivity and participatory feelings of the elderly while also carefully considering their individual differences and when in the design period, a comprehensive view had to be taken, considering the elderly's mobility limitations, cognitive ability, and emotional needs, thus ensuring the scientific strictness and practical feasibility of the service plan.

By deeply understanding the living situations and behavioral modes of users, service design could accurately meet the needs of the elderly, thus improving their sensory experiences in the service system, and this service concept focuses on solving practical problems, such as reducing operational obstacles and increasing functional satisfaction, while also paying attention to intangible elements like showing sympathy and building trust, and a human - centered design model emphasizes not only the achievement of functional goals but also the pursuit of mutual respect and emotional connection among those involved in the service process, and under the guidance of this principle, the service system could greatly increase user satisfaction, maintain the independence and well - being of the elderly, and create a harmonious social service environment.

4.2. Design Points of Accessibility and Usability

In the field of aging service design, accessibility and usability are of crucial importance as people grow older and their sensory powers, information - processing capabilities, and physical functions gradually decline, so special considerations are required in service design and the design framework should carefully take into account the visual, auditory, and tactile features of the elderly, for example, in interface design, improvements such as larger font sizes, better contrast ratios, and clearer audio prompts can effectively adapt to the common audiovisual decline in this group and simplifying the operation process is necessary to avoid complexity so that elderly users can understand and complete their intended tasks in the shortest time while reducing unnecessary steps that might cause cognitive stress and the seamless combination of barrier - free design in both products and the surrounding environment is vital for facilitating the movement of the elderly, including the use of ergonomically - designed control elements and accessible spaces, and these strategic measures not only increase the accessibility of services for users but also promote greater independence and participation in daily activities among the elderly and finally lead to the improvement of service experience.

4.3. Implementation Policy of Respect and Emotional Care

Respectful treatment and emotional support are crucial elements in meeting the service needs of the elderly, with their core lying in recognizing the psychological health and value of this group, and the idea of services should include protecting individual dignity and creating a psychologically comfortable environment, so strengthening the connection between people and services requires building an emotional connection framework and expressing care through effective communication and interaction, and when designing, careful consideration should be given to things like language use and service environment setup to increase the elderly's acceptance and sense of inclusion in the services, which then promotes the development towards a more human - centered and emotionally rich elderly care service [4].

5. User Experience-driven Design Strategies

5.1. Practical Paths to Improve Interactive Experience

Improving the interactive experience is a crucial part in the design of services for the elderly and is central to user - experience - focused design strategies, for considering their special physiological and cognitive features, interactive design for the old people has to stress intuitiveness, simplicity and emotional connection, so interface design should give priority to using larger fonts, clear icons and high - contrast color schemes to meet the visual decline of senior users and the interactive logic should simplify operational steps through a linear process structure to reduce the learning difficulty and cognitive burden during operation, and voice interaction, an important innovation in recent technological progress, can widen the application range in the design of services for the elderly as using natural language processing technology makes communication smooth and solves the operational problems caused by less - dexterous hands, and adding touch feedback technology in interactions further provides a more tangible operational experience and increases the old people's sense of safety and control, also the design must pay attention to the combination of emotional experience such as by using a warm design style and adding sympathetic elements to create a human - like service atmosphere to make sure that the elderly feel comfortable and respected during interactions, and the improvement of the interactive experience is not only a show of technical ability but also an example of people - centered design method.

5.2. Process Optimization and Personalized Service Solutions

As a crucial method focusing on user experience, improving process optimization along with customized service solutions aimed to meet the diverse needs of the elderly, thus increasing service effectiveness and user satisfaction [5]. Regarding process optimization, the focus should have been

on simplifying and rationally arranging service procedures such as removing unnecessary steps and improving interface layouts to ensure an intuitive and easy - to - use operating framework in line with the cognitive abilities and behavioral patterns of the elderly and in the area of personalized service design, it was necessary to create targeted measures based on comprehensive data analysis and user profiling by taking into account the different physical abilities, interests, and emotional needs of the elderly so as to provide adaptable and customizable services and interaction models and using intelligent technology, the personalized recommendation mechanism could have been strengthened to enable dynamic service adjustment which helped to reduce user complexity, improve service experiences, and ultimately contribute to the creation of a caring and individualized elderly service system.

5.3. Specific Measures to Strengthen Emotional Connection

Strengthening emotional connections could be promoted by creating a friendly and user - friendly interface which cultivated a feeling of care and respect among elderly users, when designing interactive experiences it was necessary to include human - centered elements to improve visual and auditory comfort, by providing online platforms or support groups to boost social interaction the building of relationships and the facilitation of communication among the elderly were made possible and the use of personalized content suggestions and customized services could raise users' sense of self - identity and sense of belonging thus enhancing the emotional impact of the services offered.

Table 1. Summary of Key Measures to Enhance Elderly Service Experience

Section	Key Measures	Rationale and Benefits
Practical Paths to Improve Interactive Experience	<ul style="list-style-type: none"> • Use larger fonts, clear icons, and high-contrast color schemes • Simplify operational steps through linear process structures • Incorporate voice interaction and touch feedback technology • Add warm design styles and sympathetic elements for emotional connection 	<ul style="list-style-type: none"> • Addresses visual decline and cognitive challenges, reducing learning difficulty <ul style="list-style-type: none"> • Enhances tangible operational experience, increasing safety and control • Creates a human-like atmosphere, ensuring comfort and respect • Benefits: Widens application range and demonstrates people-centered design
Process Optimization and Personalized Service Solutions	<ul style="list-style-type: none"> • Simplify and rationalize service procedures (e.g., remove unnecessary steps) • Design personalized measures based on data analysis and user profiling <ul style="list-style-type: none"> • Strengthen personalized recommendations using intelligent technology • Enable dynamic service adjustments 	<ul style="list-style-type: none"> • Aligns with elderly cognitive abilities and behavioral patterns, improving intuitiveness • Meets diverse needs (e.g., physical abilities, interests), enhancing service effectiveness • Reduces user complexity and increases satisfaction • Benefits: Contributes to a caring and individualized service system
Specific Measures to Strengthen Emotional Connection	<ul style="list-style-type: none"> • Create friendly and user-friendly interfaces • Provide online platforms or support groups for social interaction <ul style="list-style-type: none"> • Offer personalized content suggestions and customized services • Include human-centered elements for visual and auditory comfort 	<ul style="list-style-type: none"> • Cultivates feelings of care and respect, strengthening emotional bonds <ul style="list-style-type: none"> • Facilitates communication and relationship-building among the elderly • Raises self-identity and sense of belonging • Benefits: Enhances emotional impact and overall service experience

6. Application and Future Prospect of Innovative Models in Aging Services

6.1. Service Innovation Cases and Successful Experiences

As the global trend of population aging grew more intense, new models emerged as crucial driving forces in the development of aging service systems and a number of good examples had shown the practical importance of adopting user - experience - focused design strategies in the area of aging services, for instance, in the process of intelligent technology application, intelligent elderly care communities had gradually become typical models which made use of Internet of Things technology to provide the elderly with intelligent care, including remote medical monitoring, real - time health data management, and easy - to - use smart home device operation and these technological improvements not only greatly enhanced service efficiency but also created an intuitive and friendly living environment for the elderly and if it were not for these technological advancements, the improvement of the living environment for the elderly would be much slower.

Remarkable progress in promoting emotional bonds has achieved striking results and by making use of digital social platforms and virtual interaction tools, the elderly were able to keep in touch with their loved ones more conveniently, these innovations strengthened their sense of social integration and belonging, reducing loneliness and improving their general psychological well - being, moreover, personalized services full of cultural experiences had attracted much attention, for example, certain service organizations helped the elderly find a sense of identity through customized activity programs based on traditional culture, hobbies, and personal values, thus promoting spiritual satisfaction.

Empirical achievements showed that models based on user experience theory could greatly improve service results and a common point among these examples was their focus on meeting the real needs of the elderly, exactly matching their physiological, psychological and sociobehavioral characteristics, thus bringing new possibilities to the service design field, and these cases provided a useful pattern for the development of aging services and promoted the wider use of design concepts focusing on user - centeredness, technology integration and emotional health, so as a result, these efforts pushed the aging service system inevitably towards a domain of higher quality and personalization.

6.2. Possibilities of Integration of User Experience and Technology

With the rapid development of technology, the integration of user experience and technology has become a key area to improve aging services. Technologies such as smart hardware, artificial intelligence, and big data provide effective support for high-quality service design. For example, voice assistants and touch-screen devices can simplify the operation process, enhance the interactive experience, and meet the elderly's demand for convenience. Virtual reality and auxiliary equipment can enhance the immersive experience and play a role in health management and psychological comfort. Relying on big data analysis, service providers can achieve accurate user portraits, optimize service content, and meet personalized needs. From the perspective of user experience, integrating technology applications into service design requires technology to have availability, adaptability, and emotional care capabilities. For example, in interface design, font size, color contrast, and simple operation need to meet the visual and cognitive characteristics of the elderly. This integration not only improves the functionality and acceptability of services but also promotes the society's innovative solution paths and service system construction for aging problems.

7. Conclusion

This paper discusses the design strategy of aging services from the perspective of user experience, analyzes the physiological, psychological, and social behavioral characteristics of the elderly, clarifies their needs and pain points, and puts forward strategies such as improving interactive experience, optimizing operation processes, strengthening emotional connections, and personalized service design. The study shows that integrating user experience theory into service design can

significantly improve service quality and the happiness of the elderly and promote industry innovation. However, the research is limited to the theoretical level, and the actual effect has not been fully verified, and it does not cover all the needs of the elderly. Future research can combine health, psychology, and sociology from an interdisciplinary perspective to enrich the design foundation; verify the effect of strategies through case studies and optimize service models; explore the application of artificial intelligence and the Internet of Things in service design to enhance interactive experience and service personalization. Promoting research will help improve the elderly service system and build a friendly social service environment.

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