



Design of Age-Adapted Guidance Systems in Chinese Urban Architectural Spaces

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Abstract. Under the environment of aging problem, the Chinese government attaches importance to the adaptive design of infrastructure and built environment for the aging population. Among them, the architectural space, as the benchmark element of the society at the material level, has become the mainstream place for ageing-adapted design and renovation, and the design and renovation of the internal guidance system of the space has become the key point, which reflects the humanistic care of the society for the elderly population. Through the investigation of the existing design of the visual guide system in Chinese urban architectural space, it can be found that there are such undesirable situations as cumbersome content, serious symbolisation, poor visual rationality and neglect of the psychological needs of the elderly population. Therefore, this study explores the design of ageing visual guide systems in Chinese urban architectural spaces under the guidance of the ageing-friendly design approach, starting from the principles of rationality, artistry and popularity.

Keywords: Ageing-friendly, Visual guide system, Humanistic perspective

1 Introduction

UNESCO stipulates that when the number of people over 60 years old in a country or region accounts for more than 10 per cent of the total population, then that country or region has entered an ageing society (Lloyd-Sherlock, P, 2000). According to the National Bureau of Statistics of China, at the end of 2023, China's population over 60 years of age had reached 296.97 million people, accounting for 21.1 per cent of the total number of people (National Bureau of Statistics of China, 2024). With the gradual deepening of China's aging, old-age care and humanistic care for the aging group have become an area of great importance to government departments ^[1]. Urban architectural spatial guidance system is an important part of the city, through the adoption of signage, guide signs, street signs and other ways to provide visual information and good travelling experience for traffic participants, with the function of guiding, emphasising and restricting (Gibson, D, 2009). However, the design of urban architectural visualisation systems in China is confusing and does not meet the needs of an ageing population (Abramson, D. B, 2006). As conflicts intensify and the socialisation and mobility issues

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of the ageing population come to the fore, Chinese scholars have realised that the ageing of the guidance system is an important way of weakening the gap between the elderly and today's society (Ma, Q, 2020), and therefore the ageing design of spatial guidance systems for urban buildings has begun to flourish in China.

2 The Current Situation of the Age-Friendly Spatial Guidance System of the Building

With the continuous growth of age, the function of various tissues and organs of the body of the elderly group gradually decline, mainly in the perception system, musculo-skeletal system and thinking system three aspects of the degradation of the ability of the system^[2], so the demand for public space space guidance system is more intense. However, after examining hospitals, subways, shopping malls, and some large-scale activities for the elderly, the researcher found that most of the public areas are widely distributed such as floor plans, directional signs and other guidance tools, but after restricting the user's view to the elderly group, it is found that there are the following problems with their applicability.

Firstly, the content is cumbersome, and the symbolism is serious. The cumbersome content of the public space architectural space guidance system is mainly manifested in the excessive information gathered on the signage, which is not conducive to the viewing and screening of the elderly. And most of the signs are abstract images or symbols as the main guide, ignoring the cognitive and acceptance level of the elderly to such information. This will easily make the elderly group to guide the content of the understanding of certain deviations, appear unable to find or wrong to find the target information, etc., which is not conducive to the safety of the elderly to ensure.

Second, poor visual rationality. The deterioration of elderly people's physical functions often leads to the decline of their visual and auditory senses, as well as the weakening of their ability to integrate and process information^[3], but most of the spatial guidance systems in public space buildings have signs that are too high in height, with small fonts, and a combination of multiple information instructions. In addition, most of the spatial navigation systems in buildings have a single image and method of navigation, or are even designed in an alternative way for aesthetic or personalised reasons. This makes it easy for the elderly to fall into the inconvenience of watching the guidance tools, difficult to identify the content of the instructions, difficult to identify the effective information in an embarrassing situation, will undoubtedly have a certain weakening effect on the self-esteem of the elderly as well as to go to the public places of the enthusiasm, is not conducive to the physiological and psychological health of the elderly.

Thirdly, the psychological needs of the elderly are neglected. The decline in the physical functions of older persons is often accompanied by a sense of loneliness, a lack of a sense of existence and value, and the recurrence of such emotions as anxiety, loss and fear. Due to the busy schedules of their children or the different cities they live in, some of the older people in public buildings come alone or with other older people. For this part of the elderly group, the problem of spatial guidance system in the building

is not only difficult to solve through their own strength, but also can not be relieved because of the number of peers, and this situation will undoubtedly aggravate the sense of loneliness and helplessness, not conducive to the mental and psychological state of the elderly to ease.

3 The Basic Concept of the Ageing Space Guidance System of the Building

3.1 Humanised Spatial Distribution of the Guidance System

After clarifying the aging status of public space buildings and the principles of rationalisation, artistry and popularity that should be followed in the design, we will enter into a more specific and in-depth design and conception. In this link, the first thing to be considered is the spatial distribution of the building guidance system, which will be developed from the perspective of three-dimensional space and two-dimensional space.

First of all, for the building of three-dimensional space in the setup of the guidance system, the focus is mainly on the distribution of the guidance system in the internal geographic structure of the building. Usually, the guidance system should be set up in the area where the building entrances and exits, staircases, lifts, or multiple routes meet, so as to achieve a reasonable distribution of the guidance elements in the building. In addition, in the three-dimensional space of the guidance system set up, should pay attention to its unity and distinction with other elements of the building, such as as far as possible with the building decoration for separate design, to maintain the relative independence of the guidance system, and further focus on its pointing function.

Secondly, for the setting of the guidance system in the two-dimensional space of the building, it is mainly discussed from the setting of the guidance system in the building plane. Based on physiological research, it has been found that with age, individuals usually experience an increase in spinal curvature, a decrease in height, and a decrease in joint flexibility. Therefore, when considering the space occupation of the guidance system in the two-dimensional plane of the building, we should pay full attention to the physiological characteristics of the elderly group, and set up the horizontal and vertical positions of the guidance signs in the plane according to the actual situation of the building, i.e., adjusting the position of the guidance system located at the top as far as possible downward, and fixing the position of the guidance signs located at the bottom or in the longitudinal plane in the middle and bottom, and further adjusting the position of the guidance signs according to the actual situation of the building on the basis of this benchmark. On this basis, further adjustments are made according to the actual situation of the building, so that the guidance system can be located in the horizontal line of sight of the elderly group, in order to truly achieve the standard of adaptation to the elderly group.

3.2 Rationalisation of the Form and Symbols of the Visual Guide System

The form and symbol design of the ageing guide system in the building mainly refers to the external form of the guide system and the symbols pointing to other factors for clarification, and this part can be discussed from the colour of the guide system, fonts, symbols selection and other aspects. First of all, for the colour design of the visual guide system, it can be explained from the hue, saturation and brightness. From a physiological point of view, the visual ability of the elderly group is relatively degraded, often with visual problems such as blurred vision, glare, etc., and its psychological level is usually more inclined to a higher degree of sharpness of the colour to cast a higher degree of attention^[4]. Therefore, when designing the colour of the guidance system, the physiological and psychological factors of the elderly group can be analyzed, and the hue of the guidance system can be unified, even if the multi-colour fusion is required, the contrasting or complementary colours should be selected as far as possible, and the selection of neighbouring and similar colours should be avoided, so as to provide the guidance system with a distinctive degree of colour, and to enhance the recognizability of the system for the elderly group. In the selection of colour saturation, should be selected as much as possible, high saturation colour, and according to the characteristics of the colour itself for the brightness of the settings, maximize the architectural visual guide system and the main body of the building or decorations to distinguish, in order to meet the visual characteristics of the elderly group.

Secondly, for the font design of the guidance system, it can be explained from the setting of font size and the selection of font type. Usually, the building's internal guidance system is often expressed through symbols, and the text plays more of a supporting role, but for the elderly group, the text has the guidance of its important significance, so in the design of the font of the guidance system, it should take into full account the needs of the elderly group, and choose the commonly used fonts. In addition, relevant medical research shows that individuals aged around 68 years old should be able to read bold letters at a distance of 50 cm with a font size of at least 17.3 points^[5], so the architectural guidance system should be based on this benchmark for the design of the font size of the signs, so as to make it more in line with the needs of the elderly group.

Finally, the symbols of the visualisation system should be directed to this factor. Due to the elderly group in the information processing efficiency is reduced, the symbols of the guidance system should be set up to use the pointing of the extremely clear geometry, and add similar to the arrow, signs and other auxiliary elements of the guidance system symbols have the significance of the re-enforcement, in order to make the elderly group more comfortable to the guidance system symbols to identify the significance of the system^[6]. In addition, the symbols in the guidance system should be relatively independent and planned, avoiding as far as possible the emergence of a variety of symbols, so as to keep the symbols visually simple and clear, and promote the recognition and understanding of the elderly groups.

3.3 The Guidance System Should Meet the Needs of Special Elderly Groups

With the gradual growth of age, the elderly population shows a decline in memory, cognitive ability and understanding, and even dementia, and because most of the demented elderly have a certain degree of mobility, and therefore have the possibility of leaving the guardian's sight, and if such demented elderly into the public space, the confusion of the mind will lead to the loss of the ability to identify the guidance system, and even unconsciously fall into a difficult situation. They may even be unconsciously trapped in a difficult situation. Therefore, when designing the guidance system of a public place, not only should we adopt the symbol system of generalisation, simplicity and mimicry as far as possible, but we should also design several sets of guidance systems at the same time so that they can respond to each other^[7]. For example, in addition to the above symbol systems, brightly coloured and exaggerated wall or floor guidance systems can also be used, so as to attract the attention of demented elderly people as much as possible, so that they can make clear the safe areas and dangerous areas in their consciousness, so as to avoid the possible risks.

3.4 Implementation of Humanistic Concepts in the Visual Guidance System

Even if we dig into the connotation of the visual guidance system from the perspective of ageing-friendly design, we can still find the humanistic spirit embodied in it. In fact, ageing-friendly design is more of a limitation, which controls the humanistic spirit that should be carried out in the visual guidance system in the context of humanistic care for the elderly group^[8]. Therefore, when designing the ageing-friendly guidance system of a building, the contradiction between the humanistic connotations required by the elderly and other age groups should be reconciled, and as far as possible, the elderly should be tilted in favour of the elderly on the basis of the consideration of the whole age group. In addition, when designing the guide system, it should always follow the humanistic connotation, get rid of the influence of commercialisation and utilitarianism to the greatest extent possible, and really control the design principle, process and result at the level of humanistic concepts, so as to really benefit the elderly people.

4 Conclusion

Through the above research, we can find that the visual guide system has a deeper impact on the aging population, so the ageing design of the visual guide system can give the overall environment of the building with contemporary characteristics and rationalised connotations. This study discusses the deficiencies of the current visual guide system, the principles to be followed in the design of ageing guide system, and the unity of the guide system in space, form and connotation, and puts forward specific design solutions, which can provide certain theoretical and practical references for the ageing design of the visual guide system. However, under the influence of the information age, the progress of science and technology will bring about changes in the design of the guidance system, and the updating of the concept of environmental design will also have an impact on it, therefore, when designing the ageing-adapted guidance system, it

should constantly draw on the emerging elements of science and technology and the latest concept of environmental design, in order to conform to the trend of the times and provide more complete guidance services for the aging population.

References

1. Lu, Y., Zhou, L., Zhang, A., Wang, M., Zhang, S., & Wang, M. (2024). Research on designing context-aware interactive experiences for sustainable aging-friendly smart homes. *Electronics*, 13(17), 3507.
2. Li, X., Wang, X., & Li, G. (2025). Aging-Friendly Design Research: Knowledge Graph Construction for Elderly Advantage Applications. *Applied Sciences*, 15(5), 2848.
3. Huang, Y., Ye, B., & Liu, T. (2022). Research on an Aging-Friendly Design of Urban Park Landscape Based on Computer Virtual Simulation Technology. *Wireless Communications and Mobile Computing*, 2022(1), 7983757.
4. Li, J., & Dubrivna, A. (2024). Age-friendly packaging design: features and challenges. *Art and Design*, (2), 11-19.
5. Nah, K., Sung, S., Jeon, Y., & Lee, E. (2017). A study on design development direction for designing aging friendly city through the case analysis. *Journal of Digital Convergence*, 15(6), 61-69.
6. Qian, Q. K., Ho, W. K., Ochoa, J. J., & Chan, E. H. (2019). Does aging-friendly enhance sustainability? Evidence from Hong Kong. *Sustainable Development*, 27(4), 657-668.
7. Yongsheng, C. H. E. N. G., & Xiaoqi, X. U. (2023). Research on Aging-friendly Product Design System under the Perspective of Elderly Population. *Journal of Anhui University of Technology (Social Sciences)*, 40(1), 48-52.
8. Zhuan, S. (2023). Research on Aging-friendly Home Space Design Based on Humanization. *Acad. J. Archit. Geotech. Eng.*, 5, 46-50.

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