

Research on the Construction of Accessible Environmental Spaces and the Reform of Training Programs for Environmental Art and Design Professionals

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Abstract

Against the backdrop of an increasingly aging population, the construction of accessible environments has become an important issue for social development. At present, research on accessible design in China is still in its infancy and urgently needs systematic and specialized promotion. This study is based on field research on the construction of barrier free facilities, proposing barrier free planning strategies for indoor and outdoor spaces in buildings, and further exploring the integration of barrier free design concepts into spatial design courses in the training program for environmental art and design professionals. By updating and optimizing course content, we aim to align professional education with social needs and enhance the ability of design talents to serve society and solve real-world problems.

Keywords

Accessibility Design; Suitable for Aging; Feedback Teaching; Reform of Personnel Training Program; Course Research.

1. Introduction

With the continuous decline in fertility rate and the continuous extension of life expectancy, China is entering a stage of rapid aging [1]. According to data from the National Bureau of Statistics, the proportion of people aged 60 and above has exceeded 21% and is expected to reach over 30% by 2035. When the "silver wave" becomes the basic context faced by both urban and rural areas, the spatial environment is still based on the invisible standard of "healthy adult males" [2], and a large number of elderly, disabled, and temporarily disabled people are isolated outside of "15 cm high steps, lack of handrails in passages, and poorly labeled public spaces". Aging is no longer just a medical or elderly care issue, but a profound spatial justice proposition - whether cities and buildings are friendly to the "whole life cycle" directly determines whether billions of elderly people can achieve "aging in their original homes" with dignity.

1.1. The Gap between Policy and Reality

Since the promulgation of the Regulations on Accessible Environment Construction in 2012, although various regions have successively launched the creation of "barrier free demonstration cities", the existing achievements have mostly focused on "spot" transformation: tactile paving are intermittent, ramps are occupied, and aging products are still single [3]. At its root, there is a lack of regulatory enforcement and maintenance mechanisms, as well as a lack of systematic theoretical support and professional talent reserves in the front-end design. Many designers, when faced with "accessibility" task books, tend to apply the minimum standard atlas [4], simplifying "age appropriate" as "adding handrails and removing height differences", ignoring the diverse needs of the elderly in perception, cognition, social interaction, and emotion, resulting in "accessibility" becoming a technical patch in spatial narrative.

1.2. Opportunities for Disciplinary Transformation

As an interdisciplinary field that connects people, space, and culture, the Environmental Art and Design major naturally shoulders the imagination to shape future living scenarios [5]. However, the traditional curriculum framework still revolves around the binary narrative of "aesthetics+functionality", with insufficient attention paid to "inclusive design" and "age friendly" [6], leading graduates to quickly fall into the dilemma of "being able to draw but not understanding people" after entering the workplace. Under the dual guidance of "new liberal arts" and "high-quality talent training", professional education urgently needs to respond to real social issues and push "accessibility" from marginal elective courses to core competencies.

1.3. Research Approach

Based on this, this study conducted a survey on the accessibility status of local community parks, medical buildings, commercial complexes, and old residential areas in Wenzhou. Using the "POE post use evaluation" and "accompanying walking interview" methods, the study depicted the behavioral pain points and psychological maps of the elderly population in real scenarios; Secondly, extract systematic planning strategies for indoor and outdoor spaces from the four dimensions of "passage rest interaction identification"; Once again, translate the strategy into a workshop module that can be used for teaching operations, embed it into the existing "spatial design" course chain, and construct a closed-loop teaching model of "research analysis design verification"; Finally, through two sessions of student course experiments and third-party evaluations, the improvement effect of curriculum reform on design ethics, innovation ability, and social responsibility will be examined, providing a replicable and promotable paradigm for the teaching transformation of environmental art and design majors in the context of aging population.

2. Research Content

This study is based on the social reality of "rapid aging" in China, guided by the values of "spatial justice" and "elderly care in place", aiming to systematically address the core issues of barrier free environment construction from "existing" to "excellent", and from "hardware patches" to "system integration". The research content is specifically divided into three interrelated levels:

2.1. Problem Diagnosis Layer

Assessment of the current status of accessible environments based on user experience. By conducting detailed research on representative community parks, medical buildings, commercial complexes, and old residential areas in Wenzhou, we aim to deeply depict the behavioral flow lines, spatial pain points, and psychological maps of elderly and disabled people in real usage scenarios. We aim to go beyond the superficial lack of facilities and reveal the deep contradictions between the environment and people in terms of transportation, perception, interaction, and emotions.

2.2. Strategy Construction Layer

A systematic accessibility planning strategy that is age friendly. Based on research findings, a set of barrier free design strategies for indoor and outdoor spaces in buildings is constructed from the four core dimensions of "passage rest interaction identification", integrating safety, convenience, comfort, and social inclusiveness. This promotes a shift in design thinking from meeting regulatory standards to focusing on people's full life cycle needs and diverse experiences.

2.3. Educational Transformation Layer

Talent cultivation plan and curriculum reform for environmental art and design major. Transforming cutting-edge research results on accessibility and aging friendly design into teaching resources, systematically embedding them into the "Space Design" course chain through the development of a series of workshop modules, and constructing a closed-loop teaching model of "research analysis design verification", aiming to cultivate students' empathy, systematic thinking, and social responsibility, and achieve effective feedback from research and development on teaching.

3. Strategy Proposal

3.1. Systematic Design Strategy for Environmental Accessibility

Seamless traffic strategy: Build a "zero height difference" continuous traffic system from the city to indoors. Focus on solving the smooth transition of different spatial interfaces, ensuring standardization and humanization of channel width, turning radius, slope gradient, and handrail settings, and eliminating physical barriers.

Leisure and caring strategy: Reasonably set up "care points" in the traffic flow. This includes providing rest seats with backrests and armrests, resting areas that meet the needs of sunlight and shade, and easily accessible drinking water facilities, supporting elderly people to engage in restorative rest and social interaction in public spaces.

Interactive Inclusion Strategy: Design a spatial interface that supports diverse perceptions and easy operations. For example, using tactile identification, sound guidance, and high contrast color systems to assist in perceiving those who have declined; Public service facilities, such as counters and elevator buttons, need to balance accessibility and ease of use for wheelchair users and children.

Emotional identification strategy: Beyond information transmission, build a clear, warm, and emotionally soothing identification guidance system. Using pictographic and large font graphic language, combined with warm colors and lighting, to reduce the cognitive load and anxiety of the elderly in unfamiliar environments.

3.2. Reform Strategies for Talent Cultivation Courses

The teaching strategy of "Empathy Activation": Introduce the "Elderly Simulation Experience" workshop at the beginning of the course, allowing students to experience the inconvenient mobility and blurred vision of the elderly by wearing special equipment, fundamentally stimulating their internal design drive and humanistic care.

The teaching strategy of "real project driven": using real projects such as aging friendly renovation of local old residential areas and improvement of community parks as course design tasks, allowing students to participate in the entire process from preliminary research, problem diagnosis to scheme design and model verification, and strengthening their ability to solve complex real-world problems.

Interdisciplinary collaboration teaching strategy: Introduce expert lectures or joint guidance from disciplines such as rehabilitation medicine, geriatrics, sociology, etc. in the curriculum to help students build a more comprehensive knowledge system of the "human environment" relationship that goes beyond a single design perspective.

4. Conclusion

The current situation reveals "systematic deficiencies" and "experiential neglect". Research has found that the current problem with accessible environments is not only whether facilities are available, but also whether systems are connected and whether the experience is good. The

elderly not only face a height difference of 15 centimeters, but also a "exclusionary environment" composed of broken flow lines, vague signs, and missing rest areas, which deeply reflects the systematic neglect of users' diverse and dynamic needs in the design front-end.

The core of strategy lies in the paradigm shift from "compliance" to "agreement". The four in one strategy of "passage rest interaction identification" proposed in this study has the core value of promoting barrier free design to shift from "technical compliance" that meets regulatory indicators to "spatial agreement" that focuses on people's all-round experience and dignity, providing an operable design path for creating a truly age friendly society.

Education is the key lever to bridge the 'last mile'. Through the path of "R&D feeding back teaching", the cutting-edge research results can be transformed into "closed-loop teaching models" and "workshop modules", which can effectively internalize social needs into students' professional competence. The course experiment proves that this reform can significantly enhance students' awareness of design ethics, user insight ability, and sense of social innovation responsibility, providing a practical and tested "warm job paradigm" for the value reshaping and disciplinary transformation of environmental design majors in the aging era.

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