

Historical Changes, Contemporary Characteristics, and Five Transformations of Environmental Design in China

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Abstract: Starting from the characteristics of modernization in three different historical stages since the founding of the People's Republic of China, this paper analyses the internal changes in the professional name, subordinate disciplines and categories, and professional mission of the environmental design profession, and summarizes the changes in the characteristics of the environmental design profession in 10 aspects such as subordinate disciplines, design objects, design types, cultural characteristics, and aesthetic values on the basis of the results of the analysis, and explores five transformations of the environmental design profession in the process of China's development in the future. The five transformations in the future development of China are to serve the harmony and beauty of the three major urban and rural spaces with "small and micro-renewal and reconstruction"; to serve the transmission of Chinese culture and the spread of Chinese civilization with "spatial heritage and innovation"; to serve the balance and sufficiency of the four functions of urban and rural settlements with "friendliness and equilibrium"; to serve the intelligence, wisdom, and enjoyment of indoor and outdoor living environment space with "scientific and technological achievements"; and to serve the co-construction, co-management, and sharing of indoor and outdoor public space in urban and rural areas with "public participation."

Keywords: Environmental design; Historical changes; Contemporary characteristics; Five transformations

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1. Introduction

Promoting the construction of a better human habitat is of great value and significance for the great rejuvenation of the Chinese nation ^[1]. The environmental design profession belonging to the discipline of design science mainly aims to carry out indoor and outdoor habitat design research and environmental creation practice, with the main purpose of optimizing the human living environment. Comprehensive, complete, and systematic understanding, knowledge, and analysis of the environmental design profession is an indispensable part of the construction of high-quality indoor and outdoor living environments, but also an important basis for the environmental design professional education and teaching process to accurately understand the value of the profession and the scientific formation of the curriculum group.

2. Historical changes and characteristics of the environmental design profession in China

2.1. Historical changes

The changes in the name, subordinate disciplines and categories, and professional mission of the environmental design profession in the three periods have maintained a close connection with the progress of social productivity and the requirements of people’s living standards (Figure 1). From the interior design that serves the construction of a socialist image that manifests national characteristics in the early period of the founding of the country; to the gradual transition to the environmental design that focuses on both interior and landscape, adapts to the progress of the public’s life and is compatible with the high-speed economic development after the reform and opening up; to the exploration of the high quality of human habitat that focuses on people as the core of the new era and serves the national strategy, all of them have had a great impact on the social, economic, and cultural fields of our country.

Period	Modernization trait	Name of major, subject and discipline, major mission		
1949–1977	“Government-driven” prioritization of heavy industry; Slow or stagnant urbanization.	Interior Decoration, Architectural Decoration, Architectural Art ...etc.	—	Interior design is the main focus, reflecting the image of the socialist country, combined with national key construction projects, Chinese national characteristics.
1978–2011	“Market-driven” industrial development, with a balance between heavy and light; Resumption and rapid growth of urbanization; overall well-being.	Interior Design, Art Design, Environmental Art Design...etc.	Arts → Literature (Art) → Art (Design)	Gradually transitioning to both interior and landscape; adapting to the progress of public life and integrating tradition and modernity; and matching economic growth with quantitative growth.
2012–present	New industrialization, informatization, urbanization and agricultural modernization are synchronized; the manufacturing industry is the largest in the world, and there is overall well-being.	Environmental design	Art Studies (Design) → Interdisciplinary (Design)	Exploring ways to adapt to the development needs of the new era, serve national strategies, focus on a high-quality human-centered environment, and integrate science and technology, among other things.

Figure 1. The characteristics of modernization and the development of the environmental design profession in three periods in China

2.1.1. The environmental design profession from 1949 to 1977

Derived from the influence of Western modernization ideas, the October Revolution in Russia, and the May Fourth Movement, the modernization of the Chinese state was pursued from the founding of the Communist Party of China (CPC). The founding of New China laid the foundation for modernization, marking the official start of the exploration of the Chinese modernization path^[2], and the start of the “Four Modernizations” construction practice, which was based on the “government-driven” model of prioritizing the development of heavy industry, especially the “defense construction and planned economic construction.” To make national defense construction and planned economic construction of important industrial projects as the core^[3], urbanization is mainly for industrial development services, through the process of starting development, fluctuations and ups and downs, decline and stagnation, generally presenting a slow development or stagnation of the development of the state, the urbanization rate of the average annual growth is less than 0.35%^[4].

Environmental design originates from the process of refinement and professional development of the discipline after the founding of the country, and its professional system of education to the 1950s, the Central

Academy of Arts and Crafts took the lead in setting up the Department of Interior Decoration consisting of Interior Design and Furniture Design as a symbol, and then successively renamed Architectural Decoration and Architectural Fine Arts, etc., and the main task of the work of the period was to closely integrate with the national key construction projects in the practice of interior design to show the socialist country's image ^[5,6]. Although the aesthetic characteristics of this period were heavily influenced by the early industrial development of the West—where towering chimneys were once considered symbols of modernization—interior decoration still emphasized traditional Chinese culture. The aesthetic features of “Chinese style and national characteristics” were used to interpret the interior design of the “Ten Great Buildings,” gaining recognition from both the state and society ^[7,8].

2.1.2. The environmental design profession from 1978 to 2011

After the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China (CPC), the focus shifted to directly addressing issues related to the people's basic needs and various social and livelihood problems ^[9]. Emphasizing economic development as the central task, market economy elements were introduced into the planned economy system. The goal of building a socialist modernized country was established, and the decision was made to “follow a path of Chinese-style modernization.” The “market-driven” light industry system was gradually formed and developed significantly, and the people's material and cultural needs were better met, especially after China's accession to the WTO in 2001 and its integration into the world's production system and the global market, the economic development was put on the fast track. At the same time, from 1978 to 1992, urbanization entered a period of recovery, with a new urban population of more than 140 million and an average annual growth rate of 0.68%; from 1993 to 2012, urbanization entered a period of rapid development, with a new urban population of more than 400 million and an average annual growth rate of 1.29%. Accompanied by the process of urbanization and industrialization, it took only 21 years from 1979, when the idea of a “moderately prosperous home” was put forward based on solving the problem of subsistence, to 2000, when “overall moderately prosperousness” was realized, and the historical advancement of the “comprehensive construction” of “moderately prosperousness” was followed. Subsequently, the historical advancement of “building a moderately prosperous society in all respects” laid a solid foundation for its comprehensive achievement ^[10].

During this period, people's lives related to the level of the construction industry have been greatly enhanced and gradually prosperous, environmental design professionals and related industries have also been in unprecedented development, in line with the economic development. In the 1980s, the environmental design field was still primarily focused on interior decoration or design. The Central Academy of Arts and Crafts renamed architectural decoration to interior design, and the Ministry of Construction established the China Building Decoration Association. However, the environmental design field, which was mainly focused on interior decoration or design, struggled to meet the evolving needs of the public. In 1982, Xiaopeng Xi first introduced the concept of “environmental art” ^[6]. Influenced by architectural trends, this led to the formation of a fundamental understanding of environmental art ^[11]. In 1987, the environmental design profession was listed in the Catalogue of the National Education Commission as “environmental art design,” which belongs to the category of art, and in 1998, the Catalogue of the Ministry of Education was set up as “art design,” which belongs to the category of literature and art, and the environmental design profession began to move towards the field of landscape design ^[12]. In 2011, art was upgraded to a discipline category, design was upgraded to a first-level discipline that can award degrees in art or engineering, reflecting the nature of design as a discipline that is a cross-composite of art and engineering, and environmental design majors was classified as “environmental

design” in the Ministry of Education’s “Catalogue” in 2012, which belongs to the category of art and design.

In the early days of reform and opening-up, the mission of interior decoration or design is to adapt to the evolving needs of the public. Some scholars advocate for creating beautiful living environments for the people, exploring modernization techniques and arts rooted in tradition and community ^[13]. After entering the field of landscape architecture, there has been a gradual advocacy for integrating architecture and interior environments with garden landscapes. After entering the 21st century, as societal demands for higher standards and finer specialization in the field increased, interior design began to see professional differentiation. Specialized areas such as “soft furnishings” emerged, and landscape design came under unified professional certification and title accreditation by relevant national or local authorities. Throughout this entire process, the development of the environmental design profession and education has been closely associated with economic development, especially following the rapid urbanization in society. Environmental design programs grew significantly from 16 officially approved and recorded by the Ministry of Education in 1994 ^[5] to nearly 800 by 2012—an increase of nearly 50 times. Each year, over 20,000 students graduate from these programs, making it one of the most popular disciplines within the arts at one point ^[12]. This growth has essentially established the development framework for environmental design education.

2.1.3. The environmental design profession from 2012 to now

The 18th Party Congress marked the entry of socialism with Chinese characteristics into a new era ^[14-16], and modernization stepped into a completely new stage of development; the report of the 19th Party Congress made the major judgment that “socialism with Chinese characteristics has entered a new era” ^[17], and mentioned “modernization” 47 times, put forward the basic contradiction of “imbalance and inadequacy,” “promote the synchronous development of new industrialization, informatization, urbanization, and agricultural modernization,” “implement the strategy of rural revitalization,” and other development strategies. The report of the 20th Party Congress in 2022 mentioned “modernization” 85 times and “Chinese-style modernization” 11 times, and put forward the “implementation of a new type of urbanization strategy” and “comprehensively advancing the great rejuvenation of the Chinese nation through Chinese-style modernization.” During this period, the new development concept was implemented, regional balance, rural revitalization, and other strategies were carried out in-depth, and the economy was transformed from high-speed to high-quality development, with “economic strength achieving a historic leap,” “the scale of manufacturing industry ranking first in the world,” and “poverty alleviation for all” being achieved by 2020. The entire population has been lifted out of poverty and entered the development stage of “building a moderately prosperous society in all aspects”; urbanization has entered the stage of high-quality development while maintaining a high rate of growth.

In order to further promote scientific progress and social development, the State Council Academic Degrees Committee and the Ministry of Education set up cross-disciplinary in 2021, and the Catalogue of Postgraduate Education Disciplines and Specialties (2022) was formally implemented in 2023, and the environmental design profession belongs to the cross-discipline of design. In 2012, “Human Settlement Environment Science,” characterized by large capacity, multi-levels, and multidisciplinary features, received the highest national science and technology award, laying a theoretical foundation for research in the environmental design profession under the new era’s backdrop ^[6]. As a component of human settlement environment system design, environmental design aims to create better living environments for the people, meeting their growing material and cultural needs. This continual enhancement contributes to the happiness and satisfaction of the populace ^[18]. During this period, the environmental design profession began adapting to new-era development demands,

demonstrating characteristics such as openness, inclusivity, dynamic renewal, and diversified development. Research shifted focus from serving the rapid economic development and urban expansion needs of newly developed urban areas to strategically addressing rural revitalization, regional balance, historical urban-rural areas, aging urban areas, villages, and settlements. Research directions evolved from economic development adaptation to emphasizing higher-quality living environment spaces that are fair, friendly, ecological, and cultural. Moreover, studies also explored the impact of technological innovations such as smart management systems, intelligent living technologies, and new materials on environmental design.

2.2. Contemporary characteristics

It can be seen through the analysis of the historical lineage that the environmental design profession has the following characteristics in the context of the new era.

- (1) Crossover of subordinate disciplines: With the proposal of “Habitat Science,” the environmental design profession, which serves the design of indoor and outdoor living environment space at the micro level, has gradually evolved into a multidisciplinary cross-disciplinary profession of art, engineering, ecology, geography, planning, sociology, culture, and so on.
- (2) Wide range of design objects: Under the background system of territorial spatial planning, the design object of the environmental design profession is based on the design of the building interior and surroundings, and further expanded to the environmental design of the three major spaces of ecology, life, and production at the micro level in the city and countryside.
- (3) Various types of design: Traditionally, the design of artificial spaces such as streets, courtyards, living rooms, and other environmental spaces is the main focus, and now also includes the creation of natural spaces such as river valleys, streams, wetlands, and the design of the coupling between the two.
- (4) Diversified cultural characteristics: China possesses a rich and diverse cultural heritage. Utilizing themes based on cultural events and historical contexts, environmental design creatively interprets and innovatively expresses historical and cultural narratives through spatial language. By integrating these narratives into living environments, it effectively tells compelling Chinese stories and develops distinctive spatial characteristics.
- (5) Emphasis on simple aesthetics: With the promotion of the construction of “cultural power,” environmental design will gradually pay attention to the simple aesthetics of the Chinese tradition, including the beauty of life, ethics, harmony, and the beauty of the mood and other traditional aesthetic forms.
- (6) Functionality focuses on practicality: In the development process to meet people’s aspirations for a better and happier life, environmental space design needs to focus not only on physiological needs, such as convenience, good use, etc., but also on the psychological needs of the people, to enhance the people’s sense of pride, happiness, sense of achievement, and sense of dignity.
- (7) Appreciation and experience: In the tour process, the environmental space design not only needs to meet visual appreciation but also needs to take into account participation, interaction, sharing, science, and other experiential activities.
- (8) Adhering to green and low carbon: Under the overall requirements of “double carbon” and ecological civilization, environmental design should emphasize life cycle and recycling, energy saving, and emission reduction, shaping environmental space based on natural processes, and advocating harmonious coexistence between man and nature.
- (9) Integration of tradition into science and technology: It is necessary to strengthen the integration

of traditional crafts, materials, space forms, and new technologies and materials in the process of environmental design, and promote the environmental space of human settlements to meet the basis of modern human settlements, and to express the unique emotions of the place.

- (10) Advocating value leadership: In the context of high-quality living environments, it is important to strengthen the manifestation of socialist core values through environmental spaces. This can be achieved by guiding social aesthetic expressions through spatial design and serving societal cultural communication.

3. Five transformations of the environmental design profession in China

3.1. Serving the harmony and beauty of the three major spaces in urban and rural areas with “small and micro-renewal and reconstruction”

Since the 18th Party Congress, China has gradually established a national land space planning system to meet the overall requirements of ecological civilization, the core of which is to organize the development and protection of national land space, and it is a comprehensive arrangement for the use of national land space based on the national development goals and strategies, and the foundation and core of the national land space planning is based on ecological security and food security, comprehensively considers the delineation and layout of the ecological, living, and production spaces in response to social and economic development^[19]. The three major spaces are based on both national ecological security and food security and can adapt to the spatial pattern of socio-economic development, they are the macro-habitat environmental system of human and natural harmony and coexistence of the concentration of the manifestation of the macro-habitat environmental system^[20].

As an extension and development of national spatial planning, environmental design focuses on “quality enhancement” in the construction of ecological patterns oriented towards social needs within the framework of national spatial planning. This approach aims to better meet the higher-level ecological spatial needs of the people in future micro and macro interior and exterior living environment design processes^[21]. For instance, in the design of small-scale stream valleys and wetland parks, ecological principles such as low-impact design following natural processes are employed to shape “ecological beauty.” This approach focuses on enhancing ecological aesthetics. Through methods like urban and rural life space revitalization, including renovating old areas and integrating new facilities, efforts are made to add community amenities, enhance the cultural ambiance, and coordinate environmental aesthetics and place-making^[22]. This initiative aims to cultivate “living beauty.” Moreover, there is an emphasis on protecting rural landscapes such as mountains, fields, rivers, lakes, wetlands, native vegetation, and ancient trees. Specific actions include tailored greening of barren hills, lands, and beaches, strengthening farmland protection and afforestation, and organizing landscape patterns along field edges, roadsides, ponds, and other natural settings^[23]. These efforts aim to achieve “productive beauty,” especially in agricultural landscapes in rural tourism areas.

3.2. Serving the promotion of Chinese culture and dissemination of Chinese civilization through “spatial cultural heritage and innovation”

Cultural context^[24] unifies space and humanities, characterized by historical, contemporary, and future dimensions. Its origin and evolution are intrinsically linked to the diversity of civilizations^[25]. Therefore, cultural context often refers to a unified entity of a built environment and the societal and cultural backgrounds it carries, intertwined with human psychological constructs. Examples include certain historically rich neighborhoods, streets, villages, buildings, city walls, ancient trees, and wells. These physical environmental spaces allow people to experience the past, present, and future.

The inheritance and innovation of cultural heritage in indoor and outdoor living environment space should be based on the historical and cultural process of cities or villages, considering the regional cultural characteristics as a whole, and applying policies in a classified manner. The indoor and outdoor living environment design for historical and cultural heritage areas such as historical cities, towns, villages, and neighborhoods, as well as historical and cultural heritage elements such as protected buildings, historical buildings, landscape buildings, and historical landscapes, needs to be based on the Regulations for the Protection of Historical and Cultural Cities, Towns and Villages, the Protection of Cultural Relics Law, and relevant regulations such as the relevant protection planning for protective design and adaptive use^[26]. For urban areas, towns, or villages with a certain age, indoor and outdoor living environment space for the heritage and innovation of the cultural lineage can be based on the national or regional important historical and cultural context, historical events, or socialist advanced culture and other subjects, with a relatively new spatial approach or form, from the overall spatial pattern to the construction of the details for creative expression^[27]. For example, the landscape design of Three Gorges Park in Chongqing's Three Gorges Square incorporates a ground sculpture at the bottom of a water pool, inspired by important cultural symbols of the reservoir area. This metaphorically represents the submergence of numerous cultural homes in the reservoir area after the construction of the Three Gorges Dam, reflecting the spirit of sacrifice and dedication of local residents who sacrificed their homes for the construction of the dam. In the case of large-scale urban new development areas, interior and exterior environmental design can integrate specific cultural elements or interpret and express local culture through spatial design in accordance with specific planning demands.

From the viewpoint of spatial composition, the construction of the living environment in every town and village is a combination of specific natural geography and historical culture. Whether it is to protect different types of cultural context, i.e., to protect different historical spatial carriers, or to create new indoor and outdoor living environment space based on national or regional diverse cultures, it is a fusion of different material spatial environments and social ideologies, and the inheritance and promotion of diverse cultures, as well as the development of diverse civilizations. Upholding cultural standards, safeguarding excellent historical and cultural heritage; exploring cultural themes effectively, telling compelling Chinese stories; using interior and exterior living environment spaces to inherit and innovate cultural contexts, and promoting the dissemination of China's outstanding culture and historical civilization^[28].

3.3. Serving the balanced and comprehensive functions of urban and rural settlements with “friendly and balanced” services

The assertion of “imbalance and insufficient” put forward in the 19th National Congress can better summarize the current situation of urban and rural settlements' living environment construction in China, and the overall level of living environment construction in cities and towns is much higher than that in the countryside, which shows the characteristic of “imbalance”; while the current level of living environment construction is still relatively low, primarily meeting short-term practical needs, and there remains insufficient attention to fairness, justice, ecology, culture, and vulnerable groups, demonstrating characteristics of “insufficiency.”

The Twentieth Congress proposed the development goal of “significantly improving the urban and rural living environment, and building a beautiful China.” Urban and rural settlements differ significantly in terms of economic development, social governance, and political systems. However, they share common functional forms such as residential, work, recreational, and transportation functions. Designing indoor and outdoor living environments that accommodate these four major functions is central to the field of environmental design and constitutes a critical foundational project for ensuring people's livelihoods. Based on the “imbalance”

characteristic, efforts should be intensified to address the “shortcomings” in rural indoor and outdoor living environments, highlighting rural regional characteristics. This involves integrating villagers’ preferences and current conditions to enhance comprehensive management of areas such as house edges, courtyard edges, and roadside areas in rural regions. Unused spaces like between houses can be utilized to create new cultural and recreational spaces. Additionally, improvements should be made in the ecological management of rural kitchens, bathrooms, and livestock areas ^[23]. Based on the characteristic of “insufficiency,” comprehensive spatial design of indoor and outdoor living environments should aim to balance relationships among various groups, creating shared, open, and inclusive spatial forms. Special attention should be given to vulnerable groups, including child-friendly design ^[29], aging-friendly design ^[30], disability care design ^[31], and design considerations for low- and middle-income groups. For example, how to make public spaces such as streets more convenient for people with disabilities ^[32], and how to provide economically viable, practical, and comfortable living spaces for migrant workers in large cities, typically with small living spaces of around 16.9 square meters ^[33]. Specialized research should focus on enhancing affordability, applicability, and comfort in these contexts. In practicing the development concept of “putting people at the center,” it is essential to construct a comprehensive living environment spatial system that is age-friendly and balanced in urban and rural areas ^[34]. This aims to create more pleasant indoor and outdoor living environments for the people, further achieving the “Four-Suitable” goals: suitable for living, suitable for work, suitable for leisure, and suitable for beauty ^[18].

3.4. Utilizing “technological achievements” to serve the intelligent, wise, and enjoyable aspects of indoor and outdoor living environment spaces

“Technology makes life better.” With rapid advancements in technology, the pattern and quality of urban and rural development are profoundly impacted. Technological innovations include modern information technologies, such as remote sensing and virtual reality, which enhance the efficiency of the design process and optimize the design experience. Additionally, various ecological and intelligent technologies address environmental issues and modern living needs ^[35]. These include vertical greening ^[36], rainwater collection and recycling ^[37], sustainable development and energy-saving technologies ^[38], smart home technologies ^[39], 5G smart management ^[40], and virtual reality immersive experience technologies ^[41]. These technologies either contribute to segments of indoor and outdoor living environments or significantly alter the design process, reconstructing spatial layouts. Furthermore, new materials continuously replace old ones, transforming the function, form, and experience of indoor and outdoor living spaces. These technological advancements provide enhanced experiences in living environments, promoting intelligence, wisdom, and enjoyment in indoor and outdoor spaces.

3.5. “Public participation” serves the co-construction, co-management, and sharing of indoor and outdoor public spaces in urban and rural areas

Grassroots democracy is the process through which people are informed, involved, and able to express and supervise public affairs and public welfare initiatives that directly affect their interests. It is an essential manifestation of whole-process people’s democracy ^[42]. The planning, design, and construction of urban and rural indoor and outdoor living environments, particularly public spaces, significantly impact residents’ mobility, recreation, and daily life. These activities often involve major livelihood issues, such as compensation and employment. Allowing the public to fully understand related information and express their interests can promote a more scientific and democratic planning and construction process. Engaging the broader public in decision-making, construction supervision, operational management, and environmental maintenance of urban and rural indoor and outdoor public spaces is crucial. This involvement fosters a positive community

atmosphere and enhances the value of these spaces. In the planning, design, and construction of these spaces, it is important to establish a broad, orderly, comprehensive, and effective public participation system^[43]. This ensures the implementation of grassroots democratic principles, creating a new model of co-construction, co-management, and shared urban and rural public spaces^[44].

4. Conclusion

China is currently at a critical juncture as the entire Party and people of all ethnic groups embark on a new journey of building a modern socialist country in all respects. This period marks a transition from rapid development to high-quality development. The five transformations serve as the design process and presentation state of high-quality urban and rural living environments, representing the way the environmental design profession contributes to the construction of a happy and beautiful China. These transformations are also the essential path for the modernization of the environmental design profession. Based on these five transformations, five course groups can be constructed: based on the construction of ecological civilization, we can build the courses of spatial protection and utilization, such as Introduction to Territorial Spatial Planning, Landscape Ecology, Eco-Design, etc.; based on the construction of high cultural strength, we can build the courses of cultural inheritance and innovation, such as the history of design, museum design, and design of cultural venues, etc.; based on the principle of “people-oriented,” we can build the courses of all-age friendly and urban-rural integration, such as ergonomics, ageing-friendly design, child-friendly design, rural habitat transformation, urban old community transformation, urban-rural public space design, etc.; based on industrial upgrading and technological innovation, we build emerging technology-based courses, such as smart home design, low-carbon technology application and design, assembly technology and design, etc.; based on relevant policies and regulations, we build courses such as environmental design regulations and space policy management.

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