

CURRENT STATUS OF HUMANISTIC RESEARCH ON SUSTAINABLE INDOOR ENVIRONMENT DESIGN

Okada Yu
School of Information Science, University of South Carolina, USA.

Abstract: This article uses research methods such as induction and comparative analysis to analyze the literature on sustainable indoor environment design collected in domestic and foreign literature databases, as well as related professional books at home and abroad, with the aim of analyzing the current research field of sustainable indoor environment design. A relatively comprehensive understanding of research progress can be provided to provide certain reference theory and basis for future research.

Keywords: Sustainability; Indoor environment; Humanities

1. RESEARCH RESULTS THAT CAN BE USED AS A REFERENCE IN TRADITIONAL INDOOR ENVIRONMENT DESIGN

In the field of interior environment design, humanities can be properly understood as profound cultural and humanistic design elements with broad significance. It also shows that people are the starting point and destination in design. Research on humanities in indoor environments has long existed, and research on the humanistic connotations of traditional indoor environments has produced many results at home and abroad, all of which have academic value and practical significance. The injection of sustainable concepts into the indoor environment has caused great changes in most parts of the indoor environment. The original humanistic theory is no longer suitable for expressing the humanistic characteristics of a sustainable indoor environment. For example, our interior design is A people-centered, but human-centered approach is a revolutionary step forward in sustainable indoor environments. However, as a research within the field of indoor environment, there are still some humanistic views of traditional indoor environment that are worthy of reference for this subject. The humanistic idea of sustainable indoor environment is a sublation of the traditional indoor environment. For example, Qian Lizhu pointed out in the article "Analysis of Humanistic Care and Humanistic Spirit in Interior Environmental Art Design" (2011) that the main purpose of interior decoration is to make people in it feel comfortable and natural, and the ultimate purpose of design is to make people feel comfortable and natural. People who live or work feel comfortable and happy. Only by integrating people throughout the design can a perfect work be completed. The "nature" in Qian Lizhu 's article [1] refers to the pleasure and freedom that people feel. This is a concern for human emotions and the meaning of a sustainable indoor environment. It can be used as a reference for research results and sustainable restoration. Make "nature" have a broader meaning and make "nature" appear more real and natural . In her paper "Humanistic Complex in Modern Interior Design" (2003), Wu Meifang relied on the traditional thought of human beings to conquer nature and explained that the progress of modern technological means and the continuous expansion of the field of building materials have made the indoor environment of buildings more human-oriented. With the development of industrialization and intelligence, the indoor environment of buildings can get rid of the limitations of natural factors and fully meet people's requirements for comfort. Taking the shopping model of large-scale shopping supermarkets in China in the mid-1990s as an example, it illustrates that technology can provide people with more humanized and emotional indoor environment experiences. Wu Meifang [2] 's article 's outlook on the future of high-tech is a reflection of the technical concept of sustainable indoor environment. Intelligence is the high-tech route for sustainable indoor environment, and one of its goals is to be highly emotional. Documents such as this show that the humanistic thought of sustainable indoor environment is a critical inheritance of the traditional indoor environment, with new concepts incorporated, new interpretations of some humanistic formulations, and a few reservations, especially in In the study of humane and highly emotional humanistic care, the research results of traditional indoor environment can provide some reference and reference for the research in the field of sustainable indoor environment.

2. CURRENT STATUS OF HUMANITIES RESEARCH IN SUSTAINABLE INDOOR ENVIRONMENT DESIGN

Sustainable interior environment design has been around for more than half a century. At present, theoretical research on sustainable interior design practice at home and abroad has produced some results, such as published books and papers such as "Sustainable Interior Environment Design" by Zhou Haoming. Theory " (2011), "Sustainability in Interior Design" (2012) by Sian Moxon (UK), "Green Interior Design" (2012) by Lori Dennis (US), "Environment" by Louise Jones (US) Friendly Design: Green and Sustainable Interior Design" (2014), "Sustainable Design for Interior Environment Design " (Second Edition) by Susan M. Winchip (US) (2011), "Sustainability in Interior Design" by Pilatowicz G. (US) (2015)) wait. At the same time, many successful design cases have been produced, such as the earth boat house in Taos County, New Mexico, the United States, the paper house designed by Japanese architect Shigeru

Ban, and the Arab World Study in Paris, France designed by Jean Nouvel. Institute, BRE Future Office in Hertfordshire, UK, etc. Compared with the design practice and corresponding theory of sustainable indoor environment, humanities research obviously lags behind, showing a trend of unbalanced development. Only some literature on design theory touches on the humanistic aspects, and the number is small. Representative results include:

book "Sustainable Interior Environment Design Theory" (2011) provide an overview of sustainable interior design. The aesthetic characteristics of the environment; in the first part of the first section of Chapter 9, Zhou Haoming clarifies his personal views on the humanistic view of sustainable indoor environment. Zhou Haoming believes that it should be based on the idea of "nature-oriented" To reshape the humanistic concept of indoor environment ; in the fourth part of the second section of Chapter 2, it is pointed out that a sustainable indoor environment should be dynamically adaptable and the entire life cycle should be able to meet the needs of more people; Chapter 2 Part six also emphasizes the need to encourage the public to participate in the sustainable design process, which can more fully meet user expectations and better create a human-friendly sustainable indoor environment.

(2) In the paper "Sustainable Development Concept and Sustainable Interior Design" (2003) by Liang Lina and Gao Jinsuo, it is mentioned that sustainable indoor environment design should contain the most basic philosophical ideas such as equality, development, fairness and democratic principles., should be able to coordinate the five major systems of resources, environment, people, society, and economy with each other and make progress together while improving the quality of life [3].

(3) Chapter 7 of the book "The Use of Natural Light in Sustainable Architecture" (2004) by Guzovsky (USA) explains the ecological connection between natural light and the environment, society, spirit and psychological pleasure; Chapter 8 explains how natural light can change our behavior and increase our ecological awareness.

(4) Preface 3 of the book "Green Architecture" (2005) by Brian Edwards (USA) talks about how to control technology from the perspective of ecological ethics; and the protection of local traditions in architectural space. Affordable social responsibility; and believes that the indoor environment should absorb the traditions and cultural essence of the two major civilizations of Christianity and Islam, and find a way out by combining Western modern technology with Eastern traditional thinking.

(5) In the theoretical part of the book "Architecture Pioneer: Green Sees the Future" (2014), Hao Lin uses the concept of sustainable design to predict the lifestyle that future architectural spaces may provide us. He believes that good design should be sustainable . The sustainable architecture of the future will value the inheritance of craftsmanship (culture), the conservation of nature (environment), the transformation of industry (economy), and people's lives (society). Through high-tech The goal of sustainability through technology and intelligence is to sublimate the people, cultural landscape, and natural ecology into a " careless " daily atmosphere.

(6) Lin Xiande (Taiwan), in the first and fourth parts of Chapter 9 of the book "Green Building" (2nd edition in 2011), uses the second law of thermodynamics to explain the sharp decrease in nutrient energy when it is transferred to the upper layer . In order to protect the environment and effective resources, reduce entropy, and encourage us to live a simple lifestyle, homes, buildings, and cities should not be too complex. In a word, the simpler the building system, the more sustainable it is. In the third part of Chapter 9, it discusses the social value and sustainable significance of appropriate technology, using existing materials, technology, construction, and equipment to maximize the earth's environmental protection function and protect local traditional crafts. The vitality of regional culture can be inherited and carried forward; it also borrowed the views of Schumacher, the master of ecological economics, to discuss the humanistic concept of "suitability": we should not blindly learn the production methods, consumption standards and value systems of Western developed countries., otherwise we will be more dependent on rich countries and unable to extricate ourselves. Economic development should be limited to a certain extent, the pursuit of efficiency or productivity should be limited to a certain amount, the use of non-renewable resources should be limited to a certain amount, the fine division of labor should be limited to a certain amount, and the replacement of common sense with scientific methods should be limited to a certain amount .

(7) David Bergman (USA), in the last part of "Sustainable Design Essentials Guide" (2014), "The Future of Sustainable Design", analyzed the reasons why sustainability is not recognized by people for the time being, because The new sustainable strategy has a different form from the traditional one, which makes people feel strange. Some progressive thinkers are afraid of people's strange eyes and stay away from sustainability. Just like the early cars were designed to look like horse-drawn carriages, they used familiar forms to slowly make people accept new things. David Bergman believes that the " transparent green" approach is feasible in architecture and interior spaces. The ecological elements are still there, but they are not so obvious. When sustainable design no longer has a look, it no longer It is a conscious choice, no longer a declaration, no longer targeted at some special (minority) groups. But he also pointed out that "transparent green" would lose the educational significance of ecological strategies to people.

(8) In the article "Sustainable Development and Interior Design - Also Talking about the Creation of Green Indoor Environment" (1998), Lai Zengxiang pointed out that sustainable indoor environment has social, historical and regional cultural characteristics. In addition to the so-called "hardware" economic and technical fields such as land use, ecology, environment, and energy, development is also related to "software" factors such as social culture and historical context, such as the protection of scenic spots and cultural relics. Pay attention to the continuity of regional culture and regional cultural landscape, etc. Sustainable development focuses on respecting and communicating with the environment, and saving and cherishing resources. In addition to using high-tech means, it is also willing to adopt "appropriate technologies" that suit the time and local conditions. At the same time, it was also pointed out that sustainable indoor

environment is a response to the traditional Chinese idea of "harmony between nature and man". Sustainable development can be philosophically connected with our country's traditional philosophical view of "harmony between nature and man". The "human" here—— It can be regarded as a self or a group. "Heaven" - can it be considered as an objective natural environment or artificial environment other than oneself or a group of people? The unity of nature and man is the symbiosis between man and things, the "dialogue" and communication between man and the environment. Tonghe integration [4].

(9) Daniel Jauslin quoted three architects' views and discussions on sustainable aesthetics in the paper "Landscape Aesthetics for Sustainable Architecture" (2012), and pointed out what the aesthetics of sustainable design should look like and where it can be. To what extent it can be realized is still unclear, but natural aesthetics and ecological aesthetics must have considerable room for development in future sustainable design [5].

(10) Grazyna Pilatowicz pointed out in the paper "Sustainability in Interior Design" (2015): Efforts committed to the sustainability of the built environment must not only focus on building system performance and protecting resources, but also should be based on people's physical and psychological and spiritual needs. Understanding is the necessary starting point for a good environmentally friendly design decision [6].

(11) In the paper "Cultural Aspects Analyses in Sustainable Architecture" (2012), Yaser Rezapour et al. studied the interrelationship and influence between sustainable architecture, culture and behavior, and believed that only a sustainable lifestyle can promote a sustainable society, and a sustainable society can Produce sustainable architecture; sustainable architecture should be used as a cultural background to establish our best sustainable culture. Sustainable architecture contains sustainable culture, and it plays an important role in the formation of a sustainable society [7].

3. RELEVANT RESEARCH RESULTS IN HUMANITIES RESEARCH ON SUSTAINABLE ARCHITECTURE

3.1 The Beginning of Research

Humanistic research in the field of sustainable architecture has been noticed by architectural scholar Zheng Guangfu as early as 1999. In his article "The Architectural Future of the Environment" (1999), he put forward the argument that ecology cannot overpower humanism, but in It did not seem to attract much attention at the time. It has been a long-standing common phenomenon in sustainable architecture research to favor ecological aspects over social aspects. Nowadays, humanistic thematic research on sustainable architecture has begun [8]. Li Haixia and Ran Maoyu's paper "Design Thoughts on Humanistic Ecological Buildings" (2006) made some explorations into the healthy life model, humanistic care, and regional protection in the process of globalization in ecological buildings, and affirmed that ecological buildings have these humanistic features. feature. The representative result of the special research is "Humanistic Concepts of Green Buildings" (2010) edited by Zhao Anqi and Zhou Ruoqi [9]. This book is the first monograph on humanistic connotations in the field of domestic architecture. The book proposes four basic principles for constructing humanistic concepts: ecological, scientific, national, and popular. It also proposes eight basic humanistic concepts: harmony between man and nature, sustainable development, safety and efficiency, economic applicability, regional adaptation, It is economical and efficient, people-oriented, poetic and peaceful, and has made certain theoretical explanations. Its academic value is worthy of recognition. Thematic academic papers include "Humanistic Expansion of the "Green Building" Concept" by Li Guoyou and Liu Daping (2010) and "Deepening the Understanding of Green Building from a Humanistic Perspective" by Chen Liuqin (2010). Li Guoyou and Liu Daping used a practical case to explore the relationship between architecture and its own functions, regional environment, society, and historical background, as well as the possibility of green evaluation of humanistic attributes such as temperament, taste, and ethics. Chen Liuqin [10] discussed that social ecology and economic ecology are of equal importance to natural ecology. It should be said that with the publication of these three documents [11], the academic community started thematic research on architectural humanities in 2010. According to the famous Chinese ecologist Ma Shijun who proposed the natural-society- economic composite ecosystem in the 1970s, he believed that the three subsystems of society, economy, and nature are intertwined, and they are mutually reinforcing and constituting the artificial ecosystem. Contradictory movement. When faced with such complex systems, buildings and indoor environments should be studied with comprehensive consideration of society, economy, and nature. On the basis of the above three literatures, there is still room for further research on the social attributes of sustainable buildings.

3.2 Deepening of Research

In recent years, two professional books on humanities research have been published in the field of sustainable building research. The Institute of Standards and Quotas of the Ministry of Housing and Urban-Rural Development of China compiled the "Technical Guidelines for Social and Humanistic Needs in Urban Community Green Building Planning" (2016), which covers the diverse needs of building space; the humanistic needs of public services; the humanistic needs of transportation; and the health of the ecological environment. Design suggestions are given on content such as sexual needs; social fairness and public participation needs. The Green Humanities Group of the Green Building and Energy Saving Professional Committee of the China Urban Science Society organized the compilation of "Green Technology and Humanistic Concepts of Traditional Chinese Architecture" (2017), which sorted out the eight green humanistic concepts embodied in traditional Chinese architecture and discussed the prehistoric period., the Xia, Shang and Zhou

dynasties and the basic trajectory of the evolution of Chinese settlements in feudal society, and summarized the "green construction experience of Chinese traditional residences adapting to terrain (landform)", "the green construction experience of Chinese traditional residences adapting to climate" and "the application areas of Chinese folk residences" Material Experience". Liu Sufang and Cai Jiawei's monograph "Research on Green Technology and Humanistic Connotation in Modern Architectural Design" (2019) takes the relationship between modern architecture, the natural environment, and history and culture as the framework, and draws on sustainable technology, construction experience in different climate zones, and various Starting from the design methods of typological buildings, it explains the expression of material language and the inheritance strategy of traditional architectural culture, and makes an overall summary of the basic principles and construction concepts of the humanistic connotation of green buildings. Compared with previous studies, these three books are obviously more in-depth and more specific in research content. They have conducted more detailed discussions on exact issues in terms of green design principles, methods and strategies, and traditional ecological wisdom .Most of the content and focus of humanistic research on sustainable architecture is actually the space and environment created by architecture . Humanistic research on sustainable architecture is being promoted step by step, with a trend of subdivision and in-depth cultivation. Architectural humanities and indoor environmental humanities are not completely equivalent, but they are very closely connected and highly interoperable. The above-mentioned existing results in the field of architecture have important reference, reference value and inspiration for humanistic research in the field of interior environment design. In fact, from another dimension, in the field of architectural design and even interior environment design, more and more design researchers and practitioners at home and abroad have recently begun to pay attention to the relationship between sustainability and humanity. Most of them A world- renowned scholar. For example, KrishnaBharathi in the article "Engaging Complexity: Social Science Approaches to Green Building Design" (2013) [12], David Brody in the article "GoGreen: Hotel, Design, and the Sustainability Paradox" (2014) [13], and the author in the proposal report of the graduate thesis (2014) [14], Grazyna Pilatowicz in the article "Sustainability in Interior Design " (2015) [15], Chu Dongzhu in the book "Sustainable Architecture - Integrated Mechanism of Design Generation and Evaluation " (2015) [16], Lu Shaoming In the article "Space·Memory· Reconstruction : Renovation of Existing Buildings" (2017) [17], ArnoSchlueter, Adam Rysanek, and Han Dongchen in the article " Collaborative System Design Based on Next-Generation Sustainable Buildings" (2017) [18], they all unanimously showed their concern for humanistic issues based on their respective work realities, research fields, and survey data, and advocated using humanities to enrich the sustainable development of architecture and indoor environments.

4. CONCLUSION

There is no thematic humanistic research on sustainable indoor environment. Compared with humanistic research in the field of architecture, the development of interior design itself lags behind significantly. We are still unclear about the ultimate direction of its humanistic care, the style of the humanistic spirit is not yet clear, and a systematic humanistic system has not yet been established. There is still no targeted design strategy for how a sustainable indoor environment can demonstrate its humanistic connotation. There is still a lot of research space for the humanistic theory of sustainable indoor environment. Only if ecology and humanism, nature and humanities go hand in hand and develop together, can the sustainable process of indoor environment develop well .

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- [1] Qian Lizhu. Analysis of humanistic care and humanistic spirit in indoor environment art design. *Popular Literature and Art*, 2011 (23): 84.
- [2] Wu Meifang. Humanistic complex in modern interior design. *Shanxi Architecture*, 2003 (11): 1-2.
- [3] Liang Lina, Gao Jinsuo. Sustainable development concept and sustainable interior design. *Decoration*, 2003 (02): 34.
- [4] Lai Zengxiang. Sustainable development and interior design - also talking about the creation of green indoor environment. *Interior Design and Decoration*, 1998 (05): 16-19.
- [8] Zheng Guangfu. The architectural future of environment. *Southern Architecture*, 1999 (02): 1-8.
- [9] Li Haixia, Ran Maoyu. Design thinking of humanistic and ecological buildings. *Journal of Huaqiao University (Natural Science Edition)*, 2006 (03): 280-283.
- [10] Li Guoyou, Liu Daping. Humanistic expansion of the concept of "green building" - also discussing the cultural ecological characteristics of historical buildings along the Middle East Railway . *Journal of Harbin Institute of Technology (Social Science Edition)*, 2010, 12 (02): 14-19.
- [11] Chen Liuqin. Deepening the understanding of green buildings from a humanistic perspective. *Building Energy Efficiency*, 2010, 38(11): 27-32.
- [14] Gao Yunting. Research on the humanistic implications of sustainable indoor environment. *Guangdong University of Technology*, 2016.
- [16] Chu Dongzhu. *Sustainable Architecture—Integrated Mechanism of Design Generation and Evaluation*. Beijing: Science Press, 2015.

- [17] Lu Shaoming. Space·Memory·Reconstruction: Exploration on renovation design of existing buildings—taking the student dormitory of Shanghai Jiao Tong University as an example. *Journal of Architecture*, 2017 (02): 57-62.
- [18] Arnaud Schlüter, Adam Ressayik, Han Dongchen. Collaborative system design based on the next generation of sustainable buildings. *Acta Architectural Sinica*, 2017 (03): 107-109.