

APPLIED RESEARCH ON ENVIRONMENTAL PSYCHOLOGY IN ARCHITECTURE ENVIRONMENT DESIGN

DLA THESIS BOOKLET



PÉCSI TUDOMÁNYEGYETEM
UNIVERSITY OF PÉCS



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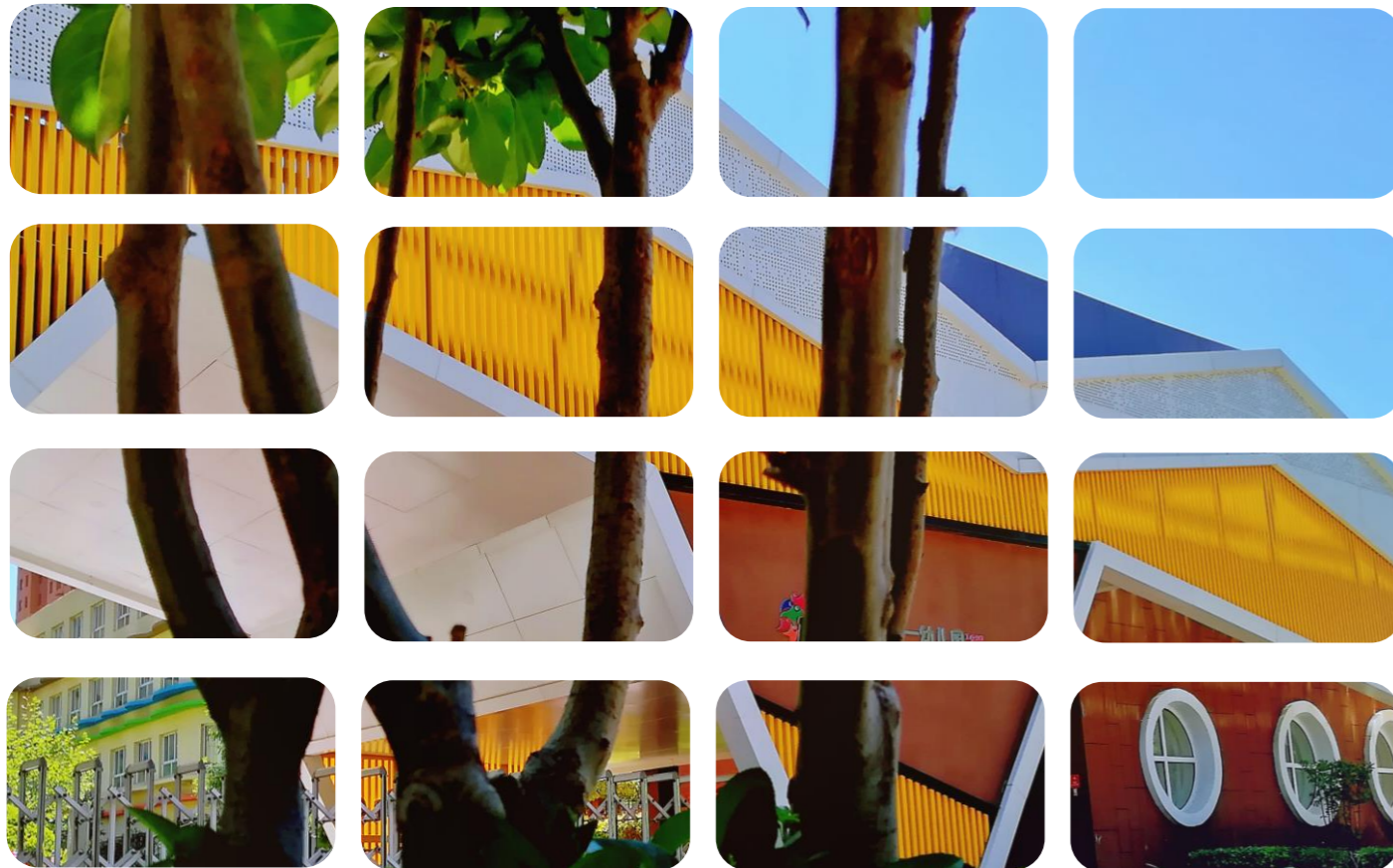
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Kindergarten Renewal Project / Jin Zhong No.1 Kindergarten

With the advancement of global climate change and urbanization, humanized and sustainable dwelling environment has become an important social issue. The increased attention to the humanized dimension of urban planning reflects a specific and intense demand for better urban quality. However, the design of most environmental spaces cannot meet the complex needs of contemporary people. The lack of attention to people's psychology and behavior leads to less interaction between individuals, groups, and the environment, and the lack of humanistic care in architectural environment design.

In a good environment, a completely different, broad spectrum of human activities is possible. Based on the relationship between environment space and human health growth, the author believes that a high-quality man-earth relationship can bring people healthy, comfortable, and pleasant living experiences. It is significant to realize the sustainable development of material space and human society to understand the ordered environment as an ordered psychological state.

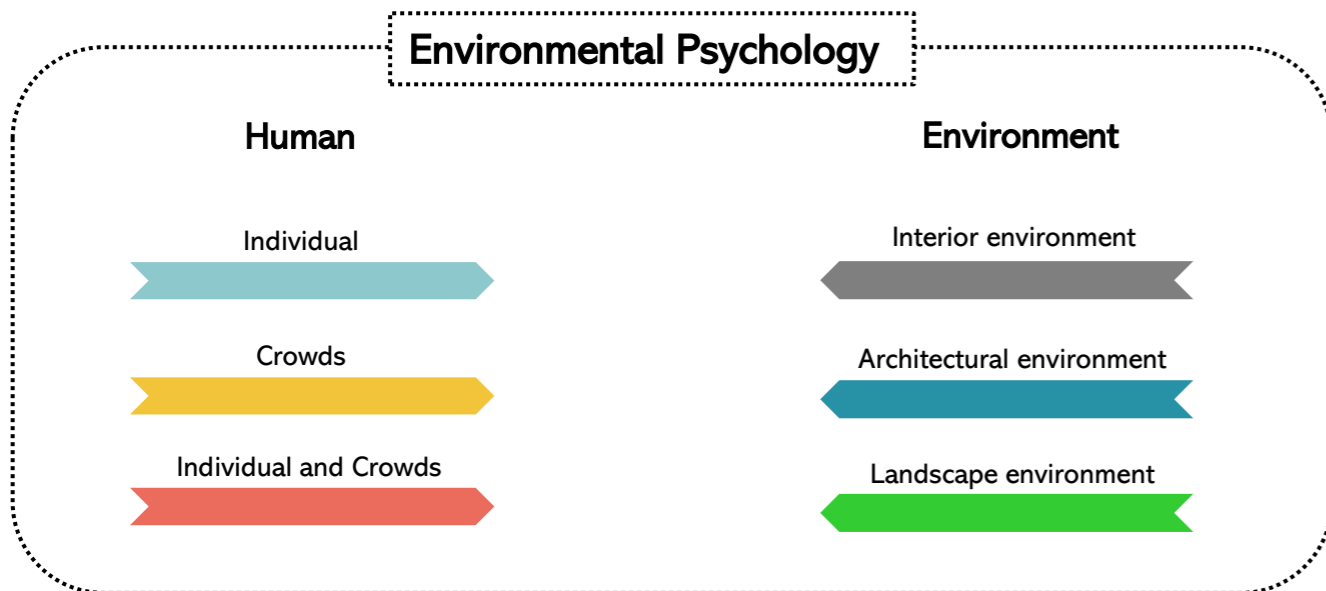
Architects should start from a broader dimension and context, actively build humanized and harmonious architectural paradigm, and create architectural works that meet the comprehensive needs of contemporary people through interdisciplinary research. As a result, the author carries out a cross-boundary design study, using insights from Environmental psychology combined with an architectural approach to address complex issues among people, society, and the environment. Based on theoretical research and architectural practice to construct a positive design view, meet customers' needs for design products, strengthen the user's sense of experience, and empower the built environment.

2

Background

Nowadays, the development of human society is diversified, and interdisciplinary research has become the norm. With the fast-growing urbanization, the continuous expansion of human activities has stimulated changes in urban habitats, and people have made progress in architectural design. However, everything has two sides, and in this context, the relationship between humans and their habitats will become more complex.

Environmental Psychology is a branch of psychology that focuses on the interaction relationship between individuals and the environment. It is closely related to the survival and development of human society. Therefore, applying Environmental Psychology to architectural design is an innovative practice method that has a guiding significance for future architecture design research.



Research Background

APPLIED RESEARCH ON ENVIRONMENTAL PSYCHOLOGY IN ARCHITECTURE ENVIRONMENT DESIGN

Overall Aim

Firstly, this study aims to explore how architects perceive the environment and how to improve it, and how to create a harmonious man-land relationship through design.

Secondly, in the creative process of architectural design, what factors should architects consider in constructing a positive spatial experience, exploring the natural way of human and environment, and reconciling the various contradictory aspects of human and environment?

Thirdly, to explore the construction strategy and innovative application of harmonious man-land relationship from the cross-border research path.

Finally, reveal the value of design in shaping human health and well-being and how to evaluate the quality of the architectural environment.

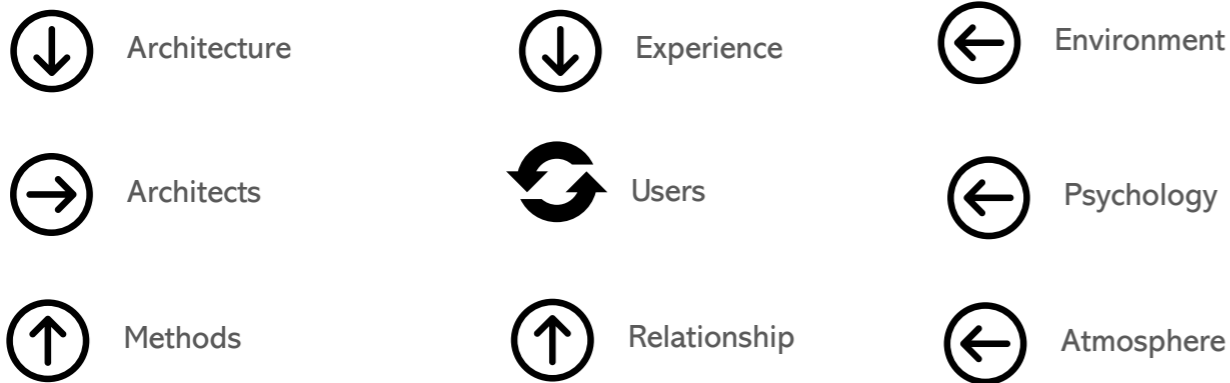
- ❑ *Through the method of architectural design to balance the contradiction between people and the environment and solve complex environmental problems.*
- ❑ *Try to build efficient communication between architects, clients, and users, to provide sustainable design products that keep pace with The Times.*
- ❑ *Through the design to meet the aspirations and needs of people in the environment, so that people's way of life is encouraged and strengthened.*
- ❑ *Establish an ideal man-land relationship evaluation system to guide the concrete design project.*

2

Research Objectives

The research objectives of this study are mainly including:

- From the perspective of architectural design, explain why the insights of environmental psychology can inspire the work of architects and how to reverse the linear thinking in the creative process of project design.
- Analyze how people experience the environment rather than just perceive it and determine what conditions the ideal man-land relationship should satisfy.
- Explore the possibility of innovative application of architectural environment design and look for low-carbon architectural methods to guide the practical design work.
- Through architectural design to solve the complex problems between contemporary people and the environment, to build a positive environmental atmosphere and harmonious human-earth relationship.
- Analyze the influence of architectural environment, regional culture, and social environment on users' sense of environmental experience.



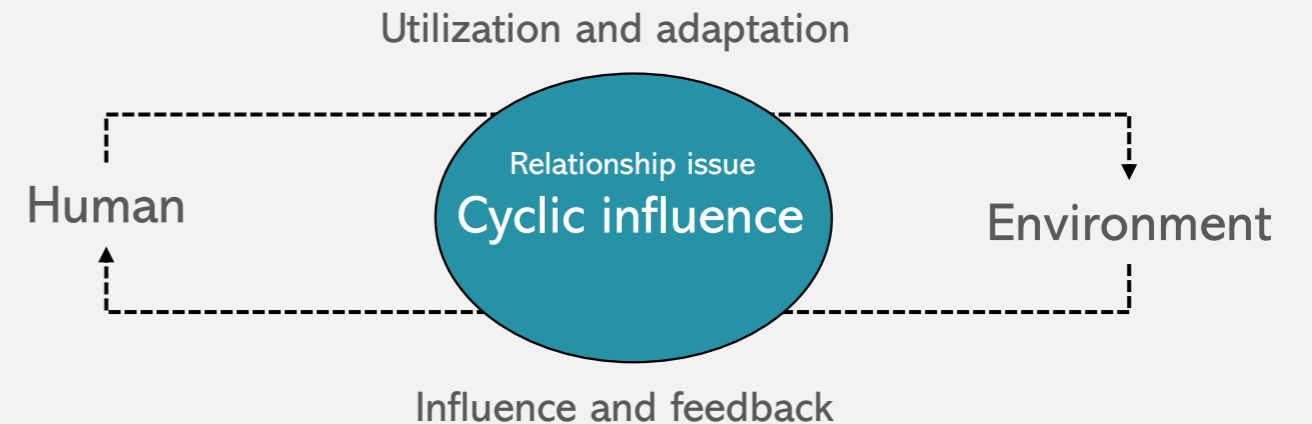
Research Background

APPLIED RESEARCH ON ENVIRONMENTAL PSYCHOLOGY IN ARCHITECTURE ENVIRONMENT DESIGN

Research significance

This research is devoted to exploring multi-dimensional design methods, combining the advantages of Architecture and Environmental Psychology, and creating a high-quality architectural environment atmosphere. Focus on innovative design to help users improve their cognition and perception of architectural space and provide new possibilities for the sustainable development of the built environment.

This study reveals the value and significance of environmental design in shaping human health and well-being and trying to create a positive space experience to stimulate effective interaction between users and the environment, promoting dialogue between people and the environment through a positive site environment to re-establishing a harmonious man-land relationship.

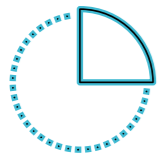


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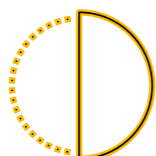
Methodology

This study is an interdisciplinary study combining Environmental Psychology and Architecture. Research methods mainly include qualitative and quantitative methods. The methodology borrowed from Psychology is used for design investigation and applied research, including site experiments, behavioral observation, questionnaire method, and projection technology. In response to the hypotheses and questions of the research, the research conducted investigations, experiments, studies, conclusions, solutions, and other activities.

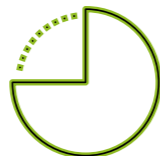
- Statistical methods, analysis and design of quantitative data, impact factors.
- Experiments and non-experimental quantitative designs and qualitative designs.
- Consider internal and external validity issues.
- Epistemological and methodological issues, reflectiveness, social ethics and practicality of qualitative research, to accumulate reliable design experience.



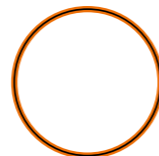
Data analysis



Research design



Evaluation



Design introspection

Research Background

APPLIED RESEARCH ON ENVIRONMENTAL PSYCHOLOGY IN ARCHITECTURE ENVIRONMENT DESIGN

Design strategy

The ideal man-land relationship design strategy



Through the interaction mechanism between humans and physical space, the author studies the way of harmonious coexistence between humans and the environment. In the actual design project, the author emphasizes systematic design thinking to carry out the low-carbon architectural design to create a high-quality architectural environment that meets the needs of contemporary people.

The ideal man-land relationship can be realized through site construction, atmosphere creation, man-land relationship design, environmental integration, environmental evaluation, and design reflection. The strategy combines Environmental Psychology and Architecture and has strong practicability and popularization.



⤴ Fig. 1. Jinzhong No. 1 Kindergarten architectural design completed real picture.
(Source: Designed by CAO Hui, 2020)



Thesis_ I.

Breakthrough the traditional barriers and blur the boundaries of architectural design, redefining the architects.

Architects should break out of closed-loop design ideas and think like psychologists, organizing the target environment in the dimensions of time, space, and emotion, rather than just focusing on designing within the framework of complex technologies and structures. Identify and optimize the attributes of the existing environment by analyzing the combined current and future impact of the physical environment on the user.

The architectural design needs to face the characteristics of The Times, the needs of users, and the complexity of the environment, shaping a humanized site experience rather than outdated architectural solutions.

Related sections from the dissertation: Chapter Three. *Psychology in architectural environment design*, page: 21.



⤴ Fig. 2. The real scene displays of the shared area outside the kindergarten.
(Source: Designed by CAO Hui, 2020)

③

Thesis

APPLIED RESEARCH ON ENVIRONMENTAL PSYCHOLOGY IN ARCHITECTURE ENVIRONMENT DESIGN



Thesis_ II.

Establish a positive site system and spatial atmosphere to create a flexible environmental experience for users.

Based on the analysis of users' environmental intentions and spatial characteristics, the target site is treated with low-carbon art to build a positive site framework and function organization. Create a high-quality environmental atmosphere to enhance users' comprehensive cognitive ability and perception level of the site and construct an adaptable spatial development path.

A high-quality environmental atmosphere could bring profound environmental experience to users, help to strengthen users' spatial identification, sense of existence and security, and enhance the site's significance.

Related sections from the dissertation: Chapter Four, *Design strategy of ideal man-land relationship*, page: 41.



⤴ Fig. 3. Jinzhong No. 1 Kindergarten architectural design completed real picture.
(Source: Designed by CAO Hui, 2020)



Thesis_ III.

Re-establish man-land relationships and stimulate social interaction and communication through a positive site organization.

Architects are not only builders of physical spaces but also the creator of human-land relationships. Architects solve the problems between people and the environment through design and re-establish the positive relationship between individuals and groups, humans, and the environment. Based on the site environment and human behavior motivation, build a bridge to stimulate the interaction between users and the environment to strengthen the exchange of more information between each other.

Architectural design should meet people's behavior habits, physical and mental demands, and social demands to achieve a balance and win-win situation between human activities and the environment.

Related sections from the dissertation: Chapter Four, *Design strategy of ideal man-land relationship*, page: 42.



⏪ Fig. 4. Jinzhong No. 1 Kindergarten architectural design completed real picture
(Source: Designed by CAO Hui, 2020)



Thesis_IV.

Integrate the complex site environment to realize the energy transformation between people and the environment.

In the actual design creation, clear space image and reasonable functional organization are used to promote users to form empathy with the environment and convey positive space energy to users to improve the experience of the site. Architects should make full use of site conditions to decode and encode the environment to maximize the use of environmental value.

Through the approach of artistic design to integrate people's emotion and space power, realize the energy transformation between people and the environment, and use it in the cognition and experience of the surroundings. Integrate the environment's strength and humans in responding to complex environmental problems and build an environment-friendly man-land relationship in a low-carbon way.

Related sections from the dissertation: Chapter Four, *Design strategy of ideal man-land relationship*, page: 42.



Fig. 5 Jinzhong No.1 Kindergarten teaching building outdoor area real scene.
(Source: Designed by CAO Hui, 2021)



Thesis_ V.

To guide future design work through environmental assessment and design reflection.

Obtain comprehensive design feedback employing environmental assessment to form a summary and reflection on the project after completion and commissioning. Check the problems in the design process and clarify whether the design results meet the needs of customers and users. Architects form systematic design experience through objective environmental assessment and guide future design projects in the form of design reflection. It prompts architects to reflect on the relationship between people and the site, inspires innovative design methods, and promotes the new development of people and the environment through architectural means.

Related sections from the dissertation: Chapter Four, *Design strategy of ideal man-land relationship*, page: 43.



Thesis_ VI.

Promote interdisciplinary interaction and communication and expand the possibilities of the architectural environment.

The architectural environment and human health are interrelated, which shows the characteristics of diversity and growth. The complexity of contemporary human society determines that the architectural environment design needs to balance the needs of many aspects. Interdisciplinary communication and interaction are effective ways to deal with realistic problems, which can provide new possibilities for architectural environment design.

Applying the relevant theories and methodologies of Environmental psychology to architectural environment design can enrich the design dimension of architects, which can provide more humane solutions and form a sustainable design framework. Most importantly, extending the attributes of the built environment contributes to constructing an affordable and sustainable living environment that shapes healthy environmental behavior.

Related sections from the dissertation: Chapter Five, *Innovative applications of environmental psychology in architectural design*, page: 117.

Fig. 6. . Jinzhong No.1 Kindergarten teaching building vestibule area real scene.
(Source: Designed by CAO Hui, 2022)



Site construction

Creation of atmosphere

Man-land relationship design

Environmental integration

Environmental evaluation

Design reflection



This research breaks through the traditional barriers and innovatively applies the inspiration and theories of environmental psychology to the actual design projects, emphasizing the cross-boundary interaction between different disciplines. Compared with the conventional design methods, it pays more attention to the two-way needs and win-win situation between people and the environment.

In the design practice, the author summarizes the approaches of architectural environment design into six aspects: site construction, the creation of atmosphere, man-land relationship design, environmental integration, environmental evaluation, and design reflection. Through the implementation of the project, explore more possibilities between people and the physical environment and discover the deeper connection between the physical environment and humans. Research on adaptive design techniques and low-carbon construction approaches to solve design problems to promote healthy environmental behavior and actively explore contemporary architectural environment research and design application of the new paradigm.



Fig. 7. DLA Projects Design Study - architectural environment design project completed in China.

(Source: Designed by CAO Hui, 2018-2022)