

# Diagrammatic Thinking as an Environmental Design Teaching: From "Diagram Verification" to "Spatial Narrative"

Yunqi Li<sup>1,\*</sup>, Yan Zhong<sup>1</sup>

<sup>1</sup>Fuzhou University of International Studies and Trade, Fuzhou, Fujian, China

\*Corresponding author. Email: 494769780@qq.com

## ABSTRACT

**Environment refers to humanity, and design tends to be accurate, while "diagrammatic thinking", as an "intermediary", connects design strategies with spatial images. Therefore, in the perspective of environmental design focusing on the construction of "microscopic physical space form implementation" and "macro social space field construction", diagram theory may combine the two and become an important way of thinking for the creation of human living environment space.**

*Keywords: environmental design, diagrammatic thinking, physical space, social space*

## I. INTRODUCTION

"Environmental design" is influenced by the name attribute of its predecessor "environmental art design" and even "art design", and is usually associated with excessive immersion in "design for art". Therefore, as a category of art discipline, it is considered that it is difficult to respond to the internal logic of material production and the cultural attribute of social space. In recent years, as in October 2012, the undergraduate course of common colleges and universities specialty catalog and introduction of the publication for the first time confirmed that "environmental design" professional, decorative aesthetic and gradually eliminate the dual argument between technical rationality<sup>1</sup>. In terms of discipline development, "environmental design", which is derived from the name of interior decoration, architectural decoration, environmental art design and other disciplines, focuses on not only the application of techniques and the basis of fine arts, but also the embodiment of the discipline spirit of design interwoven with anthropology and sociology from the perspective of current living environment. In terms of design practice, "the construction of living environment" requires design actions to have more "social care", which not only reflects the designer's knowledge reserve and design concept, but also is the diagram verification of designer's social responsibility in the context of macro social space. In these two aspects of the transition process, the environment design is always presented as a "visual spatial image". Diagrammatic thinking, on the

other hand, acts as a "mediator" between design ideas, design actions and spatial images. As the philosopher Deleuze said, "A diagram is an abstract machine: one end inputs a describable function, and the other outputs a visible form."<sup>2</sup> "No matter in teaching or practice, environmental design takes" image "as the medium, because image is the reproduction process of expressing spatial form in the design process and has always been an indispensable part of environmental design discipline. In contrast, the representation of diagrammatic thinking is the image, but its core lies in the internal logic and connection of the image. Liger, a scholar of art history, believes that: "The content of images is completely different from the content of art. The former's function is to awaken specific ideas in the mind of the viewer, so it is an external function similar to that of architectural and decorative works of art. The function of art is to arouse the object in the mind of the viewer a sense of relief. "Therefore, from this perspective, diagrammatic thinking restraint can be seen as a driving factor to endow environmental design actions and works with more multidimensional spatial interpretation<sup>3</sup>. Therefore, from this perspective, diagrammatic thinking can be seen as a driving factor that gives more multidimensional spatial interpretation to environmental design actions and works.

<sup>2</sup> Yan Chao. The "New Materialism" YingZao: from Diagrammatic Thinking to Digital Fabrication [J]. *Time Architecture*, 2016(05):6-13.

<sup>3</sup> Edgar Winder, Yang Siliang. Warburg's concept of "Cultural science" and its Significance to aesthetics [J]. *The new art*, 2018, 33 (3) 6:15 to 27 + 133.

<sup>1</sup> Zheng Shuyang. 60 years of research on Environmental Design in China [J]. *Chinese Journal of Environmental Design*, 2019(10):12-19.

## II. DIAGRAMMATIC THINKING AS THE ENERGY FACTOR OF ENVIRONMENTAL DESIGN DISCIPLINE: THE SHIFT FROM "WORK" TO "TEXT"

In the development of the discipline of environmental design, the concept of design generates uninspiring energy through the medium of illustration. According to the framework of "Works — Text" proposed by philosopher Roland Barthes, "Work" is an aesthetic and symbolic whole that connects the source and the author to the end of meaning, while "text" is a multi-dimensional space in which various kinds of writing are mixed and interwoven, none of them are native<sup>4</sup>. From the perspective of "works", diagrammatic thinking runs through the entire process of environmental design discipline from conception to expression to the work. It is the "whole work" that starts from the source of the conception and reaches the end of meaning through diagram representation ("Fig. 1"). For example, in the process of conception, Mr. Yung Ho Chang believes that "picture" is compared with "painting". The key to the definition is that "picture" is more accurate than "painting": it has volume, space, and Light, it has some hints-scale, location, etc<sup>5</sup>. This is also a kind of "pictorial verification" unique to the discipline of architecture, and naturally also includes the discipline of environmental design, and it is also the most direct manifestation different from the field of pure aesthetics. "Floor plan" is the most typical example. Generally speaking, the plan is not a diagram, and the thinking about "layout" in the plan reveals its inherent diagrammatic thinking. Therefore, starting from the Renaissance, plans, elevations, and sections begin to serve as important images in the conceptual conception of spatial design and design communication. have been used as important images for the conception of space design and design communication. By the 19th century, the floor plan had become an important part of the "Beaux-Arts" teaching system, and began to be influenced by the relationship between function and flow, and became the most important practice content of architecture-related subjects. The conceptual representation of floor plans is still an important part of environmental design today. In addition, the intervention of bubble chart represents the discipline form under the influence of the new diagram practice after the 20th century, whether it is the traditional plan, elevation, section, or bubble diagram intervention, they are enough to express the status of diagrams in architecture, environmental design and other spatial

design disciplines, as well as always a "non-reproducing" attitude beyond the appearance, so as to further distinguish the artistic boundaries with nature aesthetics as the core horizon.

---

<sup>4</sup> K. Michael Hays. *Modernism and the Posthumanist Subject: The Architecture of Hannes Meyer and Ludwig Hilberseimer* [M]. The MIT Press, 1995.

<sup>5</sup> Yung Ho Chang, Zhou Jianjia. *Construct Looking* [J]. *Time Architecture*, 2016(05):28-32.

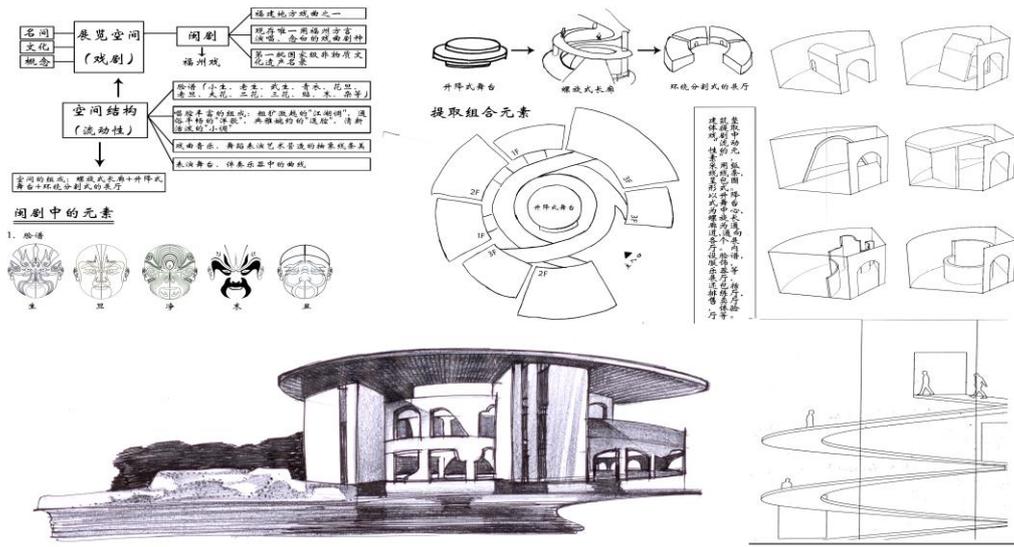


Fig. 1. Design works from "conception" to "diagram".

From the perspective of "text", the subject of environmental design is always presented with the appearance of space, and the existence of society has the characteristics of space. Therefore, the evaluation system of environmental design must accept sociology and anthropology research and become an important part of design ontology. This means that diagrammatic thinking not only reflects the disciplinary structure of environmental design, but also has rich dynamic, cultural and multidimensional nature of humanities and social science research, and its recipients are not only "readers" in the field of environmental design ("Fig. 2"). Therefore, both static schematic text and dynamic spatial text are combined in a multi-dimensional

organizational structure, which emphasizes another layer of "horizon of expectations" beyond the physical form of design. This also requires an excellent environmental design work, which reflects far more than formal aesthetics, technical rationality of thinking direction. Architectural critic Allen, in his book "Point + Line-Illustration and Design of the City", believes that "diagrammatize", a method commonly used in space design, is not just a method. It also conveys a belief: "In the contemporary spatial cultural environment full of over-complex but empty formalism and increasingly superficial consumer productionization, how to use 'diagram' as a potential driving force to make space design unique effect.

<sup>a</sup>. Photo source: the author draws "diagram"

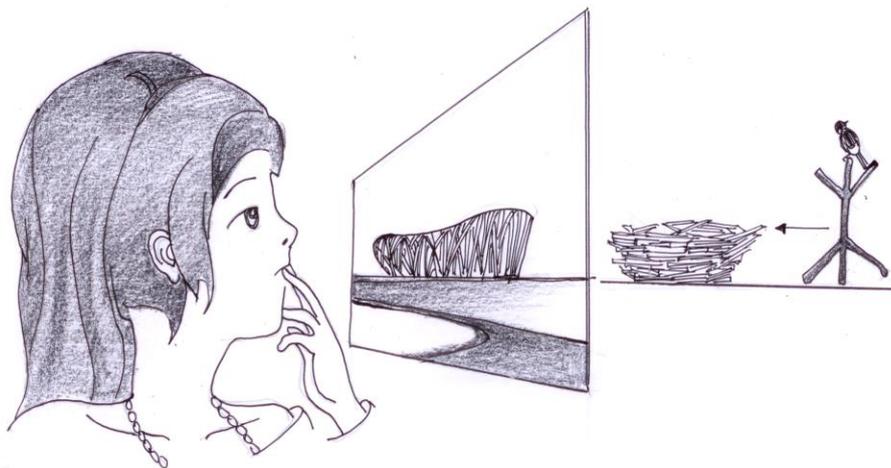


Fig. 2. The "diagrammatic thinking" of environmental design is dynamic, cultural and multidimensional in the study of humanities and social sciences.

<sup>a</sup>. Photo source: the author draws "diagram"

Taking the upper, middle and lower three articles published by Mr. Zhu Yufan in the journal of Chinese Landscape Architecture "For the Green Poplar — Interpretation of Landscape Design of Memorial Garden of National Patriotism Education Demonstration Base of Qinghai Atomic City" as an example, Mr. Zhu Yufan made an in-depth interpretation of his design works by means of mutual interpretation of pictures and texts. From the perspective of the discipline of environmental design, it includes the study of narrative landscape creation. Through the interpretation of the classical works of memorial landscape and the introduction of the representative of Chinese royal gardens, Mr. Zhu Yufan analyzed the landscape relationship between the Longevity mountain and Kunming Lake in the Summer Palace: The method of "tour line and sight line" is to express a balance between the ritual order and the tortuous perfection of the Summer Palace as a royal garden, and to illustrate the application of the "pendulum" path in the landscape creation of Qinghai

Atomic City: The elongated spatial flow increases the possibility of time-space narrative, forming a "meaningful form of memorial landscape space" between "roaming" and "gazing". In addition, Mr. Zhu Yufan expressed his views in the temperament of the landscape corridor shaped by poplar trees in the plateau wilderness, as well as the power of local people's beliefs conveyed by cultural landscapes such as the Barg's Mao Wall, combines the above landscape characteristics with a national belief in the successful development of atomic bombs and hydrogen bombs in this region. Therefore, "diagram" is used as the medium, and a more dynamic connection is established between natural landscape, cultural landscape and memorial landscape ("Fig. 3"). The approach adopted by Mr. Zhu Yufan is a process of re-contextualization of design works: it shows that landscape design can be understood and constructed in the face of natural factors, historical and cultural factors, site factors and human intervention factors.

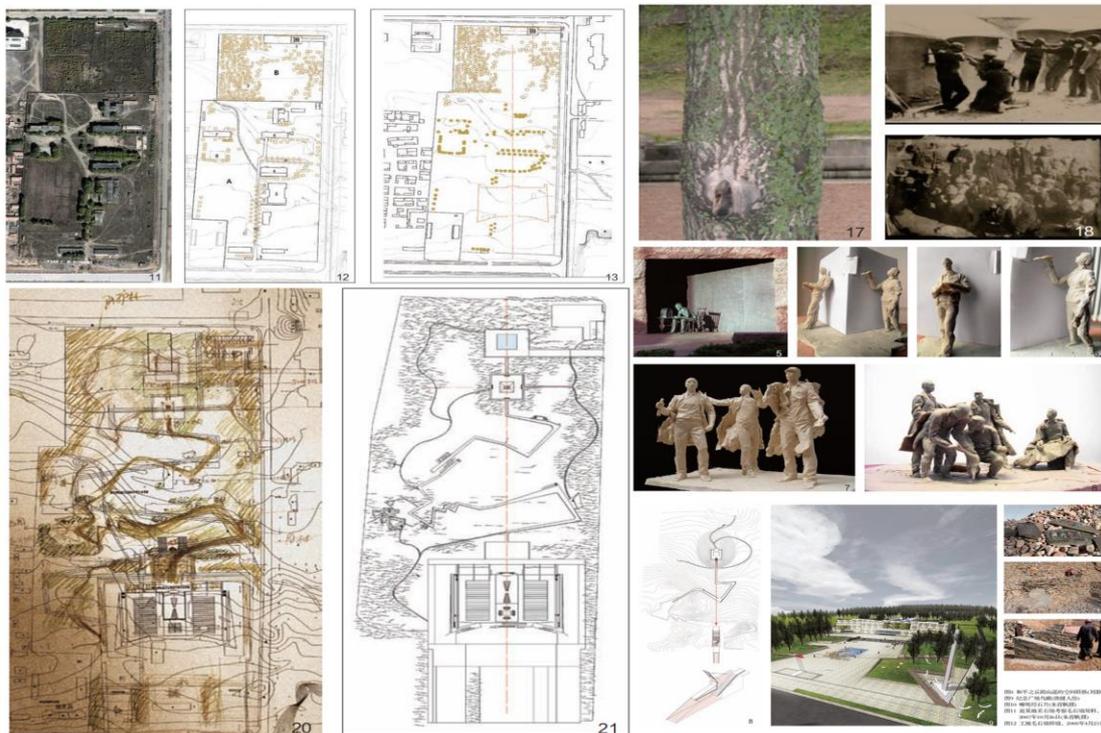


Fig. 3. Mr. Zhu Yufan makes an in-depth interpretation of the landscape design of Qinghai Atomic City by means of "diagram".

<sup>a</sup>. Photo source: Zhu Yufan, Yao Yujun. Interpretation on the Landscape Design of the Memorial Garden of Qingyang (Top) (Middle) (bottom) — National Patriotism Education Demonstration Base of Qinghai Atomic City [J]. Chinese gardens, 2011, 27(09)(10)(11).

### III. DIAGRAMMATIC SOCIAL PRACTICE FIELD: FROM "DIAGRAM VERIFICATION" TO "SPATIAL NARRATIVE"

#### A. "Diagram verification" from landscape art to social spectacle

Contemporary artist Beuys put forward the concept of "social sculpture" in order to guard against the shackles of "art for art" in public art and landscape art. With the evolution of The Times and the development of environmental design itself, the Ideological Nature of Aesthetics of "design for art" has been "disenchanted" from the social perspective of environmental design. The social nature of design is self-evident, especially for the action of space. Environmental design research focus on the discussion of the society, eliminate artistic autonomy and hegemony, and turning to the intersection of sociology, because society is always expressed in the dimension of space, so the environmental design for building inside and outside of the microcosmic physical space as a subject research oriented, with concept design to shape the social field. Compared with other professional directions of design, environmental design obviously has more social practical characteristics. In particular, The Publication of "The Society of The Spectacle" by French philosopher Guy Debord, the traditional meaning of "Landscape" in landscape science has more to refer to the meaning of "landscape"<sup>6</sup>. The "Spectacle" proposed by Debord has become a very important contemporary sociological concept, especially in the 20th century scholars will often discuss the microcosmic physical space interweave msem social space, and it becomes a kind of "social diagram" closely linked with social ideology.

Taking the restoration or reconstruction of collective aesthetic memory of space and time as an example, the spatial design action of returning to regional humanistic reflection is particularly urgent in the current social field. At the end of large-scale urbanization, consumer actions such as cultural and creative industries, creative classes and even creative cities are involved in shaping a new round of social space. In this increasingly rapid competition, the social role of environmental designers will face a new game about ideal and reality. On the one hand, a large number of old buildings and even ruins protection buildings will be "humanistic care" to repair the old as before. On the other hand, in addition to the protection of the building, whether the interior space should take on a new aesthetic dimension of space in the manner of "free space", so as to fully participate in the flood of cultural and creative industry is worth further discussion by the academic circle and designers. Architectural critic

<sup>6</sup> Guy Debord. *The Society of the Spectacle* [M]. Nanjing University Press, 2018.

Wang Jiahao stated in his article *The Coming Map — The Boundary and Intermediary of Urban Landscape*: "As a kind of landscape not in the work, but only in the image... It's a set of empty symbols, just a deeply aesthetic experience that no longer has any meaning"<sup>7</sup>.

#### B. Social space narration under diagramma verification

The "diagramma verification" in the social field under the reflection of humanism does not only exist in the practical cases of the transformation of space. "Diagrams" also include design actions that reveal the face of social space. Of course, this concept is not necessarily limited to environmental designers. Bourdieu, the French sociologist who put forward the "field theory", has made a diagramma verification of "space culture" and "material culture". Bourdieu pointed out that the modern urban residence destroyed the family structure of the rural inhabitants and the traditional spatial form between work and life, and revealed the structural relationship between social work and geographical factors corresponding to the physical space in the research of Kabir residential houses by means of diagrams. Bourdieu analyzed his field research data (photographs, research notes, interviews, etc.) from a structural perspective, which recorded many aspects of Kabir culture, including agricultural calendar, division of social groups, structure of housing and villages, gender division of labor, spatial organization, marriage ceremonies, farming, cooking, weaving, etc. Bourdieu's research gives a very vivid description of the ideal state of the residents of Kabir and illustrates it in graphical ways ("Fig. 4"). For example, as Bourdieu to the understanding of the relationship between residential house men — women: bayer man is outside the lamp, and a woman is the lamp of the house. For a man, the house is a place to go out, while for a woman, going out means being abandoned. Her specific role determines that she is responsible for all actions towards the interior, that is, from the doorway to the fireplace. The social relationship between men and women extends further to the relationship between residential space. Bourdieu points out that the same wall, which is the west wall for men and the east wall for women (the relationship between inside and outside), is called the "wall of light" because it is facing the front door and is basking in sunlight, which is related to dawn, spring, reproduction and work on loom. The east wall is called the "dark wall" because it is facing the sunlight from the open door, and the space is the dark end of men's bedroom and house. Although this "diagram" is not a drawing or illustration in design, it is a metaphor used to construct the concepts of reading and viewing in Kabir's Residence

<sup>7</sup> Wang Jiahao. *The Coming Map — The Boundary and Intermediary of Urban Landscape* [J]. *New Architecture*, 2017(04):24-29.

culture. However, Bourdieu's delicate and subtle interpretation is quite amazing, which has been widely recognized by anthropologists, cultural theorists, sociologists and architects all over the world, making

later many scholars use Bourdieu's method to interpret the form of family house and the symbolic meaning of space in various contexts.

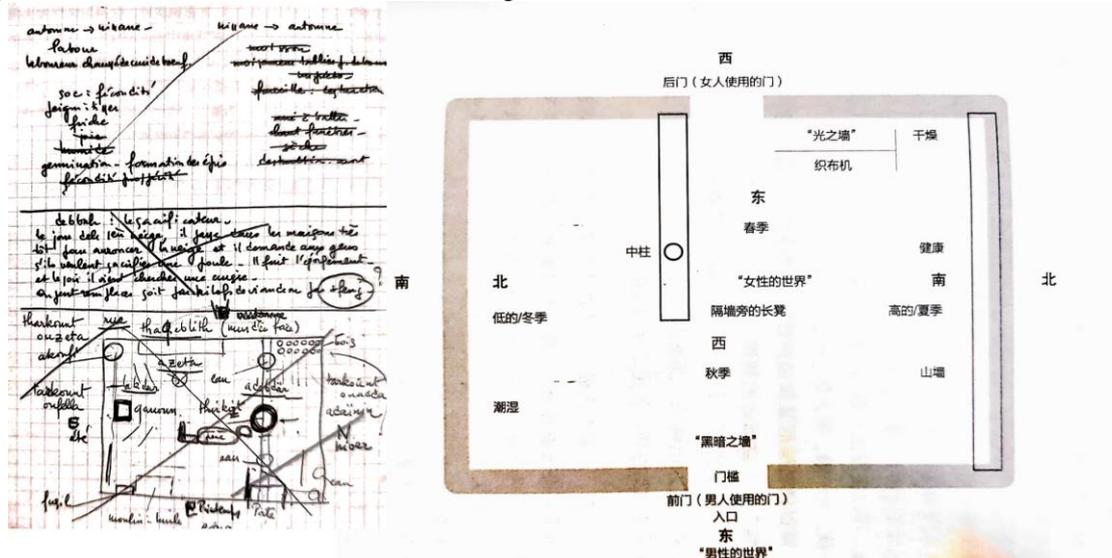


Fig. 4. A structural diagram by Bourdieu in a residential house in Algeria.

In his book Parasitic Temple: An Observation of Street Temples in Urban Cracks in Taiwan and A Guide to The Common People's Space Adapting to Social Changes, Taiwanese designer Lai Bower investigated various street temples left behind in the streets and alleys of Taipei, and through the image typification integration, he observed the Toughness and deformation of 108 Taipei temples adapting to urban changes ("Fig. 5"). Mr. Lai Bower did not make any

spatial design transformation of these temples, but through the integrated presentation of design actions and images in field research, he further explored the power of folk beliefs in Taiwan. To some extent, the design actions also revealed how the social space in Taiwan has shaped the social phenomenon of gentleness, respect, frugality and comity in the long-term development and change of social space.

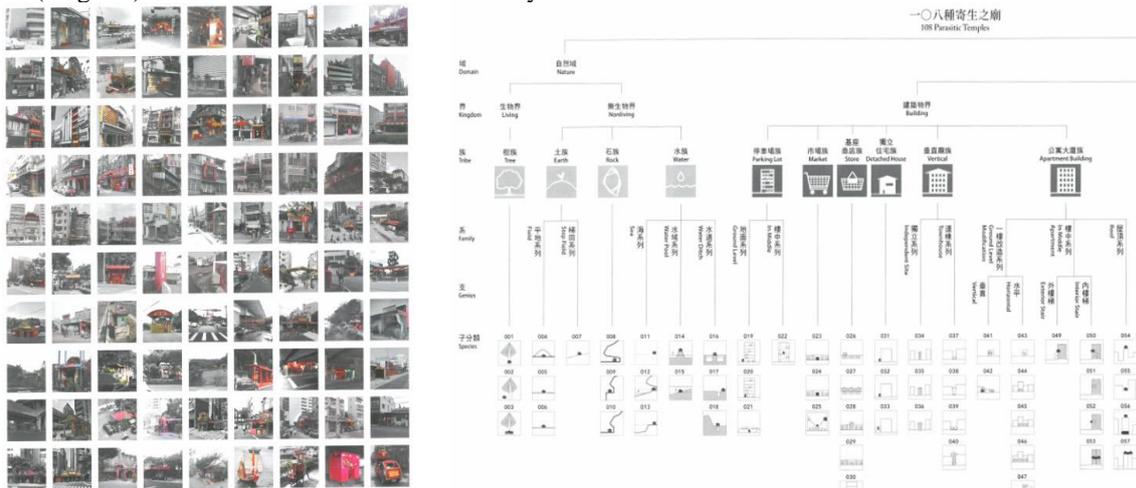


Fig. 5. Temples parasitized on the city of Taipei by Mr Lai Bower.

From the verification of "diagram", it can be extended to another dimension of social field thinking: the attention to social "spatial narrative". Such as Bourdieu's research on the "social construction of space" in the investigation of Algerian dwellings, or

Mr. Laibowei's excavation of temples "hidden" in the urban areas of Taipei. What they pay attention to and reveal is a kind of vitality which is not captured by social norms, but has a natural development of life experience. Sometimes, cruelty is just like this, which

separates them from each other. Is it necessary to let the "wild" evolve freely or to be regulated? And if it need to be regulated, the aesthetic tendency is always under popular culture is reasonable? As for whether the academic circle of "environmental art" has ever used "art" to push design into the abyss of excessive desire of human nature at some moments, these difficult answers are just like the controversial relationship between the construction of design aesthetics system and the research work of sociology. But even the history of environmental design as a "commercial art" does not entirely separate it from its social responsibilities. Environmental design always presents its disciplinary appearance with concrete and visible "spatial diagrams", which also determines that when the power of design shapes the microscopic physical space, it is destined to become a "graphical verification" of sociological research, and it is also destined to meet with the real society and produce microscopic and macroscopic spatial narratives.

#### **IV. CONCLUSION**

Environment refers to the humanities, and design tends to be accurate. The key point of this paper is not to regard "graphic" as the development trend of environmental design in the future, but to seek the development energy of the discipline of environmental design through "diagrammatic thinking", and even to become an important way of thinking for the creation of human living environment space.

#### **References**

- [1] Zheng Shuyang. 60 years of research on Environmental Design in China [J]. Chinese Journal of Environmental Design,2019(10):12-19.
- [2] Yan Chao. The "New Materlalism" YingZao:from Diagrammatic Thinking to Digital Fabrication [J]. Time Architecture,2016(05):6-13.
- [3] Edgar Winder, Yang Siliang. Warburg's concept of "Cultural science" and its Significance to aesthetics [J]. The new art, 2018, 33 (3) 6:15 to 27 + 133.
- [4] K. Michael Hays.Modernism and the Posthumanist Subject: The Architecture of Hannes Meyer and Ludwig Hilberseimer [M].The MIT Press,1995.
- [5] Yung Ho Chang,Zhou Jianjia. Construct Looking [J]. Time Architecture,2016(05):28-32.
- [6] Guy Debord.The Society of The Spectale [M]. Nanjing University Press, 2018.
- [7] Wang Jiahao. The Coming Map — The Boundary and Intermediary of Urban Landscape [J]. New Architecture,2017(04):24-29.