
From the Application of Gestalt Anesthetics in Modern Design Cases to the Exploration of the Conservation and Renewal of Old Blocks

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Abstract: This thesis, on a general basis, is theoretically based on the figure-ground relation and the principle of grouping in Gestalt Anesthetics and analyzes the application of Gestalt principle in modern design. Besides, it conducts a relevant case study concerning the public space in the old blocks in Hangzhou City, Shangcheng District, Xingyuan Lane. In the meantime, this paper, guided by the humanization visual perception theory, analyzes the application of the Gestalt principle in modern design cases and introduces Gestalt psychology in a bid for further analysis. Generally speaking, this paper follows the main sequence of putting forward problems, theories, and existing relevant research, analyzing problems, and proposing according solutions. It also probes into the application of the figure-ground relation and the principle of grouping from Gestalt psychology in urban and block space. Additionally, based on detailed analysis from both macro and micro perspectives, this thesis makes targeted research on on the conservation and renewal of old blocks and builds a systematic strategy of the Gestalt Aesthetics. By doing so, this paper hopes to provide differential inspirations in terms of the conservation and renewal of old blocks.

Keywords: Gestalt Psychology, Modern Design, Humanization, Old Blocks, Conservation and Renewal

1. Development Background of Gestalt Aesthetics

In 1910, German psychologists Max Wertheimer, Kurt Koffka, and Wolfgang Kohler founded Gestalt psychology, which focuses on systematic integrity. This theory, based on the visual perception of individuals (subject) to figures (object), further analyzes the subject's psychological and physiological behaviors toward different objects under various scenarios. Therefore, Gestalt psychology serves as the groundbreaking theory in the application of visual perception [1, 2] and remains interactive with psychological perceptions in artistic creation and even art design (such as environmental design, architectural design, and modeling design).

According to relevant literature, Gestalt psychology in the field of art and design education was first discussed by

Bauhaus during the Modernism Movement. After World War II, the design and teaching practice of Bauhaus still played a leading role in the post-war design development in Germany. In the 1950s, the Ulm Institute of Design (Hochschule für Gestaltung), an extension of Bauhaus's design theory and education mode, was founded. Bauhaus and the Ulm Institute of Design piloted Gestalt theory in foundation courses, especially graphic design. For instance, Wassily Kandinsky (Василий Кандинский) made an extraordinary interpretation of Gestalt theory and its components, renowned as one of the most globally-reputed masters in abstractionism since Bauhaus. As the first to introduce abstract composition in non-realism, he attached vital significance to colors, figures, and lines and pondered rational, emotional control in the art of painting. By integrating point, line, and surface with colors, Wassily Kandinsky analyzed the Gestalt principle from the art of painting to the art of design, amid which the visual impact of object images on individuals transforms from rational

perceptions to emotional ones. In this way, he could study the creativity of human consciousness. As another case in point, Theo van Doesburg, Piet Cornelies Mondrian, Gerrit Thomas Rietveld, and other artists from the Russian Constructivism, one of the three experimental fields of the Modernism Movement, similarly illustrated the Gestalt theory with images by applying two-dimensional images to three-dimensional scenes, like the famous Red and Blue Chair, in which Gerrit Thomas Rietveld combined primary colors of red, yellow, and blue with simple geometrical modelings for sheer visual impacts. Besides, after the founding of the Ulm Institute of Design, Tomas Maldonado, its second dean, stood supportive of the Gestalt theory, devoting himself to abstract and concise studies (such as symmetrical theory, network topology, and Gestalt principle) while remaining German's rigorous and rational way of thinking.

2. Relevant Theories at Home and Abroad of Old Blocks and Exploration of Pain Points in Xingyuan Lane

The above statements mainly prove the prominent presence of Gestalt psychology in art and design. The following thesis will give a detailed review of relevant classic theories at home and abroad concerning old blocks, especially their conservation and renewal, a pressing problem in environmental design. Furthermore, using the humanization perception in social design, this paper will conduct primary research on the conservation and renewal strategies for Xingyuan Lane, Shangcheng District, Hangzhou City, an old block, from the perspective of Gestalt psychology, figure-ground relation, and the principle of grouping.

2.1. Theories at Home and Abroad Concerning Old Block Renovation

Table 1. Relevant theories at home and abroad (self-drawn).

Year	Scholar	Main Ideas
1961	Jane Jacobs	She thought that both city and street belong to humans, analyzed the vitality of city and street from a sociological perspective, and proposed that diversity is the nature of cities.
1971	Jan Gehl	He believed that the public space in cities reflects and influences people's life and work.
1978	Wu Liangyong	He proposed the organic renewal theory and thought the renewal of old cities should involve organic renewal from former urban texture while preserving existing culture and history.
2007	Jiang Difei	He believed that the vitality of a city is its ability to provide humanized life for residents.

2.2. Current Situations and Pain Points of Xingyuan Lane

2.2.1. Current Situations of Xingyuan Lane

This thesis analyzes the public space in Xingyuan Lane, Shangcheng District, Hangzhou City, using the figure-ground relation. The following figure clearly shows that the road system, physical architectural space, and public block space in Xingyuan Lane do not fit the figure-ground relation. In addition, despite its diverse patterns, the public space in Xingyuan Lane lacks shape completeness.

From the perspective of macro-scale urban planning, Xingyuan Lane enjoys hierarchical distinctions. More

specifically, it comprises one main road, the first-class road, and several secondary roads, with multiple minor winding lane roads. All the roads are reasonably-arranged with remarkable accessibility, which allows citizens to enter their respective destinations through roads at different hierarchical levels.

However, from the micro perspective of block public space, the road system fails to divide the block with precise spatial forms. Consequently, the public space is prone to be scattered with tons of sundries, devoid of clear distribution of footway and roadway as well as reasonable spatial scales, giving rise to negative space.

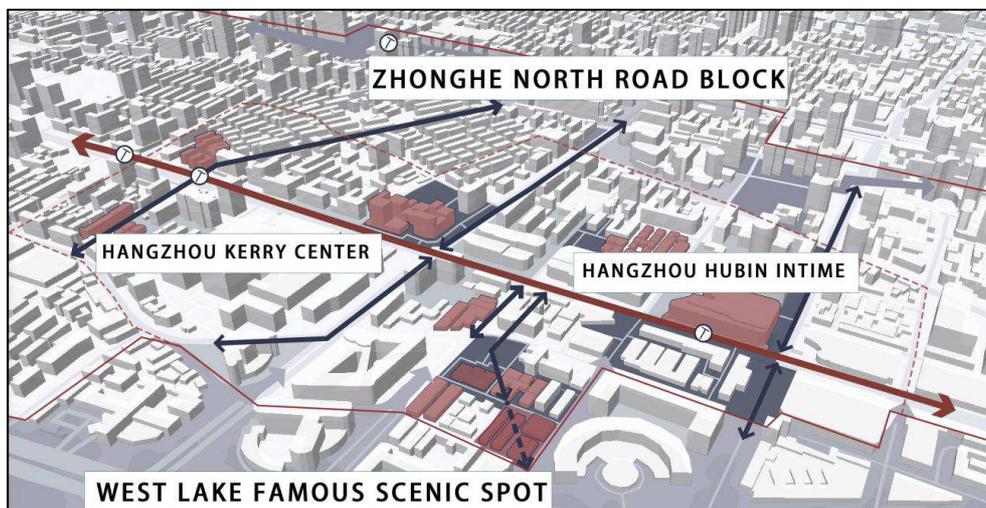


Figure 1. Road system and urban physical architecture/public space scale around Xingyuan Lane (self-drawn).

2.2.2. The Characteristic and Demand Analysis of Xingyuan Lane Residents

- (1) Many residents live, work, and enjoy entertainment in Xingyuan Lane, most of whom are senior citizens who mainly chat, drink tea, and run businesses in public spaces;
- (2) In recent years, with the progress of urbanization, Hangzhou has been witnessing a prosperous economy

- with surging tourists. Moreover, Xingyuan Lane locates in proximity to the West Lake scenic area. Therefore, many tourists would choose to stay there for a taste of local traditional customs;
- (3) There are also middle-aged citizens and children in Xingyuan Lane who mainly enjoy entertainment and scenery there.



Figure 2. Characteristic analysis of Xingyuan Lane residents (self-drawn).

With varying types of citizens, Xingyuan Lane, Shangcheng District, Hangzhou City also has diverse demands in terms of public space.

To start with, for senior citizens who take up a large proportion of residents, they have been living here for a long time. The block enjoyed overwhelming vitality when they were little. However, due to defects in public space, it no longer offers a place where they could chat and bask in the sun, becoming less lively;

Secondly, for the middle-aged citizens and children who live here, the latter need to gain a keen perception of the local culture while the former ought to acknowledge and remember

it. Nonetheless, with few existing cultural relics and public culture exhibition spaces, they could only learn some of the local cultures through the words of adults. Indeed, children need space for entertainment. Nevertheless, the sundries in public spaces rarely provide them with such places;

As for tourists, it remains of vital meaning to taste local cuisines in blocks. However, in Xingyuan Lane, the dining tables and chairs are randomly-placed, looking messy;

Lastly, when it comes to the overall landscape in block public space, with deficient and single green coverage, residents form a slight greening landscape through self-potted plants, indicating their solid demands for sustainable ecology.

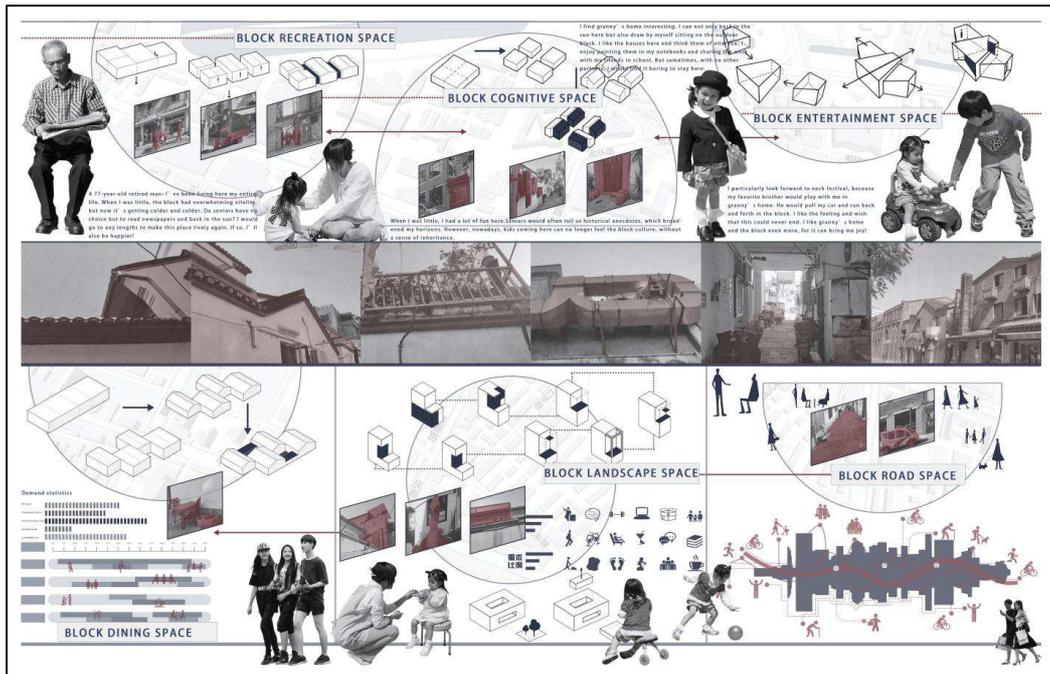


Figure 3. Demand analysis of Xingyuan Lane residents (self-drawn).

2.2.3. Existing Pain Points in the Public Space of Xingyuan Lane

The current public space in Xingyuan Lane, Hangzhou City, is disorganized with multiple problems. In the following parts, the paper will give illustrations in terms of basic demands, regional cultural facilities, and ecological greening in the public space of Xingyuan Lane. For example, individuals would chat midway in blocks with a paucity of resting facilities in public spaces; Also, the dining tables and chairs placed in external space take up existing block space; Moreover, the block road system is non-standard, with a messy distribution of footway and roadway, rendering the former often occupied; In addition, many senior citizens would leisurely sit beside blocks due to a lack of public entertainment facilities; The short architectural distances between lanes lead to the inter-wining of buildings, where citizens' drying racks greatly ruin the existing favorable environment in the block; Due to a lack of green coverage, residents build up their farmlands and scenic plants. Nevertheless, the greening beside streets stays simple, monotonous, and single-hierarchic, affecting street beauty; Apart from the above, the existing cultural relics in Xingyuan Lane, in disrepair, fall victim to human activities, along with irregular distributions of public facilities and other problems.

To sum up, the pain points concerning Xingyuan Lane can be mainly divided as follows:

First: Decentralized spatial structure with single spatial hierarchies.

The distribution of Xingyuan Lane public space is decentralized, destitute of a sense of enclosure and clear spatial form distinctions. As a result, some places are likely to encounter an overwhelming sense of scale, disorder in compact space, and unreasonable spatial scales without a

sense of humanization. Under such circumstances, the Xingyuan Lane not only fails to satisfy citizens' demands for spatial closure and security but also gives rise to negative space effects;

Second: Blind pursuit of novelty.

The public space in Xingyuan Lane shows the combination of both old and new elements. However, such a combination would render individuals in deep thought. As a case in point, some exaggerated modern decorations not only incur financial losses but also remain unable to meet people's need for a public space atmosphere and their behaviors;

Third: A lack of regional culture.

According to on-the-spot visits, several regional relic sites exist in Xingyuan Lane, Hangzhou City. Nonetheless, some of them have been suffering from destruction or disrepair. Time-honored blocks in cities carry memories generation after generation, while cultural sites reflect resident's life, culture, customs, and spirits. Admittedly, various spatial forms would, directly or indirectly, have a bearing on people's view of value and spiritual activities in daily life. Therefore, regional cultural elements serve to preserve memories of public space;

Fourth: A lack of green plants.

Relevant investigations demonstrate that in the public space of Xingyuan Lane, residents often contribute to spatial green coverage by self-potted plants. However, these plants are insufficient in numbers and hierarchies.

The above analysis sheds light on a series of pain points in the public space of Xingyuan Lane, Shangcheng District, Hangzhou City. Therefore, to some extent, for residents, the public space affects their living qualities and fails to meet their diversified demands. For tourists, the poor block public space lacks attractions and lowers their interest. Additionally, the public space will also generate negative influences on the overall city image.

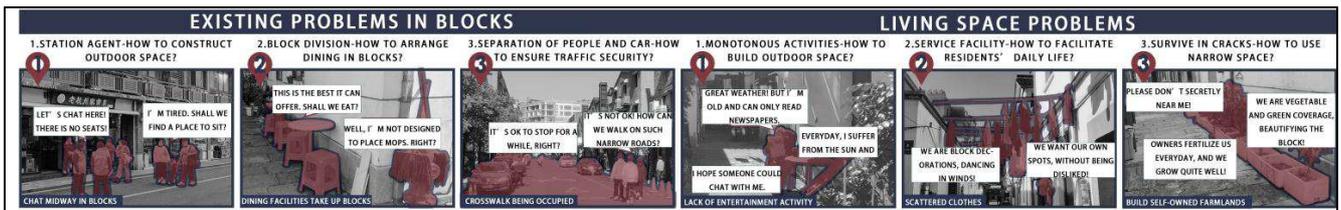


Figure 4. Analysis of pain points in Xingyuan Lane (self-drawn).

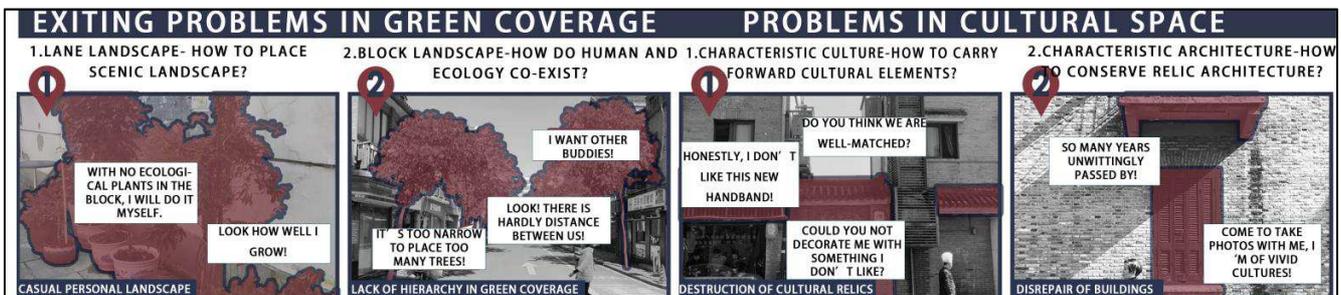


Figure 5. Analysis of pain points in Xingyuan Lane (self-drawn).

3. Figure-Ground Relation

In the figure-ground relation, individuals tend to concentrate on prominent graphics when perceiving external objects while other parts serve as a background foil. Besides, objects with relatively distinct graphics often appear as subjects, leaving other parts as background. [3-4] However, an evenly-matched situation involves the mutual transformation in the figure-ground relation. As demonstrated in the following figure, the two parts remain in similar conditions with clear boundaries. Therefore, when focusing on the white part, the graphic becomes a chess piece with a black background. Nevertheless, when concentrating on the black part, the graphic turns into two side-faces staring at each other with white background.

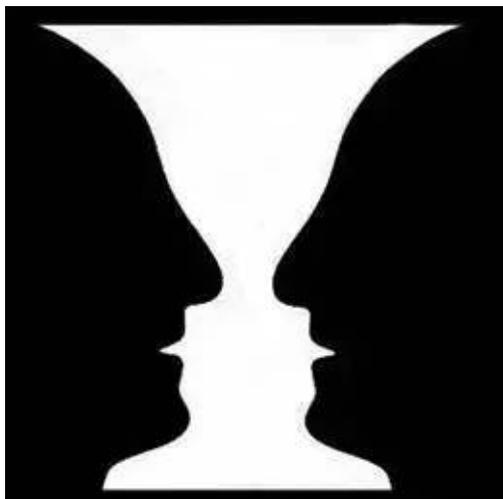


Figure 6. Rubin vase.



Figure 7. Physical areas in Italian blocks/comparisons of public space in reverse black and white images (From *The Anesthetic Township*).

3.2. The Extension of Figure-Ground Relation in Micro Block Public Space Renovation

3.2.1. Enrichment of Ground-Floor Interfaces in Public Space Guided by Figure-Ground Relation

In urban architecture and macro urban planning, the morphological features of figure-ground relation in

3.1. Application of Figure-Ground Relation in Macro Urban Planning

In macro urban planning, the figure-ground relation would usually make conversions between physical architecture and virtual space for urban spatial planning and design. This thesis studies the micro city block space design, including its micro spatial structures, forms, and characteristics using figure-ground relation. Besides, based on the above statements concerning figure-ground relation in macro urban planning, this paper probes into diverse public space activities extended from the diversity of spatial forms. [5]

The following example entails the application of figure-ground relation in cities and blocks, or, to be more specific, in urban public space, buildings, and block space. Though enclosed by buildings on two sides, the Rockefeller Center Square fails to form a complete shape with negative urban space. In response, designers subsided the square as borders for altitude differences with surrounding space, leading to a relatively active atmosphere in the square space. The Anesthetic Township once made a series of comments on the Rockefeller Center Square: It not only satisfies citizens' functional demands but also brings vitality to urban blocks. In winter, the square could serve as a skiing site. Additionally, it can provide public space for dining, concerts, and children's entertainment in outdoor rest. [6] In another instance, Yoshinobu Ashihara made a comparative analysis of Italian maps using figure-ground relation with reverse black and white images. He found the black and white images in overlapping states, making physical architectural space and virtual block correspond to the figure-ground relation. Also, the diversity of public space figures contributes to an interesting block landscape.

exceptional urban cases can be summarized as diverse forms and enclosed shapes, which play a positive role in a variety of public space activities in micro blocks. Therefore, this research optimizes block public space by enriching its ground-floor interfaces, generating in citizens spatial perceptions that are fun, safe, and relaxing with dignity and meaning. [7, 8]

According to questionnaires and on-the-spot visits, citizens, to a great extent, cherish the hustle and bustle of the past, such as those evenings when they leaned under tree shadows in conversation and those times when they enjoyed themselves with watermelons in hand... Giving individuals creative ideas, such scenarios stand as a place for communication, sharing, and perception, meeting practical social functions and people's spiritual demands. However, with the development of urbanization, residents gradually change their previous ways of living, resulting in waning interactions between neighbors and less lively environments. Consequently, this renovation strategy will break the interaction barriers among people and bring back the past's positive and harmonious public space relations. As mentioned above, the vitality in blocks remains inevitable in urban vigor.

The renovation strategy enriches the previously-traditional public space form with orders. On the one hand, it lives up to citizens' behavior habits and needs, such as chair-resting, photo-taking, pet-walking after meals, and entertainment-seeking. On the other hand, it brings diversity to the overall block hierarchies and public space activities in ground-floor interfaces. Indeed, different activity characteristics need spatial structure distinctions, meeting

both private and public space demands for activities. [9]

As demonstrated in the subsequent figures, humanized public space designs could inject vitality into the entire block without influencing traffic. As Jan Gehl put in his book: to bring people out of space and form various spontaneous activities. This is similar to the renovation of block public space using public/solid space figure-ground relation in outstanding urban planning cases.

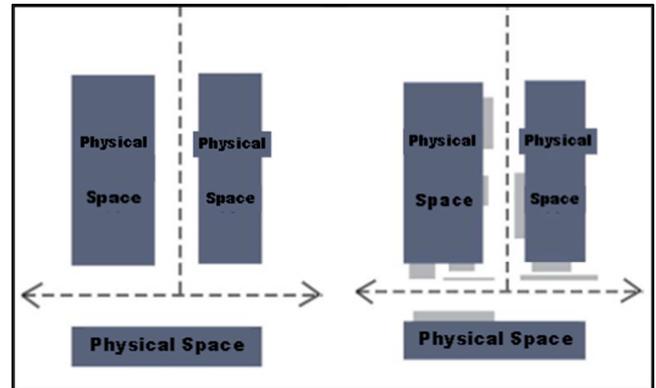


Figure 8. Street landscape before/after renovation.

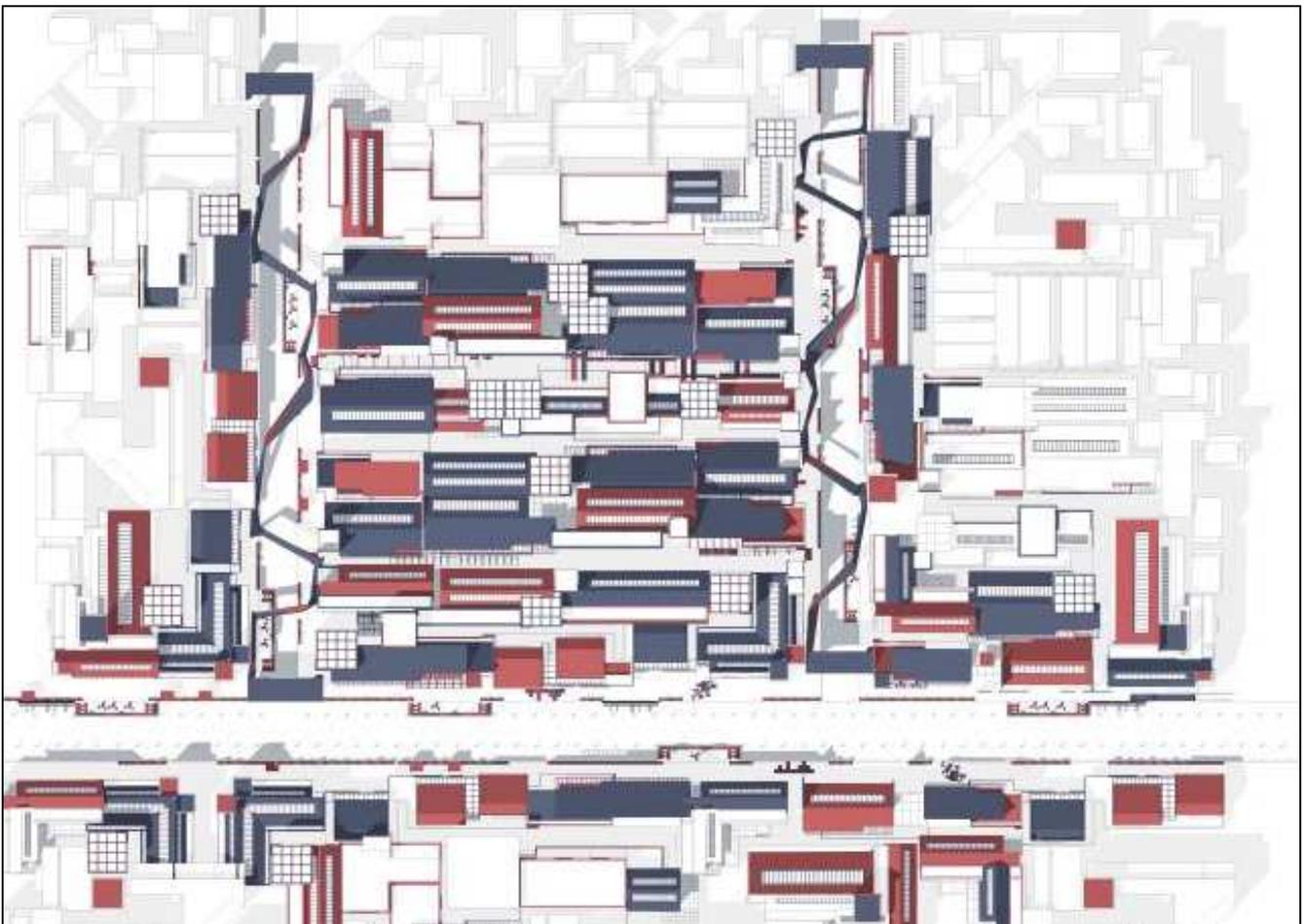


Figure 9. Overall street landscape after renovation.

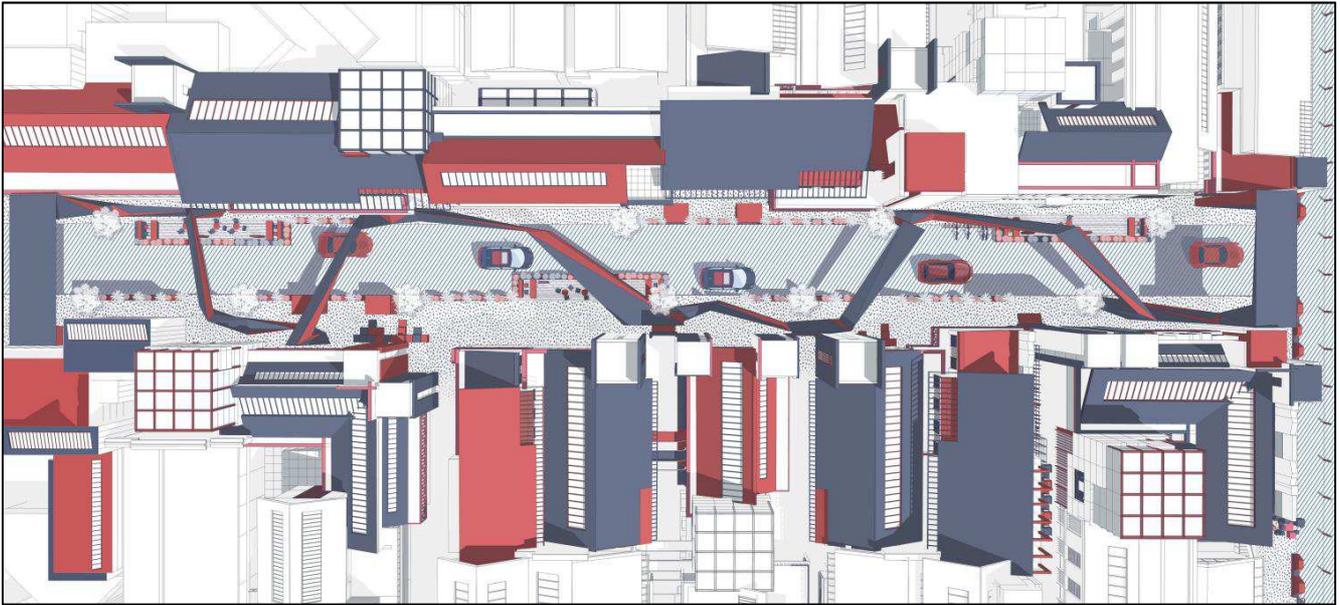


Figure 10. More public space after renovation (self-drawn).

3.2.2. Establishment of Spatial Structures with a Strong Sense of Enclosure

Initially, there were no boundaries between the footway and roadway. However, this proposition uses various material elements, such as open coffee seats and leisure landscape seats

on road edges, to enclose the transportation system, satisfy people's need for safety precautions and enhance their sense of security. This way, citizens can communicate and play in outdoor public spaces, leading to an interesting phenomenon where they present as both sight-viewers and scenery. [10]

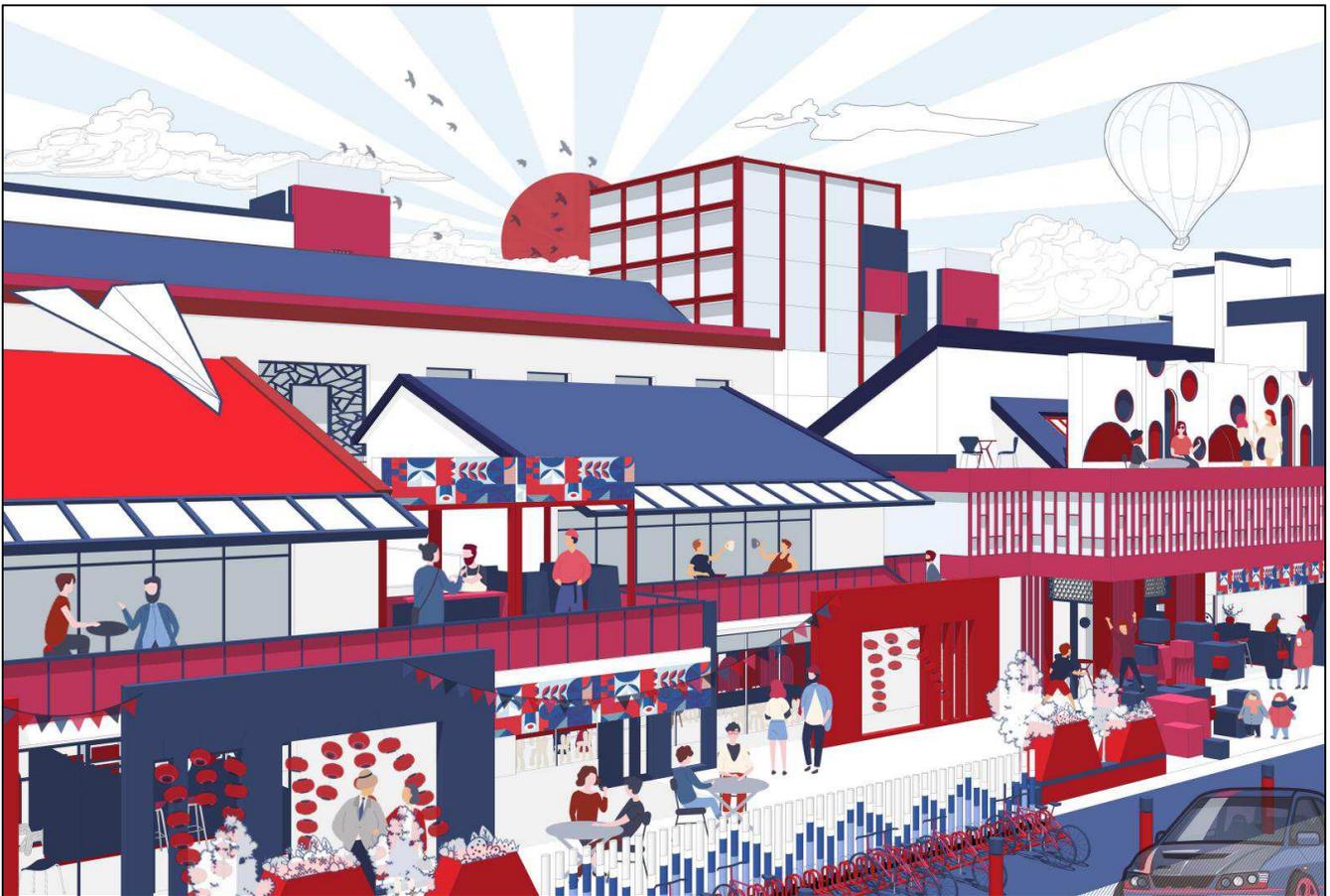


Figure 11. Spatial architectural rendering (self-drawn).



Figure 12. Spatial architectural rendering (self-drawn).

4. The Principle of Grouping

4.1. Introduction of the Principle of Grouping in Public Exhibition Space

The principle of grouping refers to research mainly based on the spatial unit combination and derives from the organizational formation of plane figures. The principle of grouping generally includes the principle of proximity, the principle of similarity, the principle of consistency, and others, all of which could provide inspiration for spatial combination forms.

The following is an example of the application of the principle of grouping in public exhibition spaces. A Toyota agricultural equipment showroom in Niigata, Japan, designed by Akihisa Hirata, aims at introducing external natural environment to indoor space. To be more specific, using combinations of geometric concrete walls, the entire room is divided into different semi-enclosed spaces, with relatively blocking sights yet free ways. Under such situations, the broad and lonely space becomes more compact and interesting, reducing people's sense of emotional emptiness. Walking among physical and virtual space combinations resembles crossing a manufactured natural environment. [11]

4.2. The Principle of Grouping in the Renewal and Renovation of Block Public Space

4.2.1. Enhance Public Space Attraction Guided by the Principle of Grouping

The design involves formation rules guided by the principle

of grouping in public art equipment and repeatedly uses specially-shaped gallery frames to create a charming and fun spatial environment.

Based on the spatial unit combination, the principle of grouping repeatedly distributes specially-shaped gallery frames in streets and blocks. The gallery frames stay functional and meet individuals' spiritual needs. [12] The specific methods are as follows:

First, in combination with ground-floor interfaces, the gallery frames could provide chairs for resting and public equipment to place shared bikes;

Second, in combination with side interfaces, the gallery frames could form semi-enclosed chairs, giving citizens a sense of security;

Third, in combination with top-level interfaces, the gallery frames could serve as street decorations or windows for festival culture exhibitions, leading to an interesting street landscape with a sense of humor.

The above application of the principle of grouping uses gallery frames and spatial combinations of single material units to generate in citizens spiritual pleasure. [13] The public art equipment centered on gallery frames brings diversity to the overall block with various spatial information. In addition, it reduces the fear caused by tall and long blocks, rendering blocks and streets more appropriate in scale. [14] It also gives rise to a unique cultural atmosphere during special festivals.

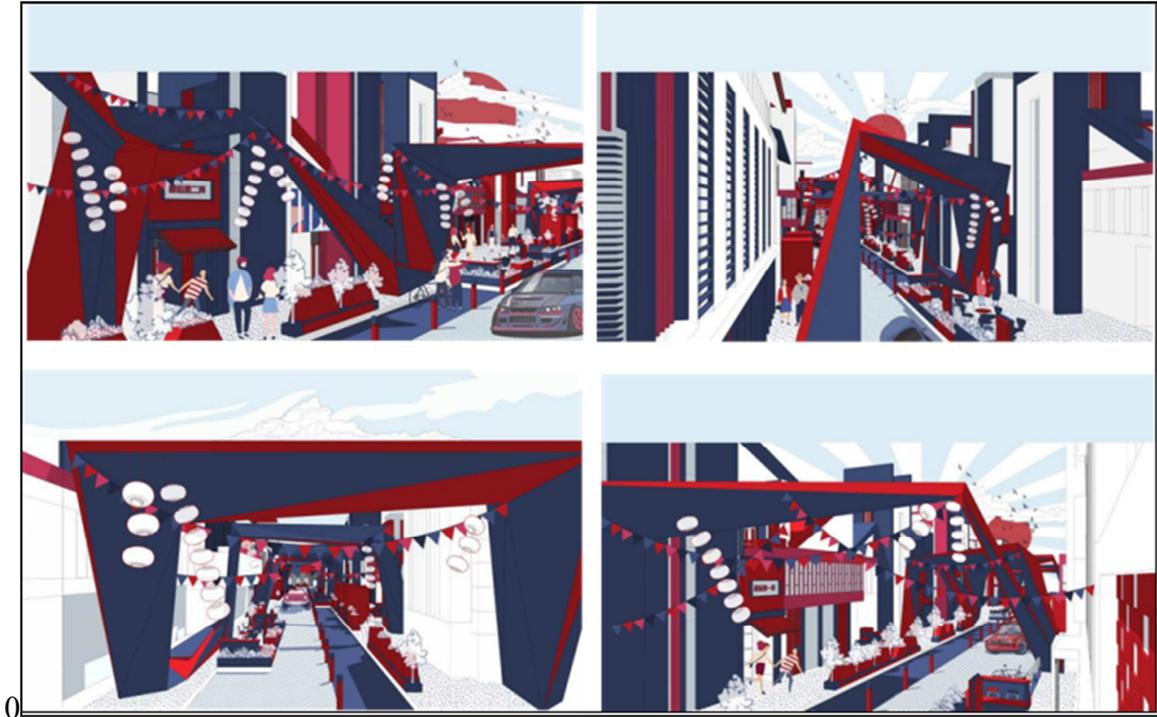


Figure 13. Specially-shaped gallery frames (self-drawn).



Figure 14. Overall architectural rendering of specially-shaped gallery frames (self-drawn).

4.2.2. Inherit Local Customs with Vivid Regional Culture

As each city has its own story, different regions stand out

for their different cultures. However, to some extent, today's urban development renovates old blocks by overturning

everything, which will harm not only block cultures but also the overall development with urban characteristics.

In his research on the living environment, Professor Wu Liangyong once stated that we must attach great significance to preserving culture. Nonetheless, a number of renovations on cultural blocks take similar actions in terms of the preservation and collection of cultural elements. In contrast, the following thesis will introduce different renovation approaches:

The method forms a strong cultural space atmosphere using

the principle of grouping and the repetition of geometric spatial units. By exhibiting ancient poets, stories of city history, and prominent figures with local characteristics on architectural walls, it will not only make residents ponder their lives but also enable tourists to experience the regional culture. [15-16] This is where individuals could spontaneously form a variety of activities, such as watching, listening, communicating, and taking photos. Under such scenarios, stationary objects could bridge citizens emotionally, enhancing the interactions between people and objects as well as people.



Figure 15. Architectural rendering of regional cultural equipment (self-drawn).

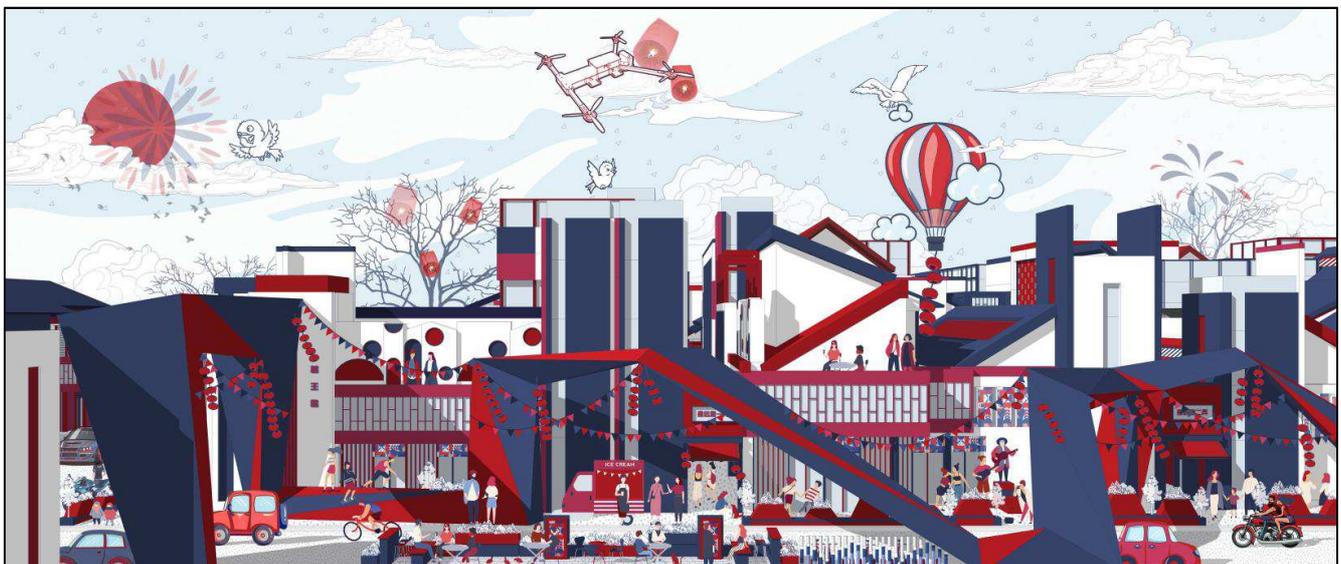


Figure 16. Architectural rendering of regional cultural equipment (self-drawn).

4.2.3. Highlight Dynamic Equilibrium with Ecological Sustainability

According to on-the-spot investigations, many residents use self-potted plants as decorations for spatial green coverage. With the development of Modern Behavior, landscape plays an instrumental part in people's behaviors and activities.

When it comes to the application of ecologically sustainable development in environmental design, individuals should pay special attention to the dynamic development between

humans and ecology. This design uses the principle of grouping and the repetition of geometrical spatial units and combines plants with landscape equipment. By doing so, with not only chairs but entertainment facilities, citizens could easily rest, chat, drink coffee and enjoy the surrounding landscape while strolling among blocks. All these landscape equipment not only satisfies people's need for resting space but also enriches greening space hierarchies. Also, the enclosure resulting from surrounding plants could improve the interactions between humans and ecology. [17]

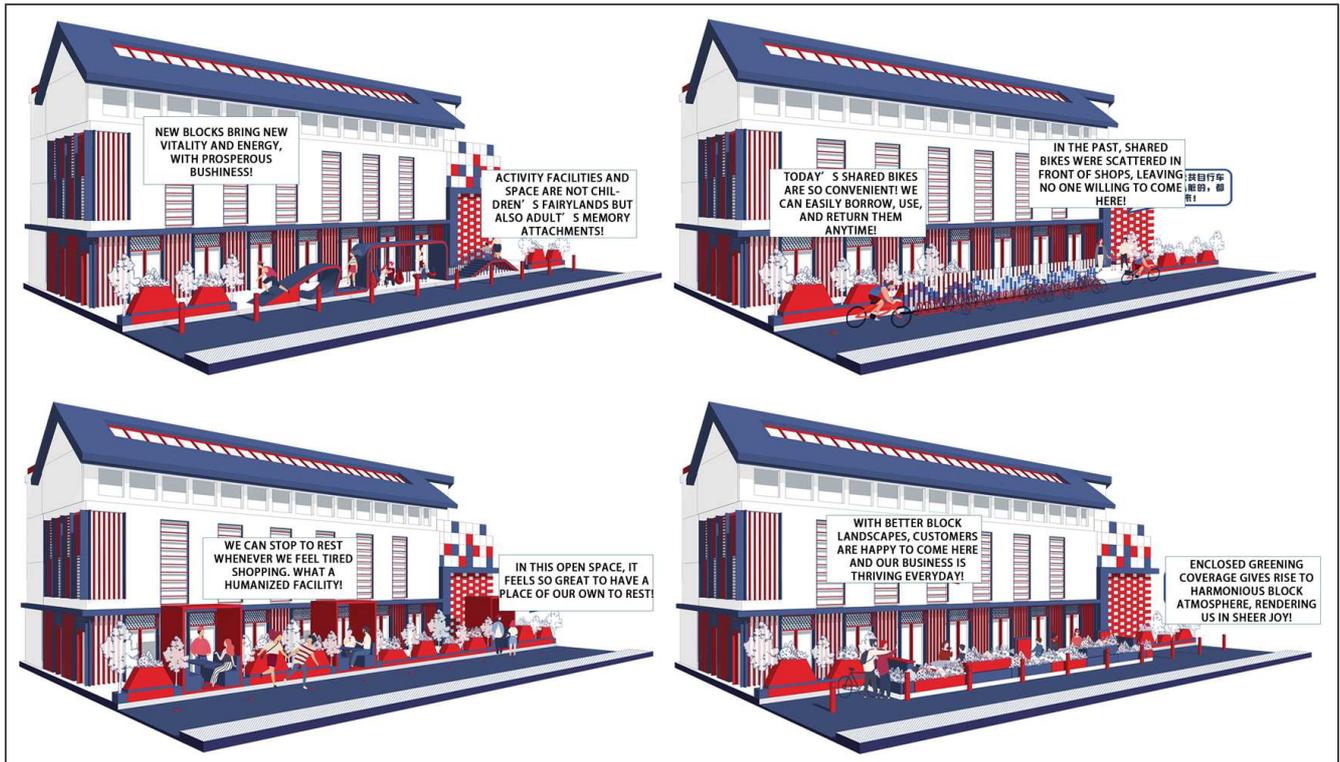


Figure 17. Distribution of street ecological plants.

5. Conclusion

This thesis, mainly based on the figure-ground relation and the principle of grouping in Gestalt Anesthetics, analyzes the application of the Gestalt principle in modern design with the case study of public space in Xingyuan Lane, Shangcheng District, Hangzhou City. It probes into relevant cases concerning the application of the two principles in urban and block space and, in the meantime, uses them as theoretical guidance for renovation strategies in old block public spaces. Generally speaking, this paper follows the sequence of putting forward problems, theories, and existing relevant research, analyzing problems, and proposing final solutions.

With increasingly enhancing demand levels, individuals prefer to pursue psychological satisfaction instead of simple physiological ones. Indeed, psychological perception elements remain vital in the upper hierarchy of demands. Therefore, the work of designers is to follow this demand hierarchy and mobilize a variety of elements to satisfy those needs. The Gestalt Anesthetics has witnessed plenty of applications in modern art design cases, which is of tremendous help in exploring the conservation and renewal of old blocks using figure-ground relation and the principle of grouping, avoiding stereotyped renovations, and promoting urban renewal towards natural symbiotic development.

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