

Study on visual perception of the landscape in Yongqingfang Historic District

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Abstract

This article aimed to study: (1) The cultural visual perception degree of each space in the historic district; (2) The average and deviation values of cultural visual perception from multiple spatial; (3) The cultural visual perception experience of visitors on the wandering path. This study takes the Yongqingfang Historic District in Guangzhou, China for an example, based on theory with Gestalt Psychology, Art and Visual Perception and Wandering Path, and adopts the mixed qualitative and quantitative research and Art-Based Research (ABR) method. The sample is randomly sampled from the visitors in the district. The researchers collected data through non-intervention observations, collected photographs of the landscape taken by visitors, and processed and calculated them using Photoshop software. The research results were found as follows: The cultural visual perception experience of a visitor can be optimized by controlling the average value , deviation value and rhythm of perception of cultural visual perception. This approach helps designers to better complete the design work of historic districts renewal so that the historic context of the district can be better displayed and continued, as well as for visitors to build an optimal cultural visual perception experience based on the wandering path.

Keywords: *Visual perception; Historic district; Landscape; Wandering path; Yongqingfang.*

Introduction

With the rapid development of cities, urban renewal has become an important strategy to enhance international competitiveness and promote development and transformation. Renovation of historic districts has become an important part of urban renewal. Different approaches to cultural visual elements have emerged in the reconstruction of numerous historic districts. One approach would be to completely preserve the cultural visual elements, which would result in a lack of new vitality in the neighborhood. One is the wholesale demolition and construction of renovation methods, the lack of protection of

historic and cultural elements, and the loss of the historic style and historical context of the district, which cannot be sustained. If urban renewal blindly pursues economic gain and neglects cultural preservation, it will severely damage the social organism, alter the urban fabric, cause enormous damage to the urban landscape, and the city will eventually lose its most precious humanistic connotations.

The renovation of Yongqingfang has achieved great results, continuing the original district texture, improving the public infrastructure and creating a comfortable and attractive environment. The Yongqingfang renewal project, located in the historical and cultural

district of Enning Road, Guangzhou, China, is the first key project for the implementation of urban renewal and micro-renovation in Guangzhou. (Fig.1-2) The main contents include street texture restoration, traffic optimization, historic building restoration, building reinforcement and improvement, and supporting basic facilities, while modern industries are also introduced to reactivate the entire area. Yongqingfang has the typical characteristics of Cantonese culture, and it is the most abundant and prominent area in Xiguan culture. There are numerous historical and cultural landscapes in the area. Renovations of non-historical buildings have used more modern techniques of architectural decoration and have incorporated public art such as graffiti walls and sculptures into the neighborhood. The renewal method of micro-renovation is a blend of tradition and modernity, which will inevitably bring about the connection and collision of various cultural elements and art forms in the district space, and bring visitors a continuous, changing, and alternating perceptual experience. The renovation of Yongqingfang has been so effective that it has become one of the first national-level tourist and leisure districts in China (Ministry of Culture And Tourism of the People's Republic of China, 2022).

Fig.1 Floor plan of Yongqingfang Historic District

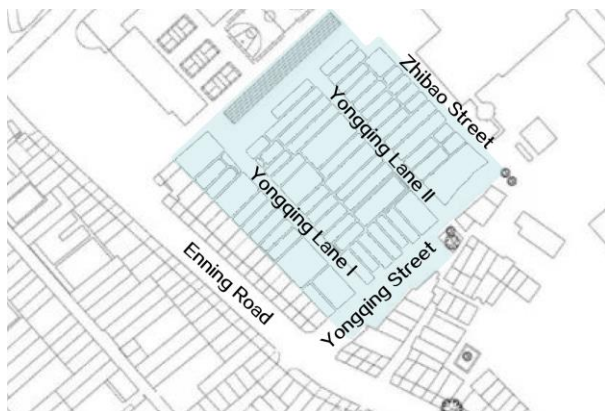


Fig.2 Yongqingfang Historic District



In the revitalization of historic districts, we should focus on the preservation of historical and cultural elements. It is neither a full-scale demolition nor a full-scale retention. Should we keep the key parts and refine the symbolic cultural elements and apply them in the original design to better perpetuate the historic context of the historic districts.

Research Objectives

Through the research on the cultural visual perception experience of Yongqingfang, this study provides a different perspective for the renewal design of historic districts, seeks for the balance point between historical and cultural elements and other elements, and explore the design principle of "micro transformation" of historic districts with great vitality and cultural visual perception experience. It has the following research objectives.: (1) Based on the Gestalt Psychology "Figure-Ground Relation", this paper explores the cultural visual perception degree of each space in the district, especially the perspective that can attract tourists to stop to admire and take photos; (2) There is an average value of cultural visual perception from multiple spatial perspectives in the district, which reflects the overall cultural visual perception of the region; (3) Explore the cultural visual perception experience of visitors on the wandering path.

Literature Review

This topic is based on the related theory of visual perception and uses the landscape of a historic district as a study object to implement the study of cultural visual perception. Related studies include the renewal of historic districts, visual perception, and the study of visual perception of landscapes.

1. Historic District. The "Charter of Athens"(1933) has a section devoted to the concept of buildings and areas of historical interest. In the "Venice Charter" (1964), the concept of cultural relics and monuments was further expanded to include "not only individual buildings, but also urban or rural environments from which a distinct civilization, a significant development or a historical event can be identified", reflecting the importance attached to cultural relics and the built environment. France's "Loi Malraux" (1962) was the first to set out provisions to protect historic sites. The "Nairobi Recommendations" (1976) are measures that indeed bring the protection of historic districts into line with international conventions, including legislative and administrative, technical, economic and social aspects of the protection of historic districts. The "Charter for the Preservation of Historic Towns and Urban Areas"(1987), passed by the International council on monuments and sites, puts forward the concept of "Historic Urban Areas". In China, officials introduced the concept of "historical Districts" in 1986, when the state council announced the second batch of national-level historical and cultural cities. "The Peoples Republic of China on Protection of Cultural Relics" (2002) officially included historical districts in the category of immovable cultural relics (The State Council of the People's Republic of China, 2002).

2. Historic Districts Renewal. In the 1960s, there were two different positions of foreign scholars on the preservation and renewal of historical and cultural districts. There were two

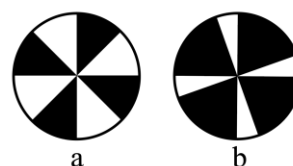
main ways: "progressive" development combining ancient and current and "dialectical" balanced measurement development. The first one is to promote the development, demolition and construction of districts step by step and time; The other is "dialectical" thinking, which holds that protection and development are not "black or white" choices, but have a long-term dialectical relationship. The key point is to grasp the balance between protection and development, and properly handle the relationship between protection and renewal. In China, from the context of model studies, Xiaolong took the lead in putting forward the "microcirculation-type" conservation and renewal theory, and believed that the conservation and renewal of districts should be carried out under the guidance of the dialectical thinking of "unity of opposites and complementing each other" (Song, 2000). Qianru et al. explored the factors affecting the preservation and renewal of historic districts by introducing factor method from three dimensions, including society, economy and environment (Zhang, Peng, & Ma, 2014). Chen Ying et al. innovatively proposed the transformation mode of "district acupuncture" (Chen, Yue, Shao, & Yang, 2017). Honghao believes that the active reuse of historical buildings is one of the important means of district renewal and transformation (Fu, 2019). Randall Mason draws out distinctions between economic and conservation discourses, examines why and how economic arguments are made about conservation, and advocates serious engagement of cultural economics by the heritage conservation field (Randall, 2008). The organic combination of cultural heritage and tourism could nicely boost the economic development of cities and the redevelopment of cultural and tourism space of districts. Michael Pretes analyzed and studied the value of cultural heritage tourism after an in-depth investigation into the internal relationship between local tourists and indigenous people (Michael, 2002). These studies show that the

research on the development and utilization of cultural heritage in historical and cultural districts mainly focuses on how to handle the relationship among cultural heritage, heritage sites and tourists.

3. Visual Perception. Gestalt Psychology reveals the relationship between "Figure" and "Ground" through in-depth study of visual organization and its laws, namely, "Figure-Ground Relation". Graham proved the influence of relative size on the "Figure-Ground Relation" through quantitative research. The white cross in Figure B is more easily seen than the cross in Figure A. It is an inherent law that there is a separation between larger and smaller units, which are more likely to be seen as "Figure" and larger units as "Ground" under certain conditions (Koffka, 2010). Edgar Rubin, who has made a systematic study of the transformational relationship between "Figure-Ground", has demonstrated the same principle: under certain conditions, smaller faces are always seen as "Figure" and larger faces are always seen as "Ground". Rudolf Arnheim further proposed that when we take the inversion of this kind of relation, that is, we regard the large surface area as the "Figure" and the small surface area as the "Ground", we will feel the strong resistance of the pattern itself, and this kind of inversion relation will soon disappear. (Arnheim, *Art and Visual Perception* (Shouyao Teng trans.), 2019) In *Art and Visual Perception*, Arnheim proposed that a good photograph needs to delete those unnecessary details and select structural features sufficient to explain the problem, so as to convey the important information to the eye. These tasks should be accomplished by perceptual factors such as simplified shapes, sharp base relationships, orderly combinations, and clear overlaps. The grasp of the structural features of stimuli is not accomplished by abstract thinking, but by visual perception. The material that visual perception begins with is the crude structural feature of a stimulus, not the one that the

stimulus directly provides. The outline of the stimulus, instead of the structural features of the stimulus, awakens a specific schema in the brain that corresponds to a general sensory category. We use overall patterns or categories of shape, size, proportion, color, etc. to see, recognize, and remember (Arnheim, *Art and Visual Perception*, 1974). Eighty-five percent of people's total information perception of spatial images comes from visual information (Yang, 2012). The eye and visual perception. The brain and the eye are indissolubly connected physiologically, structurally, and functionally, forming a single visual perception system. To look and to see are two different processes, which in the course of evolution have formed different characteristics of the visual systems in animals. The human intellect adds a third component to visual perception-knowledge, that is, perception as an evolving process of interaction with the surrounding medium. This article discusses the interconnection of the three processes: to look, to see, and to understand (to know), as a single whole of human visual perception.

Fig. 3 "Figure-Ground Relation" Schematic diagram



4. The study of Visual Perception of landscapes. There are two basic approaches to the study of landscape perception, both grounded in humanistic cultural geography. Quantitative landscape perception studies emerged in Anglophone geography in the 1960s and 1970s within the context of behavioral geography's critique of spatial science. This psychological turn in human geography emphasized the role of cognitive processes in mediating and producing one's perception of landscapes and environments. The other branch of landscape perception

research is more qualitative in approach. Its origins rest with the Landscape School of cultural geography that focused on empirical observation of morphological features of landscapes as evidence of cultural difference (Saldias Daisy San Martin, 2021). The character of a landscape can be seen as an outcome of people's perception of their physical environment, which is important for spatial planning and decision making. Weitkamp Gerd proposed three modes of landscape perception: view from a viewpoint, view from a road, and view of an area (Weitkamp Gerd, 2007). Dupont Lien has carried out a study of Eye-tracking Analysis in landscape perception Research, using eye tracking to objectively be measured and understanding of how people perceive and observe landscapes. In the study, 23 participants were asked to observe 90 landscape photographs, representing 18 landscape character types in Flanders (Belgium) differing in degree of openness and heterogeneity. For each landscape, five types of photographs were shown, varying in view angle. This experiment design allowed testing the effect of the landscape characteristics and photograph types on the observation pattern, measured by Eye-tracking Metrics (ETM) (Dupont Lien, 2014). Steven Holl proposed the theory of "wandering path" in Perception Problem: Architectural Phenomenology, which is an experience process with space-time nature and composed of continuous perceptual images, which is generated by the difference and attraction points of vision. Ramble in space who are constantly attracted to certain targets and natural changes of direction, in the process of traveling to perceive continuous big and small pieces of perspective images, these pictures are overlapping each other, and link up with time, space, body, eyes and brain, build up the basic relationship between human and architecture, forms the foundation of perceptual experience (Xu & Yang, 2002). Cakci Isil has carried out a study of Evaluation of visual

perception of landscape. The study aims to provide a methodology that integrates user preferences and expert assessments to satisfy user needs and guide landscape designers and planners in the planning and design process for urban open spaces and green spaces, particularly urban parks (Cakci Isil, 2009). Vaart and his research team adopted Arts-Based Research Methods, carry out the research from a Participatory Research Project in the Netherlands (Vaart, Hoven, & Huigen, 2018).

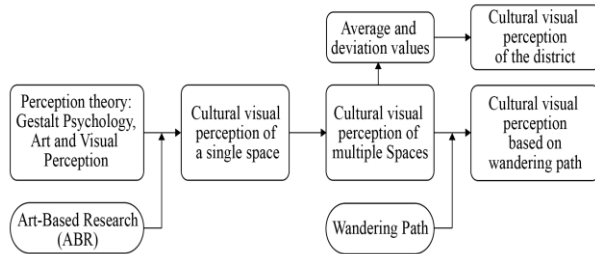
Based on the above theories, concepts and research methods, this study is more consistent carried out under the guidance of the dialectical thinking of "unity of opposites and complementing each other", pay more attention to balance between protection and development, attention to the relationship between district culture protection and tourism economy. Relevant studies provide references for this study. This study scheme of Art-Based Research (ABR) is adopted, collect the photographs of interviewees to conduct quantitative research based on "Figure-Ground Relation". Moreover, with the help of the theory of "Wandering Path", this study can explore more thoroughly the tourists' perception and experience of the historic district.

Conceptual Framework

This research is a research study. The researcher defines the research conceptual framework based on theory with Gestalt Psychology, Art and Visual Perception and Wandering Path. Through observing and recording tourists' wandering paths in Yongqingfang, collecting photos taken by tourists and using image processing software for processing, cultural visual perception data of single and multiple spaces in the district are obtained, the cultural visual perception experience of visitors is reflected by the

changes of visitors' perception degrees on the wandering path. The details are as follows.

Fig. 4 Conceptual Framework



Research Methodology

This study is a cultural visual perception study of historic districts. It adopts a mixed qualitative and quantitative research method to explore the cultural perception experience of visitors wandering in the districts. The researchers first collected data through non-intervention observations, which were conducted at 10am and 14am on weekends, when visitors are more concentrated. The experiment mainly observed and recorded visitors of different ages and genders in Yongqingfang historic district, including where they stopped to enjoy the landscape and the angles from which they took photos. Another part of the data comes from collecting photos of nearby landscapes taken by visitors. It is the methods of Art-Based Research (ABR). ABR methods are of great value to this research because they provide different ways of understanding people's real views and generate deep insights through cognitive approaches that go beyond rationality, photographs taken by visitors can reflect their more truthful perceptions. These photos were processed by Photoshop software, and the visual elements in the photos were summarized into two categories: historical and cultural elements and non-historical cultural elements, so as to form a black and white graph of "Figure-Ground Relation". Finally, the data is computed and counted, which will reflect the visitor's perception of the cultural visual elements of the district.

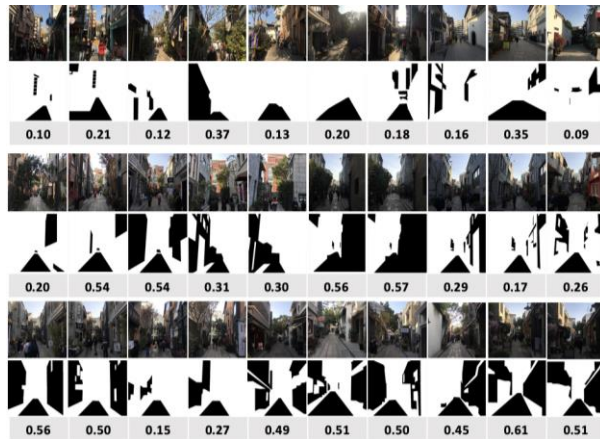
Research Results

Objective 1. Cultural visual perception of a single space. By observation and record, the most typical route of Yongqingfang is: Yongqing Street - Yongqing Lane I - Yongqing Lane II - Zhibao Street, with 30 representative stops along the trail. (Fig.5) The researchers selected 30 photos from the photos taken by tourists, processed them with Photoshop software and calculated the data, and based on the calculation formula of cultural perception (cultural visual perception = perceptual schema Guangfu culture elements in the area of the total area of the present) calculating the value of visual cultural perception, this value between 0 and 1, the size of the value perception of low or high intuitive reflect culture. According to the above method, 30 spatial perspectives of Yongqingfang are processed one by one and the cultural visual perception value is calculated. (Fig.6)

Fig.5 Conceptual Framework



Fig.6 The value of cultural visual perception of 30 spatial perspectives



Objective 2. The average and deviation values of cultural visual perception from multiple spatial. The average value of cultural visual perception across multiple spatial perspectives in a particular area reflects the overall cultural visual perception of Yongqingfang. In a specific space, the smaller the proportion of cultural visual elements, it is easier to be viewed as "Figure" by visitors, then the degree of cultural perception is relatively elevated, visual perception experience tends to the esthetic of cultural visual elements. According to the results of the survey, the cultural perception of Yongqingfang ranges from 0.09 to 0.61, the average value is 0.34 (Fig.7), and the average value is less than 0.5, which conforms to the law of "Figure-Ground Relation" in Gestalt Psychology. Visual elements of Guangfu culture in Yongqingfang are more likely to be regarded as "Figure" by the audience, and the audience's visual perception and experience tend to be esthetic cultural elements as a whole. From a single stop, its cultural visual perception deviation from the average across all stops, with positive deviation above the average and negative deviation below the average. There is an average value for both positive and negative deviations. The span of these two values reflects the richness of visual perception experience across the district. The average

value of cultural visual perception from the all stops is used as a reference value, the average value of positive deviation is 0.17, and the average value of negative deviation is -0.15. (Fig.8)

Fig.7 Average value of Yongqingfang cultural perception

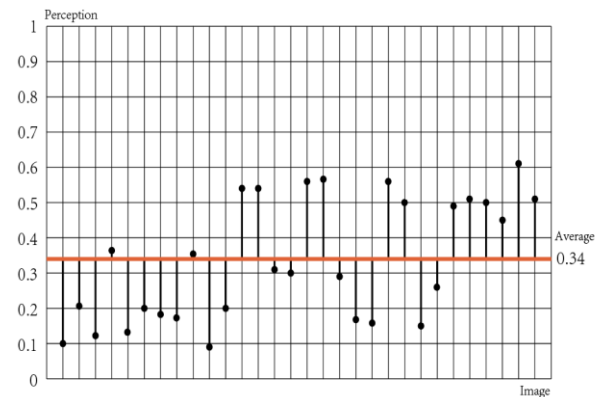
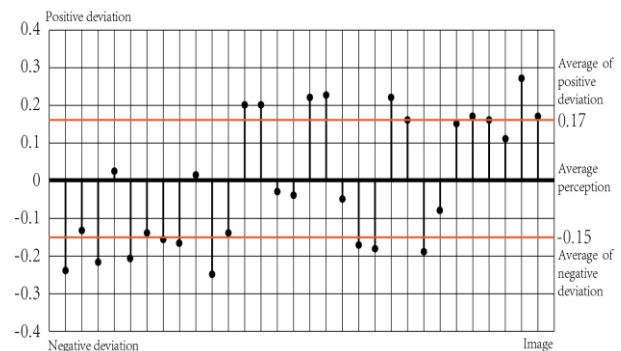


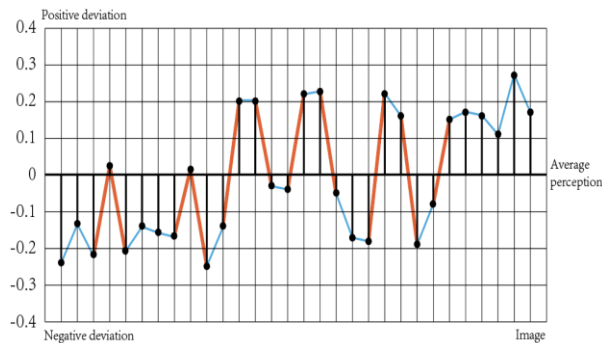
Fig.8 Deviation value of Square cultural perception of Yongqingfang



Objective 3. Experience of cultural visual perception based on the wandering paths of visitors. The researcher obtains a line by concatenating cultural visual perception values that fluctuates around the perceived average value, presenting regular or irregular periodic variations such as musical joy and lyricism, tension and softness. The visitor's cultural visual perception and experience will be more exciting and richer when the broken lines representing perceptual changes alternate above and below the average line or show large turning points. Conversely, visual perception experiences tend to be calm and monotonous

when the perceptual shift is continuously at a slight turning point. Yongqingfang perception of the shift of the break line comparison jump, and the alternating frequency is relatively high, so the cultural visual experience of the visitors is more exciting and abundant, visitors are easier to obtain pleasure from the esthetic alternation of the Guangfu cultural visual elements and other elements. (Fig.9)

Fig.9 Line diagram of cultural visual perception change in Yongqingfang



Discussions

The preservation of cultural visual elements and the integration of fashion and commercial elements in the micro-renovation of Yongqingfang are excellent and help visitors to better appreciate the historical and cultural elements of the neighborhood esthetically. Visitors who wander around the district can get an exciting and fertile cultural experience. Just like numerous other researchers help landscape design through visual perception research, this method and results adopted in this study can provide references for the renewal design of historic districts, help designers better grasp the "Figure-Ground Relation" between historical and cultural elements and additional elements, they can through control the average value, deviation value and rhythm of perception of cultural visual perception, in order to achieve the balance between historical and cultural elements and additional elements so that the historical and cultural elements of the district are easier to watch, recognized and remembered by visitors. The major limitation

of this study is sample size, it failed to use larger sample sizes for comparison and validation, which is the direction of additional research in the future.

Conclusion

Based on theory with Gestalt Psychology, Art and Visual Perception and Wandering Path, this study adopts the mixed qualitative and quantitative research and Art-Based Research (ABR) method, research on the cultural visual perception experience of Yongqingfang. This study provides a fresh perspective for the renewal design of historic districts, has explored and preliminarily identified an effective design principle and effective method of "micro-transformation" of historic districts with great vitality and cultural visual perception experience : The method of optimizing experience of cultural visual perception of visitors by control the average value, deviation value and rhythm of perception of cultural visual perception. This method contributes to designers to better complete the historic district renewal design work, so that the historical context of the district can be better displayed and continued, as well as for visitors to build an optimal cultural visual perception experience based on the wandering path. The major limitation of this study is the relatively limited sample size and the inability to select additional historic districts for study and comparison. In the next study and the studies of other scholars, we can further investigate the relevant theories and expand the study objects and samples so as to gradually promote the application of the relevant theories and methods in the design of historic district renewal.

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