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Analysis of the Accuracy and Comprehensiveness of Art Design Evaluation Methods

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Abstract

Art design evaluation is based on the needs of people and society as a scale, examines the creative process of design, analyzes the relationship between design language and the environment, the relationship between design language and thought, the relationship between design form and meaning, and reveals the relationship between design and people and society. The main role of art design evaluation is to guide and build future designs.present, there are many methods of art design evaluation, and there are some advanced research results in the world. However, little research has been done on the impact of different types of meter evaluation methods on the results of art design evaluation. This paper adopts the literature analysis method, according to the existing art design evaluation research, Include the research scope, research object, and the evaluation result analysis and comparison. This study summarizes the current design evaluation schemes, and studies the accuracy and comprehensiveness of the results of different types of design evaluation methods.

Keywords

Art design、Evaluation method

1 : Introduction of design evaluation methods

Design evaluation is a theoretical analysis and value judgment of a specific design work or design phenomenon based on certain standards. It is an academic

activity with certain professional quality requirements. In essence, design evaluation is an important design theory and practice activity.

Because evaluation has the comprehensive meaning of analysis, judgment, criticism, and comment, the use of certain design principles or theoretical viewpoints, and the selection of appropriate evaluation methods for evaluation are critical to the results of design evaluation. （Huangkai,Bole 2009）Therefore, this article selects a large number of representative design evaluations. Practice type literatures are researched, and the design evaluation methods, research scope, research objects, and the opinions and results finally obtained in the literature are summarized from the literatures, and the impacts of the design evaluation methods on the final results are analyzed.

There are many methods and systems for design evaluation. The more common are AHP analytic hierarchy process, POE post-use evaluation system, VRM aesthetic perspective evaluation method, literature and observation analysis evaluation method, etc. Different methods lead to the final results and suggestions. The accuracy and comprehensiveness of opinions will have a greater impact. This research is an inductive analysis of the literature on design evaluation practice theory. Through a large number of existing evaluation types of design evaluation literature, it summarizes and analyzes the impact of the design evaluation methods they use on the final result.

2 ：Classification and analysis of art design evaluation methods

2.1 Analysis of AHP Design Evaluation System

I randomly selected research on different design evaluation methods for summary and analysis. The analytic hierarchy process regards the research object as a system and makes decisions based on decomposition, comparative judgment, and comprehensive thinking. It becomes a mechanism analysis, and the weight setting of each layer will affect the results directly or indirectly in the end. The degree of influence of each factor on the results is quantified, very clear and unambiguous.

The following is a summary and analysis of research on design evaluation by AHP method.

（1）In 2018, the "AHP-based Leisure Agricultural Landscape Evaluation Index System" researched by Yang Xiujuan, Wang Aiping, Dong Qi, and Zhang Rui adopted an analytic hierarchy process to evaluate the index system.

Their research is to establish a leisure agricultural landscape evaluation system and understand the role of various indicators in the construction of agricultural landscapes and build an agricultural landscape evaluation index system based on the Analytic Hierarchy Process (AHP). Use the expert consultation method and the 1-9 scale method to construct the judgment matrix and calculate the weight value of each index in the landscape elements. The results show that the weight value of the project layer is ranked as natural landscape> production

landscape> human landscape; the overall sensory, regional culture, and organic ecological environmental protection of farmland in the factor layer are relatively large; in the indicator layer, the weight value of driving tourism income is the largest, and the road is accessible Sex, natural ecological experience, participation in agricultural operations, sustainability, and ecosystem diversity also occupy a certain position. (Yang Xiujuan, Wang Aiping, 2018）The research results will provide a reference for the further establishment and improvement of the agricultural landscape evaluation system.

The research result is that the overall sensory, regional culture, and organic ecological environmental protection of the farmland landscape, which are the top three factor-level weight values evaluated by the analytic hierarchy process, belong to the natural, humanistic, and production landscapes, which once again proves the realization of ecological, economic, and environmental protection in the landscape evaluation. The unity of the three social benefits (Suanpang, Pothipasa, & Netwrong, 2021; Sudarmanto & Meliala, 2020; Suhendi & Asmadi, 2022).

（2）In 2017, in the article "Study on the Evaluation of Rural Landscape Design in Changsha" published by Kong Ruihua, the Analytic Hierarchy Process (AHP) evaluation index system was selected.His research focuses on the process of comprehensive evaluation of the current situation and utilization of landscape resources, focusing on the status quo of the landscape, the sensitivity of the landscape and its constituent elements, the level of disturbance, the threshold of landscape resistance and its level distribution, the size of the landscape function and the landscape pattern, etc. The research and analysis provide scientific basis for landscape planning and design, landscape management and development. Rural landscape evaluation is the basic work of rural landscape planning and design, and it is also an integral part of the planning process. Through the establishment of a set of index systems, the index system can be used to exert the vitality, social value, economic value, aesthetic value, etc. of the rural landscape. Reasonable evaluation of multiple values and reveal the existing problems in the landscape and determine the future development.

The result of the study is the evaluation index weight value and importance ranking calculated through questionnaire survey and analytic hierarchy process. The results are as follows: natural landscape>settlement landscape>cultural landscape>agricultural landscape. The evaluation results are analyzed and based on: find the correct positioning, Overall planning, reasonable layout; adapting measures to local conditions, coexistence of individuality and commonality; sustainable development, strengthening inheritance and innovation three aspects of planning recommendations.

（3）In 2008, in the article "Evaluation of urban river landscape design rationality based on AHP" researched by Qiao Lifang, the Analytic Hierarchy Process (AHP) evaluation index system was selected.This paper uses the analytic hierarchy process to establish the rationality evaluation model of the urban river landscape design, which provides a basis for updating the urban river landscape design. The

evaluation system is divided into four layers: target layer, comprehensive layer, element layer and index layer, and each layer is composed of different indexes. This article also gives each indicator. The application of this evaluation model in the evaluation of the rationality of the Weihe River landscape design in Xinxiang City, Henan Province has proved to be feasible (Qiao Lifang,2008).

The results show that water quality, space, activities, facilities, communities, vegetation width, aesthetics and water content are the most influential factors and should be regarded as the main basis for evaluating the rationality of urban river landscape design.

（4）In 2009, in the article "Analysis of Evaluation Indexes for University Intensive Design Based on AHP Method" researched by Dou Jianqi,Aiming at the intensive design tendency of contemporary university campuses, a comprehensive evaluation index system that is scientific, quantifiable and highly operable has been established. The AHP method is used to establish the weight value of the evaluation index weight system. Construct a comprehensive evaluation system for the intensive design of university campus from three aspects: location selection, natural climate adaptability, and ecological technology application. Based on this, clarify the future development direction and goals of the intensification of college campuses, and further summarize the design points of the intensification of college campuses.

The research results draw the following conclusions:

The purpose of constructing the intensive design of university campus is

1) Organize and hierarchize the complex factors faced by university campuses.
2) On this basis, provide corresponding comprehensive strategies.
3) On the basis of comprehensive practice, further standardize relevant strategies to realize the operational guiding program. (Dou Jianqi,2009) The core of the above three purposes is to deeply understand the relationship between the university campus architecture and the environment through the corresponding evaluation system, so as to realize the healthy and sustainable development of the university campus.

2.2 Analysis of POE Design Evaluation System

Another commonly used design evaluation system is POE evaluation.POE (post-occupancy evaluation) began in the 60s of the 20th centuries in Europe and America in the 1950s, small areas university dormitories, school medical hospital. It only received widespread attention in the 1970s, and the methodology was relatively successful.Familiar, the subject was expanded to public housing, nursing homes, etc., and the subjects of the survey also expanded exhibition to official office staff and military members. 70 years of the 20th century at the end of the century, the American scholar A. Friedman published the first this book on POE "Post-Use Evaluation”, the book on POE a clear definition: “POE is a degree of evaluation, and the environment after completion is like how to meet and support people's apparent and implied needs. "(Preiser,W.F.E.,Rabinowitz, H.Z. and

White.1994) After the 80s during the period, POE will be implemented in various places, and the scope will be expanded to general corporate offices,Various public buildings, government buildings and urban open spaces, research methods are also it has become more mature and has reached the stage of practical application.The following is a summary and analysis of design evaluation research by post-use evaluation.

（1）In 2013, the article "Evaluation of Wuhan Urban Parks (POE)" researched by Hu Jinlong, Zhou Zhixiang, and Zhang Xiaolai used post-use evaluation (POE) basic research methods to investigate and study the use of urban parks in Wuhan. The results show that young people and middle-aged people are the main users of parks in Wuhan, and the proportion of elderly people living in district-level parks is higher than that of other levels; the main way for citizens to travel to parks at all levels is walking and buses; enjoying nature and exercising. It is the main purpose of citizens to travel; citizens travel to residential district-level parks most frequently and spend the longest time in municipal parks; citizens have the highest satisfaction with sanitation facilities, and most dissatisfied with service facilities, except for residential district-level parks Other than fitness and entertainment facilities, all other satisfaction levels are the lowest; municipal parks have the best management and maintenance, followed by district-level parks, and residential district-level parks are the worst. Finally, countermeasures and suggestions are put forward for the problems existing in parks of different levels, in order to provide reference for the improvement of service facilities and management level of Wuhan parks, as well as the construction and transformation of parks.

The research results come to the following conclusions：

1: Based on the survey on the age structure of users, young people and middle-aged people are the main body of park users in Wuhan.

The proportion of elderly people in parks is higher than that of other parks.

2: The main ways for citizens of Wuhan to travel to various parks are walking and buses, and low-carbon and environmentally friendly bicycle travel is different.

The proportions in parks of different levels are all lower.

3: Based on a survey of users' travel purposes, enjoying nature accounted for 51.56%, exercising and fitness accounted for 23.44%, dating and making friends accounted for 13.28%, and playing with children accounted for 8.59%.

4: Residential district-level parks are public green spaces with a high frequency of recreation for citizens. They are important places for citizens to rest daily, while municipal and district-level parks are important places for citizens to travel on weekends and holidays (Zhixiang, Zhang Xiaolai.2013).

（2）In 2010, the article "Urban Mountain Park Post-use Evaluation" researched by Zhang Zhibin started from the interactive relationship between users

and the components of the park, and through the form of questionnaire survey, the post-use evaluation of Lanzhou Wuquanshan Park was obtained by factor analysis. The five main factors influencing the evaluation of urban mountain parks are geological heritage factor, water scenery factor, biological landscape factor, park management factor and leisure and knowledge factor. Different gender, age, consumption trend, cultural level and frequency of visiting the park are obtained. There are obvious differences in the perception of tourists on the five main factors. The post-use evaluation of Wuquanshan Park by tourists can be measured on the five evaluation elements of geological and historical sites, water scenery, biological landscape, park management, and leisure and knowledge, and compare them The analysis revealed the differences in the evaluation elements of different types of tourists.

The research results come to the following conclusions：

1: From the perspective of the main crowd, the passenger flow of 18-27 years old and mainly students is the dominant group to visit Wuquanshan Park;

2: From the perspective of the purpose of entering the park, the activities of tourists are extremely diverse, and the requirements for the types of park facilities and the safety of the park are relatively high.

Specifically, men's evaluation of the environment and leisure and knowledge functions of historical sites is higher than that of women; young people, the elderly, and tourists who prefer basic consumption have higher evaluations of water scenery than middle-aged people and those who prefer cultural and entertainment consumption. Visitor.

3: Tourists with a lower level of education have higher evaluations of the biological landscape environment and leisure and knowledge functions than those with a higher level of education.

4: Visitors who visit the park less frequently have higher evaluations of the management level of the park than those who visit the park more frequently.

（3）In 2017, in the "Post-Utilization Evaluation of Rural Greenway in the Context of Urban and Rural Coordination" researched by Zhou Bo. Yang Jie, the Jinjiang 198LOHAS (Lifestyles of Health and Sustainability) greenway in Chengdu's 198 Huancheng Wetland Park was taken as an example. Exploring the comprehensive needs of users in the planning and design of the greenway, starting from helping to realize the creation of the urban rural scenery and the perception of rural life, and trying to use the POE method to investigate and feedback on it. It also conducts a coupled analysis of the POE conclusions and the degree of spatial participation and landscape preference of the users of each node of the greenway, and points out that in the planning and design of the greenway, it should give full play to its function as a transition and connection space between urban and rural areas, and integrate ecology with The organic combination of recreation and recreation makes the design and use of pastoral greenways more scientific and reasonable by enhancing the attractiveness of the open space, thereby creating a

better urban and rural living environment.

Based on systematic and continuous on-site observations and records, their research conducted a POE evaluation of the use of the greenway and reached a conclusion using questionnaire surveys and interviews. The first is the creation of a typed space and a characteristic landscape of the idyllic greenway, which enriches the space interface of the node and enhances the attractiveness of the space from the intuitive level; the second is the construction of the space interface on the basis of consciously Increasing service facilities, recreational facilities and other ways to guide and implant rich activity content can help form a vibrant functional activity space.

2.3Analysis of other Design Evaluation System

This paper randomly selects some other major design evaluation methods for analysis, such as The literature analysis method and The Landscape Resource Management System.

The Landscape Resource Management System (VRM) of the United States Bureau of Land Management originated in 1974. The system has been widely used in practice to prove that VRM has important reference significance in the evaluation of landscape resources. The VRm landscape design evaluation method divides the landscape elements into seven categories, such as terrain, vegetation, water body, color, strange characteristics, humanistic influence, and adjacent landscape, and scores and evaluates according to the parameters.

The literature analysis method refers to the analysis method to find out the nature and status of the research object by studying the collected literature data and draw one's own point of view from it. It can help investigators form a general impression about the research object, which is conducive to the dynamic grasp of the research object's history and can also study the research object that is impossible to approach, such as people who have died long ago. The main contents of the literature analysis method are as follows: (1) To analyze and research the relevant archives data found. (2) To analyze and study the collected diaries, notes and biographies of individuals. (3) Conduct analysis and research on the collected published books and publications and other materials.

The following is a summary and analysis of design evaluation research by The literature analysis method or The Landscape Resource Management System.

In 2013, Wang Yingzi and Yu Baichun researched the article "Exploration of Regional Cultural Psychology of Small Town Planning and Design Evaluation System", using literature analysis and descriptive analysis to study the lack of cultural characteristics faced by the current planning and design of small towns in my country In response to the problem of weak public participation, it takes small towns in the Chaoshan area of Guangdong Province as an object to explore the construction of a planning and design evaluation system suitable for public participation from the perspective of regional cultural psychology. The essence of this research is to explore how to play the role of "people" and "culture" in planning

and design and try to correct the excessive "certainty" caused by the "technical theory" in the current small-town planning and include the role of inclusive change. The characteristics of "uncertainty". The research proposes to cut from the perspective of regional cultural psychology and explore the spatial design guide evaluation system based on regional cultural psychology constructed by introducing it into the planning and design process of small towns, which is a breakthrough to the existing small town planning methods in our country.

The research results show that the current research fields of small-town planning in our country mostly start from the tangible and easy-to-operate material culture and institutional culture levels such as material form, economic efficiency, policies and regulations, and do not go deep into the conceptual culture level.

In 2018, Li Cheng, Xu Xiaoyun, and Liu Yaoyao used the VRM (Vendor Relationship Management) analysis method in the article "Research on Rural Landscape Classification and Evaluation Methods". Their field investigation and literature research systematically explained the origin and Development, summarized the composition and classification of rural landscapes, analyzed the application characteristics of rural landscapes, studied rural landscape evaluation based on three angles, and screened out supporting methods and methods to improve the accuracy and pertinence of the evaluation. Through the three aspects of rural landscape research, provide theoretical and practical basis for rural landscape planning and design, and provide basic research support for rural industrial transformation and economic development (Li Cheng, Xu Xiaoyun,2018).

According to the VRM system, they evaluated the landscape visual quality of Shanzhong Village and Xiamei Village in Fujian Province and scored 7 index systems according to the evaluation criteria. The results showed that the landscapes of Shanzhong Village and Xiamei Village are all Grade A, with good, beautiful scenery. It has the potential for tourism development and should be protected and effectively used.

In 2016, Xia Dengjiang Li Weiqing researched "Chengdu Kuanzhai Alley Ancient Street Style and Commercial Environment Landscape Design and Evaluation" article, using literature analysis + descriptive analysis, the research tried to find an effective balance between the two, both It can realize the protection and inheritance of the ancient streets of Kuanzhai Alley in Chengdu, and make it a commercial highlight of the times through measures such as landscape transformation and business planning. Based on this, this article systematically elaborates and analyzes the landscape design of the ancient streets of Kuanzhai Alley and its commercial environment in Chengdu as a research topic.

The research conclusions show that the Kuanzhai Alley in Chengdu has a history of thousands of years of development. Today, with the protection of historical and cultural traditions, the integration of traditional culture and modern elements has become a new trend in current social development. Combining the ancient street style of Kuanzhai Alley in Chengdu with the commercial environment landscape design, on the one hand, it can reflect the ancient street style of

Kuanzhai Alley in Chengdu and its historical and cultural connotation, on the other hand, it can also provide a new way for modern commercial construction. The development direction of the business environment, and then promote the sustainable development of the commercial environment landscape design under the historical and cultural heritage.

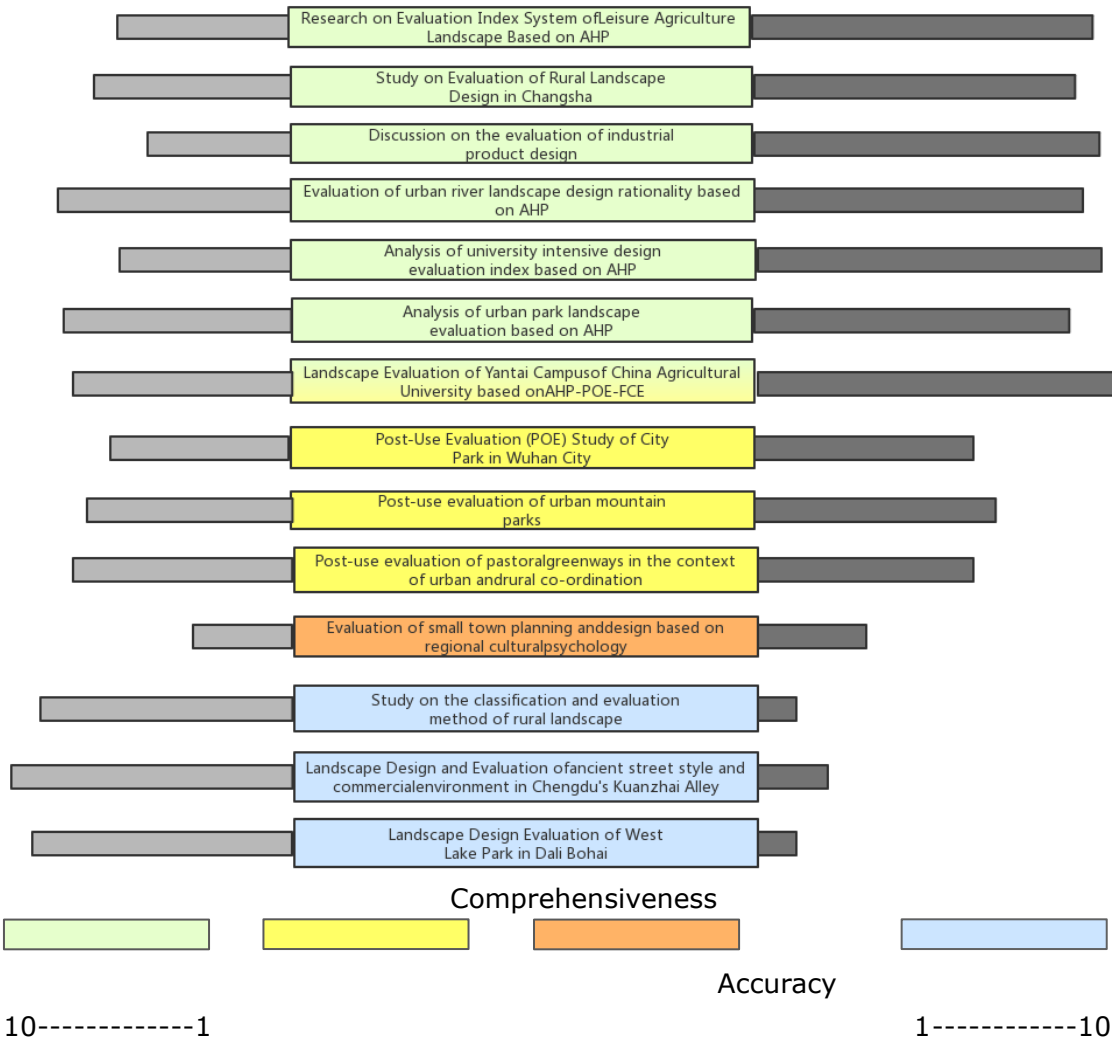
3 : The influence of design evaluation methods on results

According to the analysis of the above design evaluation literature, I compare the evaluation methods and the final viewpoints. Since each research object is different, we select the comparison factors for the final results of the design evaluation or the comprehensiveness and accuracy of the viewpoints. Study whether there are certain rules in the results obtained by different design evaluation methods.

Figure 1 According to the accuracy of the opinions/results put forward by the literature, the accuracy is divided into 1-10, and the comprehensiveness of the design evaluation results is divided into 1-10, as shown in the following figure:

AHP POE VRM

Literature/observation



It can be seen from the chart that in terms of the accuracy of design evaluation results and viewpoints, AHP design evaluation method>POE design evaluation method>VRM evaluation method>document/observation description method. In terms of the comprehensiveness of design evaluation results and viewpoints, literature/ Observation description method>AHP design evaluation method>POE design evaluation method>VRM evaluation method. Therefore, in terms of evaluation accuracy and comprehensiveness, the AHP design evaluation method is ideal in the current literature, in terms of accuracy and comprehensiveness. It is also more reliable. Although several observation methods in the literature are more comprehensive in their evaluation, they finally come to a rather vague view. The poe evaluation method is currently the most used method and is relatively reliable in terms of accuracy, but it lacks comprehensiveness.

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