Intelligent Analysis Method of Artistic Environment Construction Style Based on Artificial Intelligence Technology

Song Nan
Zhang Xiaodong
Peng Changrong

Environmental art mainly uses the collocation of color and spatial structure for landscape layout. Different environmental styles have different artistic characteristics. In order to better design the environmental space, this paper puts forward the intelligent analysis method of artistic environmental construction style based on artificial intelligence technology. By analyzing the environment into characteristics and the environmental style into process, the direction of environmental art design is innovated while the environmental design is carried out reasonably.

INTRODUCTION

Environment style personality mainly depends on the design of special environment style. Through the environment style to create a reasonable period of goods placed and environment style integration, so that the environment style has a certain artistic style. Designers create objects by appropriate environmental style, change the display style, endow their environmental style personality, and bring people visual impact[1]. Of course, using this design method requires designers to pay attention to the integration of personality and integrity. In order to prevent the clutter caused by too many environmental style building items, the environmental style building items, as the ornaments of the environmental style, should appear as accessories, and the overall coordination with the environmental style should be achieved in the design area[2]. Designers should fully reflect the functionality of environmental art design works in the design, and use appropriate architectural decoration, such as pipelines and colors to highlight the combination of virtual and real works, so as to give people a sense of environmental style and hierarchy. In the choice of furniture, we should consider the practicality and aesthetic sensibility. The choice of furniture should be based on the realization of its function[3]. In the choice of other decorative furniture, its decorative role should be given priority to meet the sensory needs of residents. In addition, the design should reflect the sense of environmental style hierarchy. In the application of furniture and other environmental style building products, we should pay attention to the combination of various styles, and keep consistent on the whole, so as to meet the harmonious needs of environmental design.

## INTELLIGENT ANALYSIS METHOD OF ARTISTIC ENVIRONMENT CONSTRUCTION STYLE

Types and Characteristics of Artistic Environment Construction Wind

The aesthetic significance of artistic environment construction style design. Environmental art design pays attention to the living environment of human beings, which reflects the feeling of human beings on the beauty of the environment. Both the internal and external environmental art design should follow the formal rules of beauty[4]. The formal law of beauty is a social project. In environmental art design, we should fully understand the aesthetic subject, start from the use types of different environmental styles and functions, follow the formal rules of beauty, and understand the multiple experience requirements of specific design objects, which is the basis of environmental art design[5]. Rudolph Arnheim, the representative of Gestalt psychology, believes that aesthetic experience is the same type of harmony between the external world and the

*Song nan Shenyang Institute of Technology,Shenyang, 110121,China, Zhang Xiaodong College of Art,Hebei University of Economics and Business,Shijiazhuang, 050061,China, Peng Changrong College of Art,Hebei University of Economics and Business,Shijiazhuang, 050061,China*Corresponding author: Zhang Xiaodong College of Art,Hebei University of Economics and Business,Shijiazhuang, 050061,China (E-mail: 53404618@qq.com)*

internal world. The beauty of environmental art design is the synthesis of artistic beauty, natural beauty, social beauty, scientific beauty and technological beauty[6]. Environmental art design should actively combine the formal rules of beauty to make the material subject meet the aesthetic subject, and the spiritual subject must surpass the material subject, so as to achieve the unity of the material subject and the spiritual subject in the aesthetic subject and the results of art design. The application of aesthetics in environmental art design[7]. To inject image strategy into the construction of space environment, for the interior of space environment, is to enhance the concept of development and construction of space

environment, clarify the business field, establish the construction goal, strengthen the management and the cohesion and motivation of space environment[8]. For the external space environment, it is to prepare for multi-party communication, strengthen information dissemination, expand the trust and popularity of the society at home and abroad, promote the construction and development of the space environment, and make the space environment ecology obtain a good environment. This is one of the basic projects for the development and construction of space environment, and the fourth important resource besides human, material and financial resources.

Fig. 1
Types of artistic environment construction wind
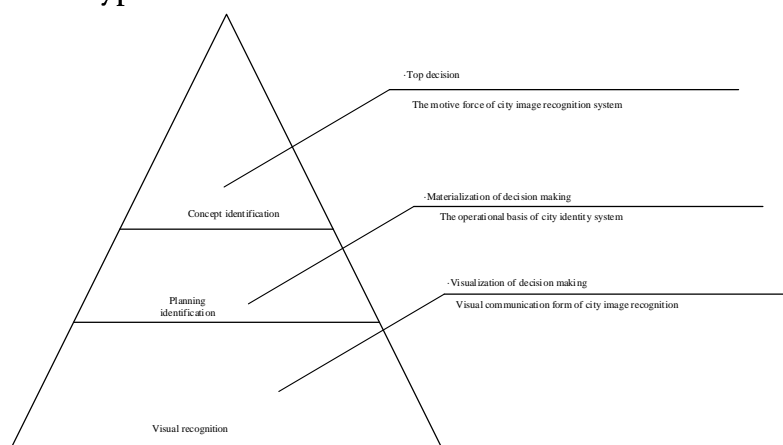
In order to achieve a harmonious state of art works, the design elements are not immutable and can also maintain differences, but when the differences are strong, the harmonious pattern will transform to the contrast pattern. The emphasis on commonness can make the design work form a stable tone, thus producing a complete and unified visual effect. This requires the designer to grasp the details of the changes in the design process, in the case of similar attributes of each element, the use of gradual harmony, so that it gradually changes; in the case of obvious differences in each element, strive for the unity of the difference and the opposite, contrast can not leave the unity[9]. In the environmental art design, there are graphic form contrast, environmental style contrast, texture and texture contrast, color contrast (in the pavement design, a variety of mixed colors will damage the overall harmony of the design works), direction contrast, virtual and real contrast, and the intersection of harmony and contrast techniques, which can achieve a variety of unified design effect. The contrast and change of design elements. Contrast in artistic creation is the organic combination of the two contrasting elements in the works of art, which is not only bright and strong,

but also balanced and unified, that is, the differences between the design elements reflect the distinct theme and the lively visual effect[10]. The contrast relationship is mainly achieved through the opposition factors of shape, shape, color, hue, tone, direction, position, arrangement, quantity and so on. In the environmental art design, we can get distinct visual aesthetic effect through different kinds of plant color, hue, plant form contrast, etc. The proportion of design elements is coordinated. Proportion is the quantitative relationship between designs and between elements and the whole. It is an important part of the formal rules of beauty. Proper proportion has a harmonious aesthetic feeling. Golden ratio is widely used in design and has aesthetic value. Controlling the proportion in its volume design will make the design work reach the scale of beauty[11]. The overall layout of the design is symmetrical. The factors determining the balance are gravity and direction. Gravity reflects the symmetry and coordination of position, size, color and inner shape. In environmental design, the design works will feel monotonous and inflexible due to excessive absolute symmetry. Sometimes it is necessary to add an appropriate amount of asymmetry factors into the overall symmetrical

pattern, which can increase the vividness and beauty of the works[12]. With the development of the times, symmetry in the strict sense is gradually replaced by equilibrium. In other words, once art is separated from its original period, it will gradually disappear. Symmetry can produce a very relaxed psychological reaction, which makes it easier for the viewer's nerves to relax, so as to meet the requirements of human vision and consciousness for balance.

Analysis on The Influencing Factors of Artistic Environment Style

There is an inseparable relationship between man and environment. Without the environment, human beings lose the space to survive. As an organism that can actively reflect the natural environment, people have made unremitting efforts in the process of choosing to create an environment suitable for their own survival. No matter in the past, now or in the future, people are always changing the environment, creating not only practical but also beautiful environmental style[13]. Artistic environment contains two attributes, one is the fixed environment style of architecture, the other is the changing environment style form in a certain period of time. Based on the research of the changing environment style form, it is an effective way of artistic environment design creativity. Artistic environment design has different creative ideas and characteristics in different social backgrounds and historical periods. It is based on the comprehensive expression of the ideal relationship between people and society, people's living customs, religious beliefs, spirit and material

in each historical period[14]. Therefore, the creative design of artistic environment is not the carrier of material or the quality of material, but based on material. The quality of capital is the medium which directly points to the spiritual field of human beings. In the process of time movement, we should try our best to break the form boundary with the space environment style, so that the design style has the elements of the natural environment style and becomes a part of the external environment or an extension of the space natural environment style[15]. Seeking innovation in the extension of nature. This kind of innovation generally has the characteristics of using local environmental art and resources. Based on the research results of modern artificial intelligence technology and the principles of artificial intelligence technology and psychology, this paper studies the stimulation of environmental form on human mind and vision, studies the influence of environmental style and environment on human mind, and then improves and improves the quality of environmental style and environment according to artificial intelligence technology and psychological needs. According to the research of environmental psychology, the interaction between human and environmental style environment is expressed as the scale and form of environmental style environment, which constitutes the reaction degree of human spiritual stimulation, which is called the effect of environmental stimulation. This effect is directly related to the artistic quality of environment. Based on this, this paper analyzes the relationship between the characteristics of environmental style, as Fig. 2.

Fig. 2
The characteristic relationship of influencing factors in the construction of art environment space
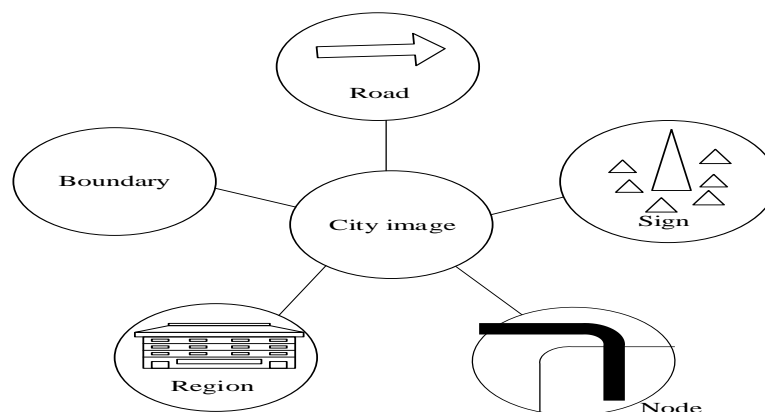
People's complex psychological characteristics can change with the change of time and environment style. While pursuing the traditional environment style, people need to provide a lot of stimulating, noisy, crowded, excited, bright and

flowing, stable, continuous and predictable environment style forms. Such environment style environment can make people abandon all concerns and worries and bring people to the world In the realm of selflessness and excitement[16].

Environmental art style design as the general trend of today's design development is widely valued by people. Taking environmental style as the research object, it determines that the art concept must run through the whole process of design activities. How to introduce the art concept is the key to the development of environmental art design[17]. Through a complete system, the style analysis is carried out. The system structure is shown in Figure 3 is shown that.

Fig. 3
Architecture of art concept introduction
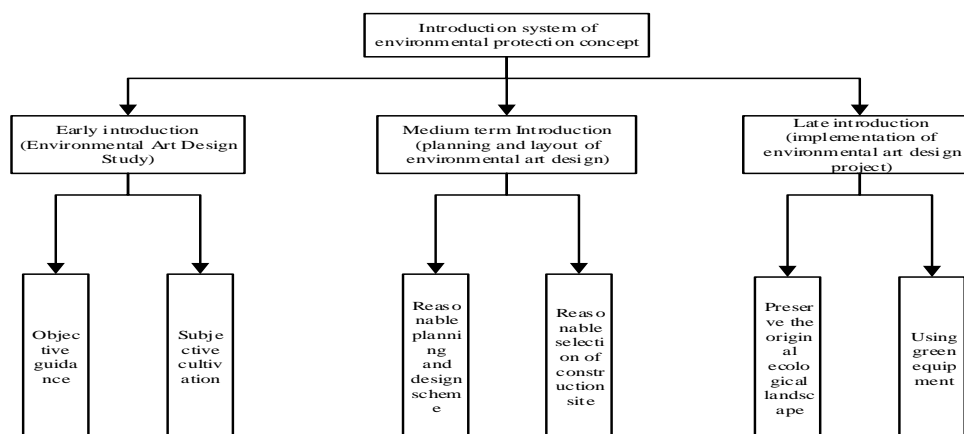
It can be seen from Figure 3 that the system is mainly composed of three parts, and the art concept is introduced in three stages: the early stage of environmental art design, the middle stage of environmental art design and the late stage of environmental design[18]. According to the characteristics of artificial intelligence, the use of light source, light and shade changes, setting different angles of illumination, forming a different light source, the contrast between the environmental style and shadow, not only constitutes the formal beauty of the environmental style environment, but also brings new enjoyment to people's vision. The use of natural light source and artificial light source in recent years in major design projects, enhance the art of environmental style appeal[19]. People's psychology is a complex complex complex formed by people's innate instinct and acquired. This complex constitutes people's fixed nature and habits. People's cognition of the formation of environmental style features comes from visual and psychological feelings. The well-known architectural environment style of ancient Greece reflects beautiful and romantic, and its environmental style features are to get experience in enthusiasm. These characteristics are unique[20]. It meets the personality and psychological needs of people in different times and is the main reference for style analysis.

Realization of Intelligent Analysis of Artistic Environment Construction Style

Environmental art has the most individual differences, and there are great differences between different countries and even different regions. Therefore, its architectural style and decorative techniques are also quite different[21]. With the development of economic globalization, Chinese environmental designers excessively pursue western design style and ignore the importance of traditional environmental art. In fact, this is contrary to Chinese traditional environmental art concept and people's needs. Therefore, in the design of the introduction of diversified design concepts, we should also pay attention to the traditional environmental art contained in our architecture. So that the building has a strong regional, to ensure the embodiment of its personality, to achieve the integration of environmental design and nature. Excellent designers can design works integrated with local environmental art according to regional environmental art, reflecting the dignified and elegant style of Chinese traditional environmental art. In modern environmental art design, especially in design, screen, calligraphy and painting are widely used. Designers in the design, but also to seek the views of residents, so that the design more humane. Of course, the exaggerated personality of western environmental art can also be applied to the environmental art design in China, which requires designers to carry out specific design according to the architectural style and environmental style. Based on the clear interaction between dynamic environment and scene, the general system evolution idea is used to design the software. The dynamic environment balance model is constructed to analyze the composition state of the system. Because the dynamic environment and scene have nonlinear properties, the evolution equation needs to be calculated as follows:

$$\frac{w_x(t)}{w_t} = q(x_1, x_2, \cdots, x_n), t = 1, 2, \cdots, n \quad (1)$$

In the formula: $q(x_1, x_2, \cdots, x_n)$ is a nonlinear function. By expanding $q(x_1, x_2, \cdots, x_n)$ at $x = 0$ according to Taylor series, we can get the following results

$$q(x_1, x_2, \cdots, x_n) = q(0) + \beta_1 x_1 + \beta_2 x_2 + \cdots$$
$$+ \beta_n x_n + \alpha(x_1, x_2, \cdots, x_n) \quad (2)$$

Where: $q(0) = 0$, β_1 is $q(x_1, x_2, \cdots, x_n)$ On the partial derivative function of x_1 in the partial derivative of $x = 0$, $\alpha(x_1, x_2, \cdots, x_n)$ is quadratic function analysis. The quadratic term $\alpha(x_1, x_2, \cdots, x_n)$ in the formula is removed to ensure the stability of the system

$$\frac{w_x(t)}{w_t} = \sum_{t=1}^{n} \beta_1 x_1, t = 1, 2, \cdots, n \quad (3)$$

According to the above rules, the general functional relationship between dynamic environment (a) and scene style (b) is constructed and calculated as follows:

$$w(a) = \sum_{t=1}^{n} p_1 x_t, t = 1, 2, \cdots, n$$
$$w(b) = \sum_{t=1}^{n} p_2 y_t, t = 1, 2, \cdots, n \quad (4)$$

Where: x_t and y_t are the elements of dynamic environment and scene respectively; p_1 and p_2 are the weights of element indexes.

In the artificial intelligence environment, interactivity or interactivity is a major feature of information graphic design. Interaction means that the information receiver can not only receive any graphical information in the artificial intelligence platform, but also select, feedback, publish and display the information, which is a two-way movement process. This process is realized by man-machine interface, so man-machine interface becomes the focus of information graphic design. Because the human-computer interface is located in the connection position between the information receiver and the information publisher, the rationality of its design is directly related to the rationality of human-computer relationship. Its rationality focuses on the feedback and performance of user commands, that is, interactivity. Therefore, in the art environment of artificial intelligence, information graphic design should not only understand the user's cognitive psychology, such as perception, cognition, thinking, representation, but also involve ergonomics, design art, computer science and other disciplines; it should not only study the user's psychological emotion, but also the rationality of the composition and color of the human-computer interface, the fluency of action in interaction, and the flexibility in operation Ergonomics and other issues. Because of the different platforms and media, the dynamic structure of subject and object coding and decoding appears when facing the same information object. At this time, the object, that is, the public, is not only the receiver of information, but also, to a certain extent, their feedback makes them become coders, which affects the development and final transmission of digital information. Of course, the information publisher is no longer a pure coding party, they will receive and be affected by the audience's information at the same time. The dynamic coding of subject and object information is shown in the figure.

Fig. 4
Analysis steps of artistic environment style
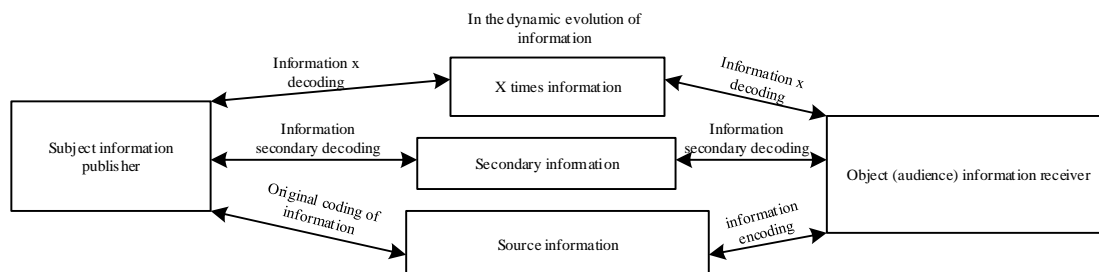
Considering the test of graphical information on the audience's cognitive psychology, the information graphic design needs to be scientific and reasonable. When the audience is reading graphic information, their vision will have a natural flow, which is the visual process, which constitutes the structural level of information reading. In the process of receiving information, the vision of the receiver has a flow order. First, the whole graph is observed comprehensively, and then the vision will be quickly attracted by the points of interest or the interesting points designed by the designer,

followed by the secondary focus and additional content, and finally return to the visual focus. Successful information structure level can guide the audience to obtain graphic information in reasonable reading order, convenient visual habits and effective perception way according to the designer's idea. With the support of computer technology and network technology, the information graphic design under the artificial intelligence art environment has developed from single to multi direction, from static to dynamic, from environmental style to time and space. Because the communication between the audience and the information graphics is no longer a passive process for the audience to receive information, they have been able to actively participate in the process of information interpretation, and people's way of thinking has also developed from the previous linear thinking to the network thinking. The advantage of this dynamic graphic organization structure is very obvious, so that people can receive information freely, conveniently and quickly. At the same time, after personalized processing of information, it can become another transformed information.

ANALYSIS OF THE TEST RESULTS

Before the formal evaluation of natural environment art style, it is necessary to develop an evaluation table composed of multiple evaluation scales. The content of the evaluation table should refer to civil engineering, garden, forestry, greening and other art style content. Ten pairs of adjectives suitable for evaluating the design effect of natural environment art style are selected as the evaluation criteria, as shown in the table. At the same time, in order to facilitate the quantitative statistical analysis, the values 1 to 5 are used for equal interval scale scoring. In the selection of evaluators, in order to avoid the impact of evaluators' subjective factors on the design effect of natural gardens, two groups of different environmental art style appreciators were selected, with a total of 60 people in each group, and the ratio of male to female and age was 1:1. The first group was environmental workers, and the second group was ordinary citizens. The survey period was from May to October 2000. The clustering method of environmental factors reflected by artificial intelligence can not only retain the original main information, but also simplify the dimension of the sample data. Therefore, it can be seen that the clustering method of environmental factors reflected by artificial intelligence has the performance of simplifying complexity and eliminating tedious. Using the clustering method of environmental factors reflected by artificial intelligence, we can get three comprehensive features of trust data in the same artistic environment style. Select a comprehensive

sample of one feature to extract trust data and non trust data. The data fluctuation is shown in the figure.

Fig.5
Art style analysis data display
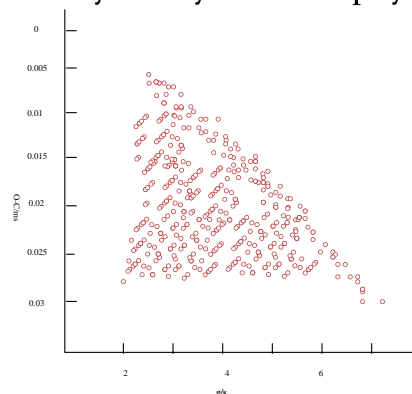
According to the fluctuation of the data, we can see that most of the data gathered together and showed a downward trend. It can be concluded that the sample data is small, but there are many samples. We can see the relationship between trust data and distrust data. The feature extraction of untrustworthy data in art environment style can use the clustering method of environment factors reflected by artificial intelligence to find out multiple elements of art environment style, and use the scatter formula to represent the molecular performance, so that the sample data can be combined with various types of patterns, so as to obtain the feature extraction of untrustworthy data factors in art environment style . This clustering method of environmental factors reflected by artificial intelligence can be used as a reference for other problems. A small amount of obvious data is used for comparison, and then a large number of small data are used for specific analysis. The comparison between trusted data and untrusted data in art environment style can find that there are significant differences between them, and the results of analysis are generally very impressive The results are satisfactory. In the whole extraction process, starting from different kinds of factors, 10 features are compared in a group. Each small data of the art environment style untrustworthy data with dimension sample data does not have real significance, but the combination of them can reflect the trend of precision, height and potential temperature, but only a physical scattered data is studied Sample data, then there will be different directions of distribution between the other scattered sample data. The combination of the two kinds of physical scattered data makes many kinds be combined. Therefore, it can be concluded that the method of extracting untrusted data in art environment style is clear and fast. Based on this, the evaluation effect of natural environment art style is analyzed as follows:

Table 1
Evaluation effect of natural environment art style

Serial number	Evaluation project	Adjective pairs
1	Coordination degree	Compatible with the environment - incompatible with the environment
2	Sense of level	Solid plane
3	Color sense	Full and harmonious color monotonous and contradictory
4	Sense of nature	Naturally occurring - marked by artificiality
5	valence	Pleasant - unacceptable
6	Vegetation coverage	High coverage low coverage
7	Plant richness	Variegated - variegated
8	seasonal variation	Having marked seasonal variation
9	Sense of tidiness	Orderly disorderly
10	characteristic	Distinctive - featureless

The design effect of natural energy environment art style is calculated.

$$F=\sum_{i=1}^{n}F_i \times M_{i1} \times M_{i2} \times M_{i3} \quad (5)$$

In the formula, F is the weighted sum of each index in the design effect system of two samples; F_i is the original value of each index after standardized treatment; M_{i1}, M_{i2}, M_{i3} are the weights of each index in index layer D, domain layer C and criterion layer B. Among them, the standardization method is as follows:

$$F_i = F_{oi} \times (100 / F_{oi\,max}) \quad (6)$$

In the formula, F_{oi} is the original value $F_{oi\,max}$, which is the maximum value of each index in the domain layer. After the above calculation, the average value of each sample evaluation is shown in the table.

Table 2
Analysis and evaluation results of art environment style

Serial number	Sample 1	Sample 2
1	3.34	4.64
2	2.47	3.26
3	3.83	3.95
4	3.53	5.33
5	5.43	6.76
6	2.33	3.21
7	4.37	3.12
8	3.42	3.46
9	4.86	3.45
10	3.42	4.60

It can be seen from the table that the two groups of evaluators have higher evaluation on the natural ecological environment style of sample 2, especially in the sense of hierarchy, coordination, color, nature, pleasure, plant coverage, characteristics, etc. In order to more intuitively compare the design effect differences between sample 1 and sample 2, the evaluation curve can be drawn according to table 2, as shown in the figure 6.

Fig. 6
Evaluation analysis and evaluation effect
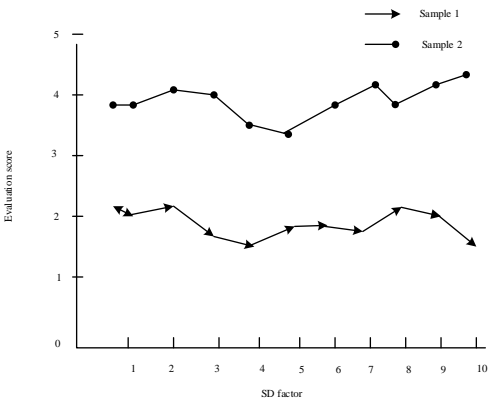
From the figure, we can clearly see that the indicators of sample 1 are almost higher than that of sample 2, which can prove that the effect of creating environmental art style based on artificial intelligence is better. According to the characteristics of the environment style, the adjective pairs describing the environment style are selected. These adjectives are paired, and the uncommon words and repeated contents are removed. Finally, 10 pairs of adjectives are determined. These adjectives are randomly arranged to form an evaluation table, as shown in the table.

Table 3
art effect evaluation of environmental art design

Serial number	Serial number	Adjective pairs
1	Landscape coordination	Compatible with the environment - incompatible with the environment
2	Sense of plant hierarchy	Solid plane
3	Shade area	Large - small
4	Sense of nature	Naturally occurring - marked by artificiality
5	Is the air quality up to standard	Up to standard - not up to standard
6	Proportion of vegetation	High proportion - low proportion
7	Plant richness	Variegated - variegated
8	noise	Noisy - noiseless
9	cost	High cost - low cost
10	Area of natural water resources	Large footprint - small footprint

The evaluation scale of each evaluation factor in the above list is divided into seven levels (- 3, - 2, - 1, 0, 1, 2, 3). In this process, in order to reduce the impact of subjective factors on the accuracy of evaluation results, 40 evaluators were selected and divided into two groups, 20 in each group. The ratio of male to female and the ratio of age were 1:1. The first group was professional evaluators, and the second group was ordinary evaluators. After the evaluator is selected, a formal evaluation is conducted. Firstly, the paper introduces the principles and requirements of this evaluation to 40 evaluators in detail, explains the meaning of each evaluation factor, and helps the evaluators fill in the evaluation score table, and then makes statistics on the data in the table by using the equations.

$$A = \sum_{i=1}^{n} F_i \times (b_1 + b_2 + ... + b_n) \quad (7)$$

In the formula, F is S_n comprehensive score; F_i is the score of each factor, B and n are the serial number of evaluation factor. Based on this, the evaluation and analysis table is obtained

Table 4
Evaluation results

Evaluation factors	Option 1	Comprehensive score	Option 2	Comprehensive score
Landscape coordination	3.54	5.65	2.45	3.54
Sense of nature	4.58		2.45	
Is the air quality up to standard	3.95		2.45	
Proportion of vegetation	5.14		3.21	
Plant richness	2.54		2.47	
noise	2.84		3.46	
cost	3.95		2.53	
Area of natural water resources	3.45		4.60	

It can be seen from the table that the s comprehensive score of environmental art style construction scheme 1 is relatively high, reaching 5.65, and the comprehensive score of environmental art style construction scheme 2 is 3.54. Compared with the latter, the score of the former is 2.11 points higher, which shows that the introduction effect of this research method is better, proving the effectiveness of the introduction system of art concept.

CONCLUDING

In these years of the development of modern Chinese style, traditional Chinese style has been interpreted from different perspectives and aspects, bringing people new experience and new interpretation of environmental art. As a designer, we should deeply study the materialized forms of environmental art, such as symbols, elements and construction methods, as the hardware basis, and at the same time, we should deeply understand the spirit, temperament and context of environmental art, as well as the profound experience of traditional behavior and customs as software facilities. Weaken yourself in traditional projects, reflect the original spirit and temperament of architecture, strengthen yourself in modern projects, and show your deep understanding of tradition. This is the direction that traditional Chinese style should strive for. The operation scope of environmental art design is to beautify the regional environment with architecture as the main body. In order to achieve the goal of not omitting the edge environment style in the design, it is necessary to take the space environment planning as the leading role in the landscape design process, so as to beautify the environment to a higher level. As an important subsystem of

environmental art design, landscape design is a discipline based on Natural Science, humanities and art. It emphasizes the design of land, that is, to make scientific and rational analysis of the space environment style of human activities and the land within a certain range of activities, to solve the problems in the design process and seek ways to solve the problems, and to supervise the design, so as to achieve the expected goal. The key point is that: landscape design uses a comprehensive approach to solve problems, not only depends on the inspiration and artistic creation of designers. Most of the approaches to solve problems are based on scientific and rational analysis, focusing on the overall design of a material environment style. Only in this way can we design a harmonious environment style to serve people.

ACKNOWLEDGEMENT

REFERENCE

1. Dass P M A , Fathima A P . Grid integration of Photovoltaic System Interfaced with Artificial Intelligence based Modified Universal Power Quality conditioning system[J]. Journal of Physics: Conference Series, 2020, 1716(1):012010 (11pp).
2. Sharma S , Ahmed S , Naseem M , et al. A Survey on Applications of Artificial Intelligence for Pre-Parametric Project Cost and Soil Shear-Strength Estimation in Construction and Geotechnical Engineering[J]. Sensors, 2021, 21(2):463.
3. Singkang L M , Ping K A H , Kunsei H , et al. Model Based-Testing Of Spatial And Time Domain Artificial Intelligence Smart Antenna For Ultra-High Frequency Electric Discharge Detection In Digital Power Substations[J]. Progress In Electromagnetics Research M, 2021, 99(10):91-101.
4. Sebastian Spänig, Emberger-Klein A , Sowa J P , et al. The Virtual Doctor: An Interactive Artificial Intelligence based on Deep Learning for Non-Invasive Prediction of Diabetes[J]. Artificial Intelligence in Medicine, 2019, 100(5):101706.
5. Wang Q , Jiang F . Integrating linear and nonlinear forecasting techniques based on grey theory and artificial intelligence to forecast shale gas monthly production in Pennsylvania and Texas of the United States[J]. Energy, 2019, 178(JUL.1):781-803.
6. Kuai P , Yang S , Tao A , et al. Environmental effects of Chinese-style fiscal decentralization and the sustainability implications[J]. Journal of Cleaner Production, 2019, 239(Dec.1):118089.1-118089.13.
7. Senior N A , Newman R C , Artymowicz D , et al. Communication—A Method to Measure Extremely Low Corrosion Rates of Copper Metal in Anoxic Aqueous Media[J]. Journal of The Electrochemical Society, 2019, 166(11):C3015-C3017.
8. Hoffmann R , Muttarak R . Greening through schooling: understanding the link between education and pro-environmental behavior in the Philippines[J]. Environmental Research Letters, 2020, 15(1):014009 (15pp).
9. Zarnoch C B , Hossain N , Fusco E , et al. Size and density of upside-down jellyfish, Cassiopea sp. and their impact on benthic fluxes in a Caribbean lagoon[J]. Marine Environmental Research, 2020, 154(Feb.):104845.1-104845.7.
10. Yu C , Xiang X , Wilson P A , et al. Guidance-Error-Based Robust Fuzzy Adaptive Control for Bottom Following of a Flight-Style AUV With Saturated Actuator Dynamics[J]. IEEE Transactions on Cybernetics, 2020, 50(5):1887-1899.
11. Hirotani J , Yamada N , Machida K , et al. The relation-ship between cognitive temperature and thermal adaptation process of junior high school students in summer[J]. Journal of Environmental Engineering (Transactions of AIJ), 2019, 84(756):171-178.
12. Cao L , Wang D , Wen Y , et al. Effects of environmental and lifestyle exposures on urinary levels of polycyclic aromatic hydrocarbon metabolites: A cross-sectional study of urban adults in China[J]. Chemosphere, 2020, 240(Feb.):124898.1-124898.9.
13. Mullender S M , Sandor M , Pisanelli A , et al. A delphi-style approach for developing an integrated food/non-food system sustainability assessment tool[J]. Environmental Impact Assessment Review, 2020, 84(11):106415.
14. Xu Y , Guo Y , Jumani A K , et al. Application of ecological ideas in indoor environmental art design based on hybrid conformal prediction algorithm framework[J]. Environmental Impact Assessment Review, 2020, 86(5):1-11.
15. Zou S , Sun M , Tao B , et al. Shaping Strategies of Resilience Landscapes in Urban Wetland Park[J]. Journal of Physics: Conference Series, 2021, 1732(1):012096 (6pp).
16. Javanmardi A , Ibrahim Z , Ghaedi K , et al. State-of-the-Art Review of Metallic Dampers: Testing, Development and Implementation[J]. Archives of Computational Methods in Engineering, 2020, 27(2):455-478.
17. Cormos A M , Dragan S , Petrescu L , et al. Techno-Economic and Environmental Evaluations of Decarbonized Fossil-Intensive Industrial Processes by Reactive Absorption & Adsorption CO 2 Capture Systems[J]. Energies, 2020, 13(5):1268.
18. Hao, Luo G , Li J , et al. Reactor characterization and primary application of a state of art dual-reactor chamber in the investigation of atmospheric photochemical processes[J]. Journal of Environmental Sciences, 2020, 98(12):163-170.
19. Kulwa F , Li C , Zhao X , et al. A State-of-the-art Survey for Microorganism Image Segmentation Methods and Future Potential[J]. IEEE Access, 2019, PP(99):1-1.
20. Milano N , Carvalho J T , Nolfi S . Moderate

Environmental Variation Across Generations Promotes the Evolution of Robust Solutions[J]. Artificial Life, 2019, 24(4):1-19.

21. Soloviev S V . Justification of the choice of the method and criterion of clustering for intelligent analysis in flight control spacecraft[J]. Spacecrafts & Technologies, 2020, 4(3):151-160.