



# Design and Research of Teaching Support System for Urban Landscape Sculpture Course

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**Abstract.** With the development of economy, the demand for landscape sculpture in urban development is higher and higher. At present, the level of landscape sculpture industry is uneven, and the lack of professionals hinders the healthy development of landscape sculpture industry. This paper expounds the connotation of the teaching mode of production, study and research, proposes to construct the teaching mode of production, learning and research of landscape sculpture course from the aspects of reasonable arrangement of teacher resources, development of studio teaching mode, establishment of assessment and coordination system, and analyzes the significance of implementing the teaching mode of production, learning and research in promoting the teaching reform of colleges and universities and the benign development of landscape sculpture course.

**Keywords:** Landscape sculpture · Production · Teaching and research · Teaching mode

## 1 Introduction

With the development of economy and the progress of society, people's pursuit of beauty is getting higher and higher. Because of its aesthetic nature, landscape sculpture has attracted more and more attention. The landscape sculpture industry has achieved rapid development under the rapid economic growth, but there are still many problems, such as the lack of professional personnel, lack of qualification, etc., which hinder the steady development of the landscape sculpture industry in the new period [1]. At present, under the promotion of the Ministry of education, colleges and universities implement curriculum reform to establish innovative education system and cultivate compound applied talents. The author believes that the application of industry university research mode in the curriculum reform of landscape sculpture in Colleges and universities can cultivate talents with professional quality and practical operation ability, and promote the development of landscape sculpture industry.

## 2 The Connotation of Teaching Mode of Production, Study and Research

The teaching reform of production, teaching and research in Colleges and universities can give full play to the autonomy and initiative of the University. With the cooperation of the school and enterprises, combined with the advantages of professional

knowledge and enterprise market of colleges and universities, the complementary advantages of resources can be realized. Finally, a comprehensive talent training mode can be established to improve the teaching quality and enhance the market competitiveness of students [2].

The teaching mode of production, teaching and research is to achieve the effect of “ $1 + 1 > 2$ ” through the cooperation between universities and enterprises. In the process of production, teaching and research, relying on the scientific research results and professional technology of university landscape sculpture, enterprises can obtain the latest research results of landscape sculpture industry, improve their comprehensive strength and develop rapidly. In the process of cooperation with enterprises, the landscape sculpture industry in Colleges and universities can obtain the latest market frontier information, timely adjust the undergraduate teaching structure and content, construct excellent landscape sculpture professional courses, and establish practical talent platform to solve the employment problems of college students.

The teaching mode of production, teaching and research cultivates applied talents matching the specialty and market demand. By integrating the resources of colleges and enterprises, the teaching mode of production, teaching and research provides college students with opportunities to contact enterprise projects by establishing a cooperation platform. Through school enterprise cooperation, students’ comprehensive quality, especially innovation ability and practical ability, can be improved to meet the market demand. At the same time, the teaching mode of industry university research can also help students create landscape sculpture works that can be directly used in the market, and realize the combination of teaching and market.

Through the cooperation between universities and enterprises, the teaching mode of production, teaching and research aims to achieve the overall utility greater than the sum of all parts. It combines classroom teaching with social needs, reforms landscape sculpture courses in Colleges and universities, improves the quality of talent training, enhances the school running ability of colleges and Universities, and transforms relevant technologies and achievements into artistic products that can be directly produced, so as to realize the real connection between market and teaching, Promote professional development. The integration of production, teaching and research makes enterprises rely on the school’s professional and technical advantages to transform the innovative achievements of colleges and universities into artistic works, shorten the development and design process, create more successful works to meet the market demand, improve the profit margin of enterprises, and make enterprises obtain long-term development.

### **3 Analysis of Basic Learning Model**

#### **3.1 Interactive Internet Education Courseware**

Internet education, as its name implies, is to teach and impart knowledge with the help of the Internet [3]. Because of the convenience of the Internet, people can choose their own courses to study, and at the same time, it also avoids learning problems caused by time conflicts or explanation of important knowledge points due to distraction. It is this characteristic that makes it convenient for people to study anytime and anywhere. One of the characteristics of the Internet in the education industry is the sharing of

resources. China has always attached great importance to the balanced development of various regions. At present, most of the work is to help the poor out of poverty. The popularization of Internet technology is the embodiment of poverty alleviation. The application of this technology solves the problem that students in backward areas cannot accept the same education as students in better developed areas due to lack of conditions, and saves teachers.

Internet education technology is characterized by convenience. Students only need to choose one course and reach a certain learning time to complete the final examination. They will be awarded a certificate of completion or certificate of completion. As shown in Fig. 1, the course of Internet distance education is generally composed of antifake learning and antisubstitution module, courseware learning timing system, final automatic evaluation system and courseware. The modules of antifake learning and antisubstitution mainly play the role of supervising learning, which are not included in the evaluation system of user standards. For the learning process, the determination of reaching the standard is given by the timing system. When the time of learning courseware reaches the target time and reaches the opening period of the final examination, the user can participate in the assessment, and the corresponding certificate or certificate will be granted after the assessment is completed. The organization of online distance education is shown in Fig. 1

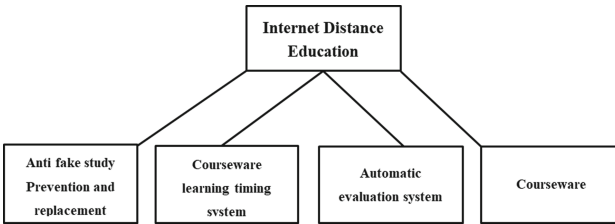


Fig. 1. Organization chart of internet distance education

The operation of personalized learning network means further innovation in the education industry. The construction of the network needs to meet two conditions. The user needs to accurately collect the user’s own needs, including the user’s own learning ability and parents’ expectations. On the other hand, the lecturer also needs to introduce the course in detail, including the applicable objects of the personalized learning [4].

The pass rate of courseware refers to the pass probability of a certain courseware, which is the proportion of the total number of times (pass) of learning the courseware to the total number of learning the courseware [5]. The total number of times that users who fail to pass the assessment of the courseware will increase each time they participate in the courseware learning. If and only if the user has not passed the assessment of the courseware and passed the assessment after learning, the total number of times of learning the courseware will be recorded. The courseware pass rate CP can be formalized as follows:

$$CPR = \frac{pass}{total} \tag{1}$$

Car (course accelerating rate) refers to the conditional probability that one courseware passes the assessment and passes another courseware CI. It is the ratio of the total number of times CP (condition PAS) to the total number of CI learning after passing CJ (condition total) [6]. When all the users have passed a certain CT courseware, they will only be based on the previous CT courseware. The car can be formalized as follows:

$$CAR(C_i \setminus C_j) = \frac{CP}{CT} \quad (2)$$

#### 4 Simulation for Measures of Landscape Sculpture Design Teaching

The teacher should lead the students out of the classroom and ask them to take a ruler to repeatedly observe the real scene, touch the material, experience the space, measure the volume of the sculpture, and take photos or sketches. Adhere to such teaching activities, after a period of time, students can get a lot of harvest (see Fig. 2) [7].

Regional culture is the best reference for the cultural form of landscape sculpture design, and it is also the embodiment of Fengge in landscape sculpture design. Regional culture reflects the historical events, natural characteristics, mineral resources and cultural features of a specific region. Most designers use concrete or abstract design forms to interpret regional culture in landscape sculpture design. However, this method is too simple to reflect the profound cultural connotation. On the basis of shaping the main cultural image, designers should integrate the characteristics of regional culture into landscape sculpture to express the connotation of regional culture. The simulation of land sculpture design is shown in Fig. 2.

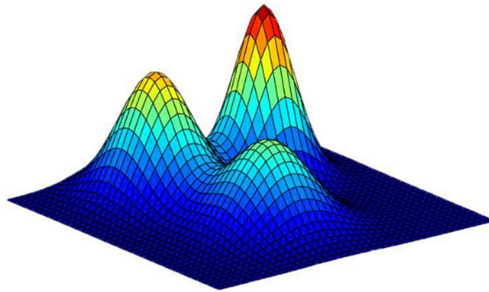


Fig. 2. The simulation of land sculpture design

#### 5 Urban Sculpture Design and Environmental Art

With the development of the times, the application of urban sculpture in urban landscape design presents a diversified and diversified development trend in every corner of the

urban public environment. They are in line with the aesthetic requirements of the times and meet the needs of the public for leisure and entertainment, and form a whole in the process of mutual dependence and integration with the environment. Urban sculpture stimulates people's creativity and imagination with its open position and pleasant scale. The different environment restricts the design of urban sculpture, which makes it present multi-level and multi angle expression of content. It is in this contradictory movement that urban sculpture and landscape art seek rationality and harmony [8].

### **5.1 Architectural Features and Urban Sculpture Design**

The unique charm of the city reflects its charm. The architectural environment has become the creation of human beings in material form with a large volume. Its unique personality and characteristics not only reflect its own culture, but also faithfully reflect the different material civilization created in the process of human development. Architecture is solidified music. They are the rich achievements created by human beings in each era. While recording the material and cultural information, they also reflect certain era concepts, interests and hobbies through the morphological information. From a cultural point of view, each building is a collection of human ideals [9].

In modern society, the so-called space refers to the place of human communication. Therefore, with the development of communication, space is also moving towards a more advanced organic direction. People's spiritual world is a vast and boundless world, and human needs are more abundant and endless. The quality and improvement of people's spiritual needs is the performance of the improvement of social civilization. Therefore, in order to meet this demand, human beings should create an environment that is reasonable, scientific and humane, diversified rather than unit, rich and complex rather than simple. In addition, the architectural environment can also play the role of place and media in the process of dialogue with people, which makes the function of space get the greatest social effect [10].

### **5.2 Water Characteristics and Urban Sculpture Design**

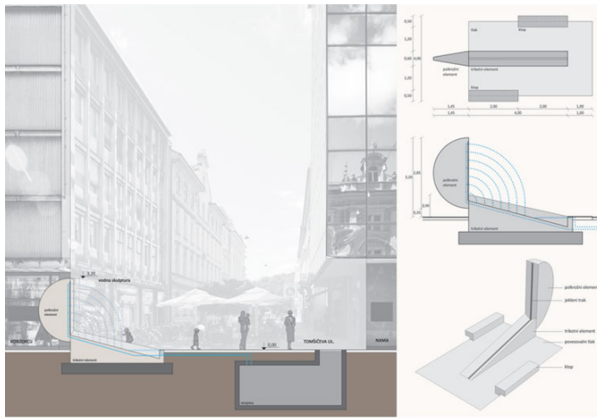
The design of water sculpture is the use and representation of rivers, lakes, waterfalls, streams, springs and other landscapes in nature. When designing, we should not only integrate with nature, but also use new techniques. According to the characteristics of water, there are three different forms of urban water landscape sculpture [11].

Using the water itself to create the main body of urban sculpture, water itself is public art. As far as waterscape is concerned, there are still water, moving water, falling water and gushing. Still water is a collection of water bodies in the garden, which can reflect the reflection of the surrounding space and produce a special visual effect of the landscape. Falling water is the falling curtain, water wall, water ladder, etc., which constantly glitters under the sunlight, and is accompanied by the sound of falling water. From the perspective of acoustics, we can enjoy the auditory landscape sculpture. The natural phenomenon of fountains is very wonderful, it is widely used in modern cities all over the world.

In the overall design of urban sculpture, water, as a part of the environment, plays a role of setting off, or it can be mainly one, supplemented by others, or it can be

combined with several forms, especially with the perfect combination of modern sound control technology, to build a new type of sound control spray city landscape sculpture, which often attracts people to stop and watch for a long time [12].

The natural rocks in the abstract expression represent the water body with the polished water circle and water grain like white sand, and the mountains and islands with the upright or lying stones, which symbolize the eternity of nature and arouse people's infinite reverie like appreciating urban sculpture. Make full use of the communication and dialogue between water sculpture and the public to create a very rich hydrophilic experience. While redesigning the waterscape sculpture form, combining it with public art will make the water body more artistic in its natural form, and bring unexpected vividness and beauty to the space environment. The characteristics of water and urban sculpture design are shown in Fig. 3.



**Fig. 3.** Water characteristics and urban sculpture design

## 6 Urban Space and Urban Sculpture Design

Modern city is a public space full of people, logistics and information. The frequent exchange of information and culture inside and outside the city accelerates the pace of people's life and work in the city, so the trend of pursuing comfort and aesthetic feeling has become the basic feature of modern city. Therefore, it will become an important part of the cultural awareness and spiritual quality of the urban public environment to make urban sculpture from all aspects of the city with the artistic processing of urban landscape design [13].

Reasonable planning of urban public space, artistic recreation, because the material needs of urban residents, public aesthetic, etc. to provide effective services [14]. As urban landscape design, in the integration of environmental order and aesthetic concept, it should adapt to the overall planning of urban space, integrate into all levels of social life, so that the specific environment can become an organic part of urban public space culture and art. The central square of a city has always been an important public space

environment in the long history of human settlement. It provides people with the convenience of gathering, communication, cultural entertainment and other public activities in an open space. The modern city square is praised by the city living room because of its multi-function, multi landscape. The main body of the square determines the orientation of urban sculpture design, and the rapid development of modern science and technology has also changed the aesthetic concept of citizens. In front of the simple and bright form of modern society, the landmark city sculpture of the square appears in front of the public in a new form. While beautifying the environment of urban public space, the public sculptures highlight the vitality, edify people's hearts and arouse the public awareness of citizens [15].

## **7 Humanistic and Ecological Harmony of Urban Sculpture**

### **7.1 Sustainable Development of Human and Ecological Harmony**

Urban sculpture is an important symbol of urban culture and civilization. The construction of urban public environment must adhere to the idea of sustainable development. In order to create a better urban public space environment, grasping this idea is the primary task. The ecological and humanistic conditions of a landscape environment are the basic contents of landscape matching and urban sculpture. Because they will have a variety of effects on the original environment, whether positive or negative, involving the optimization or destruction of the environment, involving the inheritance of history and culture, emotional identity in life and environment and other social problems. Therefore, public opinions should be widely adopted in the placement of urban sculptures, and their living habits should be respected, so as to develop harmoniously with the surrounding public space environment [16].

As an environmental art of public space, the design of urban sculpture works should play a positive role in the overall planning and design of the city, influencing the society and reflecting public opinion. Their design, implementation and maintenance should not be divorced from the geographical environment and natural resources of the city, but should focus on the protection of the natural resources on which the city depends and conform to the description of local characteristics, Research and integrate in a larger career. The intervention of urban sculpture in the space environment requires careful consideration of the attributes of the specific environment. At the same time, in the process of implementation, it should be actively integrated into the local ecosystem to form a certain place and properly handle the relationship between the part and the whole. The location of urban historical and cultural sites or important ecological and environmental protection areas should not only pay attention to the reasonable location of urban sculpture, but also pay attention to the volume, theme, tone, style tendency of urban sculpture itself. Because these factors will have a variety of effects on the atmosphere of the environment, involving the beautification or destruction of the environment, involving the inheritance of history and culture. Therefore, the location and methods of urban sculpture should be widely adopted by the public. It is an important social responsibility in contemporary landscape design to pursue the harmony between man and nature and the happiness and enrichment brought by spiritual culture. Part of the reason citizens live in cities is that the good structure of cities makes them wait for less energy, effort

and cost to do more. City is the natural organization mode of cultural life. If a city is well planned and has relatively perfect functions, it is the best tool to adapt culture to nature. The design of urban sculpture should be combined with the urban macro planning, organically integrated into the original landscape of the city, become the constituent elements of different forms of urban culture and living scenes, become indispensable parts in the realization of urban functions, rather than become decorative objects contrary to the local human history and contemporary life.

## **7.2 Inheritance and Dialogue of Architectural Features**

The appearance of architecture dominates the characteristics of urban public space design and the aesthetic value orientation of citizens. It is the most basic and prominent component of the city. The inheritance and dialogue of the architectural environment is also reflected in the urban sculpture, landscape sketches and public art around the architecture. Therefore, the urban landscape design should be adapted to local conditions, strengthen the communication between the architectural environment and urban sculpture, so as to make the connection between them closer and better bring the visual aesthetic enjoyment of urban landscape to the citizens. Enriching the content of architecture, simultaneous architecture has become a multi-dimensional art including other aspects, so that architecture itself is no longer a space tool only to meet the original function of wind and rain shelter. In today's boring environment of urbanization, the art function of architecture should be brought into play. As a pleasant living urban space, many buildings, to a certain extent, use the landscape to symbolize and beautify. It is the existence of urban sculpture that fully embodies the characteristics of architecture, which is indispensable in landscape sketches, installation art or large-scale urban sculpture.

## **7.3 Personality Construction of Business Environment**

The intervention of urban sculpture and public art sketches in the business environment is not only to create a unique charm of urban business personality and attract people's shopping enthusiasm, but also to integrate the spiritual culture of products into the consumption environment, showing the new concept of modern business. In other words, the construction of urban public art needs the participation and sponsorship of enterprises and businessmen with diversified economy, as well as social activities accompanied by purposeful commercial activities. The functions of public sculpture are often various.

# **8 Conclusion**

Through the cooperation between schools and enterprises, the learning research teaching mode combines classroom teaching with market demand, integrates the resources of colleges and enterprises, realizes complementary advantages, and innovates talent training mode, which is helpful to cultivate applied talents needed by the society. The teaching mode of production, teaching and research meets the needs of the current landscape sculpture education reform, has the characteristics of the times, and meets the needs of the development of market economy. At present, many colleges and universities have



carried out the practice of teaching mode of production, teaching and research, but there are still some problems in the specific practice, which still need the joint efforts of colleges, enterprises and students, so as to make the teaching mode of production, teaching and research play an effective role and promote the reform of higher education and the sound development of enterprises.

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