

Research on the Trend of Interaction Design in Public Art

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ABSTRACT

The purpose of this paper is to understand the application of Interaction Design in Public Art works at the present stage through the analysis and observation of some existing Public Art works with interactive function, and to give a certain direction for the development trend of Interaction Design in future Public Art. The methodology is taking the Chicago Crown Fountain and the Public Face II light sculpture installation in Germany as the research object, comparing them with the traditional Public Art installation in many aspects of technology and design and finally, exploring the future direction of Interaction Design of Public Art works from the existing interaction forms. The conclusion can be drawn as: nowadays, Public Art works combined with Interactive Design are rare, the interactive forms used are still in the initial stage, and it is a one-way interaction between people and Public Art works. However, we can believe that, in the future, more Public Art designers will combine Interactive Design with their creation, so that Public Art will no longer be a cold piece of work, but a real art form of interaction with the public.

Keywords: *Interaction Design, Public Art, interactive form, trend*

I. INTRODUCTION

Public Art, who is recognized as a new type of art, begins to appear more and more in the public field of vision, and people begin to pursue a higher level of spiritual enjoyment. At the same time, with the continuous development of information technology, the concept of human-computer interaction has become no longer unfamiliar, the field of Interaction Design has developed rapidly, designers gradually realize the importance of Interaction Design, human-computer interaction almost seeps into all aspects of human life, so the design of interactive Public Art gradually appears in the public. Designers no longer only focus on visual effects but begin to pay more attention to the interaction between people and Public Art installations. Public Art has also changed from a static and permanent cold installation to a dynamic and interactive warm work of art.

II. CONCEPTUAL OVERVIEW

A. *The concept of Public Art*

Public Art is a kind of art serving the public, or placed in public space, it can also refer to all the art with public nature.¹ Public Art consists of two

concepts: "public" and "art". Literally speaking, firstly, Public Art should be public, placed in public places, not museums, exhibition halls or private collections, etc. "Publicity" is undoubtedly the core of defining the concept of "Public Art"; Secondly, Public Art should be artistic creation that can bring people the feeling of beauty, and have aesthetic and artistic appreciation. Public Art, as a public work of art, will inevitably accept the public's examination and evaluation, so the lack of interaction and communication with the public can't be regarded as Public Art; from the perspective of public evaluation, a good Public Art work will inevitably enable the public to have spiritual thinking.

1) *Development of Public Art:* Public Art originated from the West, and it can be traced back to the "Sunny Plaza" in ancient Greece — people discuss and exchange opinions on public affairs in the sun and on the square. On this basis, Greek-style pre-public art appeared, and the relatively open and free public space in ancient Greece laid the foundation for public art. The "sunshine" shines only on a few nobles. At that time, Greek art could not be called Public Art. It was not until the 18th century that the concept of "art" was formally put forward by the French, and with the ideological emancipation brought about by Enlightenment, the concept of "public" was gradually known. Until the 1960s, under the social background, the birth of post-modernist culture fundamentally affected Western art,

¹ WU Shi-xin. *The Contemporary Public Art of China*[D]. Beijing: Chinese National Academy of Arts, 2005

and the Public Art in the contemporary sense was really born. The public gradually involved in public affairs, and forms of individualism and elitism were gradually replaced by the masses; art was no longer just a noble plaything, but began to face the public, by the public inspection and appreciation. With the support of western Public Art policies, some works which are different from traditional urban sculpture and landscape art in concept have appeared in some countries in the United States and Europe, and this kind of art is called "Public Art".

B. The concept of Interaction Design

Interaction Design was first proposed by Bill Moggridge at a design conference in 1984, initially he named it "SoftFace", and later changed it to "Interaction Design". From the user's point of view, Interaction Design is a technology of how to make products easy to use, effective and pleasant to users², and its purpose is also centered on user experience to help users better complete a task and use a product more efficiently. Interaction Design is an extremely complex cross-discipline, involving psychology, ergonomics, sociology, computer technology and other disciplines; it is because of its complexity, Interaction Design has a strong inclusive and developable, and can be effectively combined with other disciplines.

C. The relationship between Public Art and Interaction Design

With the continuous development of information technology, the way of interaction between people and products has become very complex, Interaction Design has become the design content that product designers attach great importance to, but in fact, not only in the field of product design, the application of human-computer interaction technology is very extensive, in the field of art, interaction as a communication medium, makes artworks interactive. This connects the artworks with the audience and allows the audience to interact with the artworks, so as to deeply feel the artistry of the works and make the audience have a spiritual resonance. As a public work of art, Public Art itself will interact with a large number of audiences in a tangible or intangible way, and combine Interactive Design with Public Art skillfully, so that Public Art is no longer cold and fixed, but warm and emotional; from the perspective of Public Art, interactivity avoids Public Art. It enables the audience to integrate into Public Art works from the spiritual level and into the whole public space. In today's increasingly digital world, we feel different experiences and respect people's feelings, which are designed with user experience as the center,

which coincides with the concept of Interaction Design. Therefore, in the creation of public works of art, the use of Interactive Design to enrich the works of art, not only make people feel better, but also make the works better convey their emotions, and show their artistry, so the two are complementary, harmonious and unified.

III. THE APPLICATION OF INTERACTION DESIGN IN PUBLIC ART

In recent years, with the development of Public Art, interactive installation art has gradually combined with open space design. Compared with traditional Public Art, the concept of Interactive Design is integrated into Public Art creation³, and Public Art conveys real emotions to the audience.

A. Crown Fountain — Public Art and interactive fountain installation

Above a reflecting pool of black granite, just around the corner from the Millennium Park Art Institute on Chicago's busy Michigan Avenue, sit two identical, 50-foot-tall, glass-brick towers. An led screen in the tower alternates with 1,000 faces representing Chicago residents — drawn from a cross-section of the city's age, gender and ethnicity. Every face smiled, then pursed their lips, and the pipes embedded in the sieve 12 feet above the ground spewed out a lot of water, giving the illusion that the huge face was spitting water. With the transition between the faces, the towers turn black, while falling waterfalls descend from the sides. This is the Public Art installation-Crown Fountain—designed by artist Jaume Plensa, Krueck and Sexton Architects. ("Fig. 1")

² LI Jing, LI Shi-guo, Exploration the Emotional Communications between Human and Products from the Perspective of Interaction Design[J]. Packaging Engineering, 2008(09):151-153.

³ KUANG Wei, Future Dynamic Landscape Design Based on "Human Computer Interaction" [J]. Landscape Architecture, 2016(02):14-19.



Fig. 1. Crown Fountain.

Emphasis on multimedia, natural landscape and interaction with urban residents is the biggest feature of the Crown Fountain in Millennium Park, Chicago⁴. Although the traditional fountain also has some Public Art and urban landscape design, the function is relatively single fixed; the Crown Fountain not only incorporates multimedia technology into the fountain, but also "invites" passers-by to join the shallow pool, and water interaction. As if human beings were born with a complex that likes to play with water, Crown Fountain does not isolate water from the public like ordinary fountains, but faces the public with an open attitude. Therefore, when Chicago citizens pass by the fountain, whether they are adults or children, they will spontaneously rush into the fountain, interact with its fountain, and play with the water "spit" from their compatriots' mouths. The Crown Fountain integrates interaction naturally into itself. In addition to the interaction between people and the fountain, there is also the interaction between people and the environment, and between the fountain and the environment. The 1,000 faces played randomly on the tower are the interaction between people and the entire urban space, the concept of Interactive Design has been down to the bone of this Public Art installation. Perhaps the fountain without public participation can only be regarded as an urban ornament, and the participation of the public makes the Crown Fountain a real urban Public Art. From this work, we can see that in the urban works of Chicago, interaction is not only a concept of designers, but also the key to dialogue between the masses and urban art.

B. Public Face II — large emotional interaction device

At Lake Constance in Lindau, Germany, has been standing a large interactive installation which was ecologically-centric with local characteristics — Public Face II. Artist Julius von Bismarck, experimental designer Benjamin Maus and the filmmaker Richard Wilhelmer installed an installation of an oversized steel smiley face ("Fig. 2"), made of neon tubes, with a flexible eye and mouth area, which became part of the skyline because of its high geographical location and huge size of 8 meters high. Citizens can see its different expressions from far away ("Fig. 3"). The three creators designed four emotions for it to combine and change—happiness (mouth up), sadness (mouth down), surprise (eyes wide open) and anger (eyes narrowed). This particular sculpture is actually a visual representation of a citizen's emotions, based on the facial expressions of local passers-by captured by surveillance cameras, and the artists use special algorithms to develop software to analyze their facial expressions and get data. Public Face II uses these algorithms, and gives real-time visual feedback on its data, so that everyone in the public space can intuitively see the changing average emotions of urban residents.

⁴ Tan Fan, SHI Zhong-ying, The Application of Interaction in Public Art Design[J]. Design, 2017(07):62-63.



Fig. 2. Public Face II.



Fig. 3. Public Face II.

Compared with the Public Art of ordinary static light sculpture, the interaction brought by Public Face II is undoubtedly stronger, and the public's sense of integration into the whole city is deeper, although the citizens are participating in and interacting with this public art work passively, it still allows citizens, and even tourists who come to travel, to produce subtle emotional changes in the city — the public is the co-creator of this public art installations. A subtle emotional change to the city-the public is the co-creator of this Public Art installation. Further, Public Face II to the public is not only a simple visual interaction feedback, but also can trigger the public to think about the content of the work, for example, when Public Face II shows "happy" emotions, citizens who see this smiling face may be infected by the happiness of this smiling face, and their emotions become happy; when Public Face II show "sadness" ("Fig. 4"), citizens smile at the people around them in order to change the city's low mood. The change of Public Face II will more or less affect the mood of citizens, because they know that

the change of urban mood has their participation; this special interactive behavior and feeling can't be given by ordinary static Public Art.



Fig. 4. When Public Face show "sad" emotions.

IV. TRENDS AND PROSPECTS

Today, with the development of digital information technology, it is the trend of the times to combine the concept of Interactive Design with Public Art. At present, the public has put forward higher requirements for Public Art works, so in the future creation of Public Art, what kind of trend the interactive form of human-Public Art will develop towards is a problem that artists and designers should think and study.

A. Two-way interaction

The participation of the public is an important attribute of interactive Public Art different from other art forms, but after the completion of the work, the public will interact with it, which will be a one-way interactive result. The highest level of Public Art is that the audience can fully participate in the creation of the work, which requires the public to take part in the initial stage of the creation of the work. The public works of art created by the public have both the input of public thinking and the output of new information, and it can trigger public rethinking and participation again. It is a two-way process, not only people interacting with works of art, but works also interacting with people.

B. Use of multiple interactive form

The form of Interaction Design has gradually developed from the initial single to today's diversity; in the future, the interaction between people and Public Art will become more abundant. In the past, Public Art works needed people's active and direct contact to trigger interaction; now some works of art have been able to do non-contact interaction, people only need to be close to the artwork to achieve human-computer interaction, such as the art installation in open space

created by National Taipei University of the Arts and Tamkang University — Humanistic Tree Road with Wireless Induction, it uses wireless network sensing technology, as long as the public is close, the device will play music automatically. Thus, in the future, more advanced interaction methods will be applied to Public Art, gestures, sound, brain waves can achieve the interaction between people and Public Art, at that time, the interaction between people and Public Art will become more cordial and natural.

V. CONCLUSION

With the rapid development of computer technology, as an industry closely related to it, Interactive Design is also advancing rapidly. The integration of the concept of Interaction Design into Public Art is a trend, which can not only better convey the ideas that artists want to convey to the public through their works, but also allow the public to produce more artistic thinking in their lives, and have a positive effect on the creation of public art. Feedback from the public makes the interactive form of public art works more interesting and natural. Public Art and Interactive Design progress together and develop continuously. It can be believed that in the future, more Public Art will integrate the concept of Interactive Design and become more user-oriented art.

References

- [1] WU Shi-xin. The Contemporary Public Art of China [D]. Beijing: Chinese National Academy of Arts, 2005.
- [2] SUN Zhen-hua. From "Sunny Square" to "Postmodern" the Context of Public Art [J]. *Sculpture*, 2003(01):24-26.
- [3] LI Jing, LI Shi-guo, Exploration the Emotional Communications between Humanand Products from the Perspective of Interaction Design [J]. *Packaging Engineering*, 2008(09):151-153.
- [4] KUANG Wei, Future Dynamic Landscape Design Based on "Human Computer Interaction" [J]. *Landscape Architecture*, 2016(02):14-19.
- [5] Tan Fan, SHI Zhong-ying, The Application of Interaction in Public Art Design [J]. *Design*, 2017(07):62-63.
- [6] WANG Feng. The Research on the Interaction Design of City Public Art under the Background of Digital Age [D]. Jiangnan University, 2020.