

The Semiotics of Light and Shadows Reflected in Contemporary Visual Arts to Connect Viewers with a Sensory Relationship

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Abstract

Centered on Beijing, Shanghai, and Guangzhou in China, this study explores the application of light and shadow semiotics in contemporary visual art and the ways they connect audiences through sensory relationships. This study takes a hybrid approach, exploring how light and shadow can convey their creative intent and sensory experience. In particular, through the investigation of sensory experience and collection of academic records in interactive media art, qualitative data are collected through the content analysis of artists' works and interviews with their creative intentions, and the analysis is carried out by questionnaire survey and case study, providing sensory experience and creative ideas for the contemporary young generation of art creators. Qualitative data are collected through surveys and interviews with artists and audiences to assess the effectiveness of these learning cases and the long-term development of interactive media art with light and shadow. Based on Peirce's semiotic theory and Gibson's direct perception theory, this study provides a systematic understanding of the interactive media art of light and shadow for artists and the sensory aspects of viewers. The research results are intended to make an important contribution to the broadening dimension, dissemination and popularization of contemporary light and shadow art.

Keywords: Light and Shadow Art, Interactive Media, Sensory Relationship, Immersion, Multisensory Interaction, Visual Space.

Introduction

China developed relatively late in the field of light and shadow new media art, but relying on the profound heritage of traditional Chinese culture with thousands of years of history, China has built the emotional memory and spiritual sustenance of hundreds of millions of Chinese people. At the same time, as a solidified art - historical site in China is also an indispensable part of the development history of world culture (Zhang, 2019). China's heavy literature, philosophy and history have unique and charming regional characteristics for the

development of contemporary light and shadow art and inject new vitality into the contemporary interactive art of light and shadow.

Zhang Peili, the father of new media art in China, as one of the participants of the "Eighth Five-Year Trend" of Chinese contemporary art, Zhang Peili, who graduated from Zhejiang Academy of Fine Arts, and members of the "Zhejiang Youth Creative Society" showed a completely different picture from the grand narrative of the passion at that time in the "85 New Space" exhibition in December 1985 with a style of indifference, loneliness and restraint. His first floor "movement as action" section is filled with electronic displays of various sizes and shapes. Looking closely at the first electronic display, a pair of gloved hands appeared, smashing the mirror and stitching it up again and again, breaking and stitching it up again and again. The seemingly absurd and boring 41 minutes had a huge impact on Chinese media art (Chen, 2023).

In the late 1980s, Zhang Peili studied in the oil painting department of Zhejiang Academy of Fine Arts (now China Academy of Art). Instead of painting brushes, he started to use a video recorder as a new medium and took his first step in media art (Chen, 2023). On the one hand, he was tired of the realistic painting education system at that time, and on the other hand, he had a strong curiosity for new media - it was the era when television had just entered the public vision. Such as Zhang Peili's practice of video, the early media art was mainly video art, artists through some "unconventional" behavior records to arouse the audience's curiosity and thinking.

During this period, many new media artists reflected the relationship between power and individuals through the participation and interaction of viewers in their conceptual video works. How the environment in the video works constructed the psychology of the subject, and also made proper use of subjective control factors to create a special audio-visual experience that integrated image and psychology, the time came to the early 21st century. The development of Chinese media art has shifted from a single video image to the use of installations and even more materials (Chen, 2023).

During the period from the late 1990s to the early 2000s, the new media art of light and shadow in China just started, and was mainly influenced by foreign new media art. A new generation of artists who have lived overseas and received art education have also brought new themes to media art. Artists born in the 1980s and 1990s, such as Ma Qiusha, Liu Yujia and Liu Shiyuan, began to consider the attributes rooted in cultural genes such as identity, gender and region in their works (Amber, 2021). At the same time, the domestic media art education system is also actively promoting and developing, in 2001, the China Academy of Art established the New Media Art Center, and in June 2003, the New Media Art Center was officially established as an independent department, named "New Media Department". Early Chinese work was mostly experimental, exploring the combination of digital technology and art. With the development and wide application of digital technology, the interactive media art of light and shadow in China has gradually emerged. Artists are starting to use projection technology, virtual reality (VR), augmented reality (AR) and other new technologies to create. Art galleries and art centers in major cities such as Beijing and Shanghai began to exhibit interactive media art works.

In the 2010s, the interactive media art of light and shadow has developed rapidly in China, and a number of influential artists and works have emerged. Various large-scale art exhibitions and public art projects began to introduce interactive media art of light and shadow, enhancing public awareness and participation. For example, Beijing's 798 Art Zone

and Shanghai's M50 Creative Park have become exhibition and exchange centers for new media art (Amber, 2021).

At that time, Lin Junting was influenced by international light and shadow art and integrated traditional Chinese culture into his interactive art works of light and shadow. Butterfly Field, based on Chinese culture, drew inspiration from heaven and was born in New York (Amber, 2021). It makes good use of the metaphor of "butterfly", an Oriental philosophy: when visitors enter the exhibition field, they see a beam of light sprinkling from the ceiling, a little bit of magic on the floor, and the moment they inadvertently look up, the dancing butterflies appear in the sky and the gold pervades, and the scroll with Chinese characters in the work is finally transformed into a golden rose... The whole exhibition is like "Zhouzhuang Dream Butterfly", which presents the traditional Chinese aesthetic in this very beautiful, dreamy and interactive way to the European and American audiences, bringing great artistic shock. As Lin Junting said: it is the "sense of sight" of that moment that brings you into his art creation world, there is no pre-solidified creative ideas, only intuition inspires the fleeting moment of inspiration, which can be said to be Lin Junting's unique "intuition leads creative practice" artistic creation ideas. In recent years, Chinese interactive media art of light and shadow has entered a stage of integration and innovation. Artists are not limited to the application of technology, but pay more attention to artistic expression and audience experience. Large-scale immersive art exhibitions and interactive media festivals are frequently held, which further promotes the development of this art form. For example, events such as teamLab and the Light and Shadow Arts Festival are popular across China (Amber, 2021).

It is possible that a variety of factors, such as the early influence of foreign new media art and the introduction of advanced technology, inspired Chinese artists to innovate. Curious about new technologies, the artists began to experiment and explore, trying to integrate light and shadow and interactive elements into traditional art. In the early 20th century, the development of digital projection and interactive technology in China made it easier for artists to realize their creative ideas. Exchanges and cooperation with international artists have brought new creative ideas and technical support. The open and multicultural environment of big cities provides a good soil for the development of new media art, with the increasing maturity of technologies such as projection technology, VR and AR, providing more possibilities and higher creative freedom. Commercial projects began to widely adopt interactive media art of light and shadow, such as shopping malls and theme parks, to attract more audiences and tourists. The government and cultural institutions have increased their support for new media art, which has promoted the development and promotion of related art projects. The development of new media art education has cultivated a group of artists with professional knowledge and skills. The integration of emerging technologies such as artificial intelligence and big data provides more innovation possibilities for interactive media art of light and shadow. The cross-border cooperation between art, technology and business makes the interactive media art of light and shadow can be applied and displayed in more fields. Chinese artists actively participate in international new media art exhibitions and exchanges, absorbing cutting-edge international art concepts and technologies. The increasing demand of audiences for interactive and immersive experiences has promoted the development and popularization of interactive media art of light and shadow (Zhang, 2019). In recent years, immersive art has appeared in exhibitions in major Chinese cities, and a growing number of young art lovers are very satisfied with the visual and sensory experience of art exhibitions, thus enhancing the value of art culture. In all these cases, light is used to change the space and perception in contemporary art, usually in an experiential and

immersive way to make the viewer's senses. The interplay between the intertwined qualities of light and shadow continues to fascinate artists (Zhang, 2019).

The specific study objectives are as follows:

- Study the types and forms of light and shadow symbols in contemporary visual art, and explore how artists use light and shadow to create visual effects, express emotions and convey information.
- This paper studies the role of audience sensory channels in the perception and understanding of light and shadow symbols in contemporary visual art, and discusses how visual, auditory, tactile and other sensory channels interact with light and shadow symbols and the effects they produce.
- This paper explores the influence of cultural, social and historical factors on the audience's cognition and interpretation of light and shadow symbols in contemporary visual art, and studies their differences in perception and interpretation.

Literature Review

Visual culture creates and reflects individual freedom. In the post-industrial era, visual art is increasingly understood as a mass media integrated into everyday life (Zhang, 2020). In contemporary art from the beginning of the 20th century, artists continued to explore light and shadow in innovative ways. In all these cases, light is used to transform space and perception in contemporary art, often in very experiential and immersive ways that engage the viewer's senses.

Through a chart clue, we can see the evolution of our media from ancient times to the present: the primitive rock painting media that appeared in ancient times; Traditional media such as painting and sculpture in ancient Greece and the Middle Ages; The medium of photography and film appeared in modern times. In the period of postmodernism, installation, performance art and video art appeared. Then to the contemporary era (the narrow division of contemporary art refers to the (1990s), this period has emerged a lot of interdisciplinary new media art: digital virtual art (including mobile network media art), artificial simulation art, biochemical mutation art, physical transformation art. The new media art of light and shadow is that artists express new contemporary artistic concepts and feelings of survival through scientific and technological means, which gives us new inspiration. As an interactive media art work of light and shadow, it is neither a film nor a game as we are used to, but a new multimedia art form, and "young" is the key word to describe this medium.

The pioneer of this discipline is the international artist Paik Nan-jun, whose art uses television and video as the core carrier, and integrates music, performance, sculpture, installation and other media, making the original form of unilateral output become the state of interaction with it (Zhang, 2021). Piano, necktie, cello, Buddha statue, screen, etc. are all elements that he extracts from life and integrates into his creation. Coupled with his life experience of growing up in the East and absorbing Western culture in his later years, the hedge between Eastern tradition and Western technology is vividly reflected in his works.

With the spread of foreign interactive media art of light and shadow to China, light and shadow symbols in new media play a particularly important role, which is an artistic journey spanning decades, reflecting the development method of new media art education, art form and science and technology. These art exhibition sites have greatly influenced the way people in our country communicate and experience interactive media art, and have helped to make new media art education and artist influence more in-depth, or "liberalized". In the early stage of new media art, artists mostly took conceptual photographs and videos, which were

presented in the exhibition hall with a single display screen, and only a small number of viewers could experience visual and auditory experience at the same time. As media art teaching was also conducted with small class system and simple courseware for teaching and discussion, however, with the popularity of interactive media art, in the early 20th century, The demand for interactive media art has exploded. This requires the expansion of interactive media art creation forms, academy education and exhibition methods, which can serve as a more effective and convenient means for art creators to create and disseminate works (Zhang, 2021).

In this era, people have easy access to traditional works of art, in other words, traditional forms of art have been difficult to arouse people's strong interest; In addition, technology allows art works to be no longer limited to the expression of a single sense. In the field of new media art, new media music art takes the lead in the development of an important position. On September 24, 1984, Tan Dun, Chen Yi, Chen Yuanlin, Zhu Shirui, Zhou Long, etc. held an electronic concert in the auditorium of the Central Conservatory of Music. This is the first recorded electronic concert in China, which opens the prelude to the exploration of electronic music in domestic universities. It is not only a landmark event in the birth of Chinese new media music art, but also the beginning of Chinese new media art history (Xu, 2020).

From the early 1980s to the present, the development of Chinese art has gone through three stages: the stage of exploration and initial cognition (1984 to 1993), the stage of exploration and entrepreneurial accumulation (1994 to 2003), and the stage of innovation and comprehensive development (2004 to the present) (Xu, 2020). "In less than 40 years, China's electronic music has gone from scratch, from backwardness to flourishing and thriving, and earth-shaking changes have taken place." Zhang Xiaofu led the team to review the history, sum up experience, with a rigorous attitude of academic research, sort out the development of Chinese electronic music from a practical perspective, extract and summarize the experience accumulated and formed in the growth process of Chinese electronic music, as well as the problems and lessons in the exploration process, and write the second chapter of Chinese new media Art in a Brief History of Chinese New Media Art.

After music, the second art category to open the road of new media art in China is video art. In November 1988, Zhang Peili completed "30×30" with a Panasonic M7 camera, and was shown at the "Chinese Modern Art Creation Seminar", which is the first work of Chinese video art. Both the electronic concert in 1984 and "30×30" in 1988 are Chinese new media art works that Chinese artists began to imitate and introduce the concepts and techniques of Western new media art and tried to create. The period from 1984 to 1991 is known by Xu Peng as the beginning period of Chinese new media art (Xu, 2020).

Then, from 1992 to 2002, it was the development period of Chinese new media art. Under the background of microcomputer and network technology, Chinese artists began to explore their own national new media art vocabulary while continuing to follow and imitate Western new media art. The period from 2003 to 2008 was a period of acceleration. Under the background of interactive and mobile technology, new media technology and art were comprehensively integrated, and new and national artistic vocabulary and concepts were rapidly constructed and grown. In the integration period since 2009, under the background of cloud computing, Internet of Things and big data technology, China's new media art has begun cross-border and integration in a true sense. In addition to continuing its in-depth development along the system of traditional art categories, it is exploring and practicing and finally giving birth to a new art form that integrates cross-border art categories and multimedia (Xu, 2020).

Light and shadow, as important elements in semiotics, have become increasingly important materials, themes and metaphors in Chinese contemporary art. However, in the narrative and analysis of contemporary art, the conceptual significance and technological innovation of light art are often overlooked. Many scholars focus on theory-heavy reading or material-based approaches without fully engaging with light as a dynamic artistic substance and tool for challenging perception. Illustrate the different uses of contemporary light in contemporary times - from illumination and reflection to projection, glare and immersion. Examine how artists use light to inspire self-reflection, communicate ideas, construct contradictory Spaces, and question the limitations of perception. Light-based works of art are not just interesting optical effects, but profound experimental Spaces that destroy traditional thinking and vision (Zhang, 2021).

A focused analysis of the conceptual and perceptual impact of light will more fully capture its contribution to the emerging technically-informed, experience-driven and critically engaged elements of contemporary art. Artists don't just imitate nature; He/she looks for ways to leave a profound beauty on the audience, to convey his/her own experiences, thoughts and feelings. Obviously, light and shadow enrich the audience's experience. Therefore, the experience of the audience watching the film is very important. Today, the most popular form of light and shadow art is immersive art: Surround the viewer with projected light, neon lights, or reflections to create a sense of immersion in the art. This intensifies the connection. The difference is that accurate art forms can express the author's attitude towards an object, thereby consolidating and proclaiming values, thus ensuring the preservation and transmission of aesthetic experience (Hradil et al., 2003; Oda et al., 2011; Woods, 2018).

The multi-dimensional nature of immersive experience in the context of Light and shadow new media digital exhibition. Unlike previous studies, which treat multiple immersive experiences equally and differently, only focus on one dimension of immersive experience (Bec et al., 2019; Guo et al., 2021; Trunfio et al., 2022) leads people to easily focus on high-tech and other means, highlighting their freshness and wonder, but the core value of digital media art lies not in this, but in its scene value. However, in the narrative and analysis of contemporary art, the conceptual significance and technological innovation of light art are often overlooked. Many scholars do not fully utilize light as a dynamic artistic substance and challenging tool, so artists can use qualities ranging from immersion to movement to metaphor to produce multilayered light art that exposes viewers to intimate, human, and interactive sensory experiences.

In recent years, interactive installations have gained significant prominence as an artistic expression, driven by technological advances and the pursuit of more personalized and adaptable art forms, leading to the integration of artificial intelligence (AI) into interactive installations, enabling them to detect and respond to people's gestures, movements, and facial expressions (Patel et al., 2020; Cao et al., 2021) Digital media light and shadow immersive scene art plays an important role in improving personal happiness and establishing interpersonal harmony. At present, China's immersive industry is booming, but there is a certain gap in scientific research and cognition, which becomes the necessity of research. This paper mainly discusses the creation mechanism, artistic transformation and meaning presentation of light and shadow semiotics in immersive art. From the aspects of "scene fusion", "virtual and reality production", "meaning and environment harmony", the integration path of artistic conception aesthetics and light and shadow semiotics technology aesthetics is observed from the perspective of simple to deep. This will help broaden the

aesthetic experience of Chinese teenagers to the art of digital media light and shadow immersive scenes.

In addition, the expansion, dimensional change, transformation and evolution of the real world achieved by the new media art of light and shadow through space and media do not exist independently of the social network. The viewers' awareness of subjective intervention is enhanced, and the onlookers are gradually transformed into participants. Experiential products are presented to the viewers in the form of psychological externalization based on China's 5G and other media technologies. The viewer's perceptual experience can be extended to satisfy the viewer's perception and pleasure. Moreover, "The integration of art and science and technology is the inherent law and objective requirement of art development. With the help of science and technology productivity, the creative form of art breaks through the traditional paradigm and boundary of art, and the transmission path and reception mode change, which is the value of artistic innovation" (Wang, 2022).

Theoretical Framework

Semiotic theory

This analysis is consistent with metaphor being the most complex of iconic markers (Peirce 1931-1974), especially when understood as creative, emergent, dynamic, sociculture-based, and context-influenced processes: this view has become popular in cognitive linguistics and semiotics (Koviches, 2015; Muller, 2008a; Sonison, 2015). However, metaphor is only a sign (process) that can only be understood through its correlation and interaction with other types of signs. This means that the (common metaphor) graphic metaphors in street art that we analyze in section 4 May interact with other rhetorical figures that are supported by continuous relations (metonymy) and partially holistic relations (synecdoche).

Visual theory emphasizes the motivational effects of visualization. In contrast to vision, one strives to reach the final final state; This is usually a technique for mentally practicing task performance in the absence of physical stimulation. Vision theory advocates a narrower dimension, emphasizing the sensory elements of one's vision. There has been little research examining the extent to which sensory elements contribute to learning motivation.

Peirce asserts that these signs have been everywhere for as long as humans have existed (Deledall, 2000). With continuationism and realism as the core concepts, symbols are divided into three elements: (a) representation, the form of symbols that represent things; (b) is an object, something to which the symbol refers; (c) is an interpreter, the meaning and function of the symbol perceived by the audience. The close relationship between these elements helps to elaborate on the meaning of a symbol (Ponzio & Petrilli, 2009).

In addition, Peirce further classifies symbols into three types based on their relationship to the characteristics of their objects: (a) **ICONS**, symbols that are physically similar to objects (such as portraits); (b) is an index and does not provide direct information about its object; However, objects can be understood by reasoning or association (e.g., fire → heat); (c) is a symbol, a sign defined by cultural custom or an object whose understanding must be learned (e.g. ♀→women) (Eco 1986). Shows a summary of the sign theory proposed by Peirce. We use these theories as the theoretical basis for carrying out relevant courses.

Direct Perception Theory

Gibson (1966, 1979) argued that instinct and biology play a crucial role in perception, so when referring to the nature versus nurture debate, the theory is in nature's side, Gibson means that perceiving things and process information is an innate ability, i.e. a person is born with

such an ability. Perception can be fluid, subjective, creative, and imprecise, but it can also be literal, and students of his understanding of human nature and society need to remember when he sees human beings as passive victims of negativity. The citizens of Salem find witches... This is a serious misconception, but it doesn't always happen.

But the perception of the real world does not happen without effort and care. To quote him again: it is not just a world of everyday acts, for it is a world of schematics containing clues and symbols. ... It is only in an unfamiliar environment or problematic situation that we become fully aware of the real visual world. One has to stop and look to see it (Gibson, p. 1950. 211-2.)

By 1950, Gibson had established the existence of a basic, universal, but strictly personal and non-social mode of perception. The perception was immediate, which was what he called "literal" at the time, not "schematic." By discovering complex relational structures in the array of stimuli, he was able to demonstrate that there is an isomorphism between stimuli and perceptual experience. In this way, his early formulation of what constitutes direct perception destroys the dualistic separation between organism and environment, but it leaves in place, and even enhances, another dualism. According to Gibson, only schematic patterns of perception, not literal ones, are meaningful or subject to any social influence. Thus, his early conception of the direct-indirect distinction was rooted in a fundamental dualism between nature (or biology) and society (Gibson, 1979).

Conclusion

This study emphasizes the light and shadow symbols in contemporary new media art and the complexity of the sensory relationship between artists and viewers. By using Pierce's semiotic theory and Gibson's direct perception theory, the research proves that artists' creation cannot be separated from the influence of the index and index of light and shadow in semiotics on their works. Through the symbolic meaning of light and shadow symbols, viewers can experience interactive media art from multiple angles and bring spiritual shock. At the same time, the cross-border integration of art and technology enables a single media art to achieve unprecedented breakthroughs in art forms and bring endless possibilities. The research shows that the integration and innovation of new media art in China has enabled the traditional Chinese light and shadow cultural symbols to be displayed in a more novel way and understood more intuitively, so that the traditional Chinese cultural symbols can be inherited and spread, which is conducive to the rejuvenation and construction of traditional Chinese national culture. The mixed method method, including qualitative and quantitative data, provides artists and viewers with a comprehensive understanding, emphasizes the social and cognitive value in the creation of new media art, and uses the mixed method method. This research not only fills the gaps in the existing literature, but also provides a comprehensive approach to the development of art by combining global art trends and local cultural backgrounds. The development of interactive media art of light and shadow in China provides theoretical support and practical guidance, and promotes the innovation and development of local art in the context of globalization.

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