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A Study on the Application of Sound Design in Contemporary Art Creation

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Abstract: With the development of science and technology, we have a profound understanding of contemporary art. Contemporary art is purposeful and differs from primitive art and classical art in terms of concept and temporal orientation. It uses different materials, different methods, and modern technology to create. Among the many forms of contemporary art, the indispensable element is the use of sound. I believe that without the use of sound, there is no soul. Human perception includes sight, hearing, and touch. But in a perfect work, what is indispensable is hearing. Hearing can bring people different sensory perceptions, which can be translated into their own imagination. Today, sound is not only the sound found in nature but also the sound created and produced using technology; therefore, the use of sound has become an important part of contemporary art.

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Keywords: Sound Design; Contemporary Art; Installation Art; Visual Image

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1. Introduction: Understanding and Perception of Various Sounds in the Environment

There are various sounds in the environment we live in; there are subjective sounds in nature and objectively human-created sounds. The sounds we know are all subjectively audible, such as the sounds of animals, the wind, rain, cars, the sound of objects colliding, and so on. Naturally, these are sounds in the physical sense, transmitted through a medium, while some are invisible sounds. Being able to feel an inner voice when alone in that moment is much like Chinese Tai Chi and Bagua. Tai Chi and Bagua clarify that the universe has never been boundless. Tai Chi also encompasses the process of transformation of all things. Among these concepts, Tai Chi represents the state before heaven and earth separated, when chaos had not yet divided into yin and yang. Liang Yi (the Two Forms) refers to the yin and yang of Tai Chi, a mode of thought created by the Chinese. I believe its representatives are Laozi and Zhuangzi, who held that silence is better than sound—a notion implying an inner sound, a kind of thought transmitted to the world. In fact, many sounds in nature are very direct: what you hear is exactly what you perceive, Sound can trigger all kinds of emotional changes within us, which is why I believe sound is an extremely important “material” carrier for us—it can convey many of our emotions,

perceptions, and cognitions, releasing the voices in our hearts through this emotional resonance[1].

1.1. Natural Sounds in the Environment

Nature's sounds are vivid, so let me describe them in prose. Nature is filled with wonderful sounds. Thunder is nature's musician: a massive clap of thunder and a blinding flash spoke to the spring girl. The gentle patter of rain—"shusha sha"—came to accompany it, awakening slumbering grass, willows, peach blossoms, and winter jasmine... Under the impetus of thunder and lightning, the earth was painted with vibrant colors, brimming with life. Waves are also nature's music. Turbulent, surging waves crash against the shore with a powerful sound, making people feel their might. "Wow... wow... wow..." Waves gently kiss the beach with a soft, sweet sound, as if whispering to the sand, letting people feel their tenderness.

Nature's sounds include countless wonders. The wind is nature's accordionist, playing its instrument in the forest. Every time it passes through the trees, the leaves rustle. Larger leaves produce louder sounds, and the tone changes with the seasons: in spring, when trees bud, the wind never stops, letting out a "howl"; in summer, the dense forest hums like "sand"; in autumn, leaves begin to fall, creating a "trembling sound." Water is nature's drummer.

Different environments and materials produce different sounds.

Figure 1. Pioggia per terra

Figure 2. La pioggia ha colpito l'acqua

Figure 3. La pioggia ha colpito la finestra

Figure 4. La pioggia ha colpito il tetto

1.2. Sounds in the environment that rely on technology for recognition

Voice recognition technology is the application of speech recognition and the linguistic characteristic models of voice recognizers based on the physiological and behavioral characteristics of language. Voice recognition technology can handle people with regional restrictions.

Now is an era of scientific and technological development; relying on science and technology to achieve a certain phenomenon, sound is the most direct and also a relatively easy phenomenon to achieve. For example, in current technology, sonar is a sound-detection technology, but it is only used to detect the position of an object. In fact, the most technical tool for capturing sound is the stethoscope, which can perceive the heart through the subtle vibrations of the eardrum. The fluctuations— the emotions that people transmit to the brain in different environments—are varied, and the heart will oscillate to varying degrees. In fact, there are many ways to produce sound on a physical level, but ultimately, it is inseparable from natural feedback: nature's sound is the foundation, along with human emotions and modern science

and technology. Without nature as the foundation, there would be no experimental means[2].

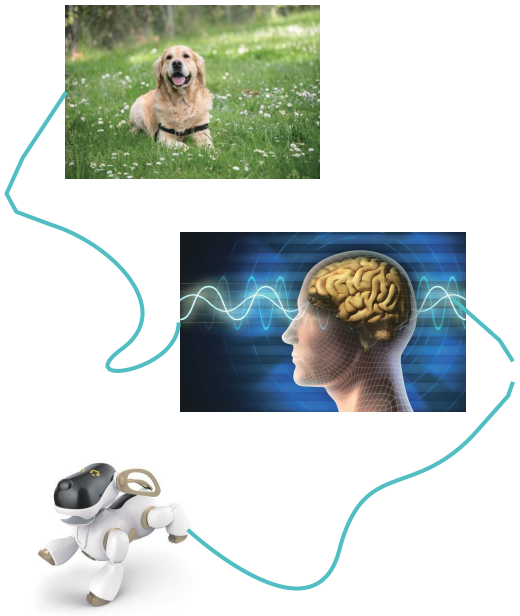

Figure 5. Sound Propagatio.

1.3. Human-created sounds in the environment

In addition to natural sounds, there are also artificially created sounds. Most artificially created sounds are produced by human subjective consciousness. However, we cannot rule out that some are caused by objective factors: for example, impact sounds are a type of sound created by the most direct objective factor. In the field of sound art, most artists also use collisions between objects to create ideal sounds, and some sound artists actively create [artistic expressions] through their own subjective consciousness. At the same time, artists also incorporate subjective thoughts while using objective factors in their creation. This is because artists will definitely have subjective consciousness in the creation of works, and this is very important. I think objective factors only serve to help make the work more perfect in form. Therefore, I believe that when sound artists create a work, it is not just about the form. A masterpiece must have a transformation in subjective consciousness; only then does the work have a soul.

Figure 6. Project

The reason why a work of art is so beautiful is that it was created by the artist after repeated contemplation and the test of time. Every note is an artistic symbol. Therefore, for anything, when the artist endows them with artistic symbols, this wonderful sound is created by the artist's subjective consciousness, and thus it can become a true work of art—one with a soul and sound.

Figure 7. Projec.

1.4. Understanding and Reflections on Sound Art

Sound art is an artistic discipline that uses sound as its primary medium or material. Like many genres of contemporary art, sound art can be interdisciplinary in nature or employed in a hybrid form.

In Western art, early examples include Luigi Russolo's Intonarumori (Noise Intoners, 1913), as well as later experiments by Dadaists, Surrealists, the International Situationists, Fluxus, and other movements. Due to the diversity of sound art, there are often debates about whether it belongs to the field of visual art, experimental music, or both.

Other artistic lineages that give rise to sound art include conceptual art, minimalism, site-specific art, sound poetry, electroacoustic music, spoken language, avant-garde poetry, sound design, and experimental drama[3].

In 1983, art historian Don Goddard delved into this topic and wrote about the 1983 exhibition "Sound/Art" at the Sculpture Center in New York City, noting that "Sound Art May Persist in the Museum" as another form of vision: "sound is meaningful only when its connection to images is understood... The combination of sound and image insists on public participation, forcing the audience to engage with real space and concrete, reactive thought, rather than illusory space and thought."

Sound installation is a cross-media, time-based art form. It is an extension of artistic installation because it incorporates sound elements and thus temporal elements. The key difference from sound sculpture is that sound installation occupies three-dimensional space, and the axis organizing different sound objects exists not only within the work but also outside it. A work of art qualifies as an installation only when it engages in dialogue with its surrounding space. Audio equipment is typically designed for a specific location but can sometimes be adapted to other spaces. It can be realized in enclosed or open spaces, and the environment forms the basis for determining how the sound installation is aesthetically perceived. The distinction between ordinary artistic installations and sound installations lies in the latter's inclusion of a temporal element, which allows visiting audiences to choose to stay longer to explore how sound evolves over time. This temporal factor also encourages the audience to explore the space more deeply and study the distribution of different sounds within it.

Today, sound art has established itself as an independent, fruitful genre within contemporary art. A community of sound-sensitive artists is dedicated to studying, recording, expressing, and reflecting on sound through their unique perspectives and professional knowledge. While musicologists and music scientists may define "sound" and "sound art" differently from visual artists, this concept of sound art has brought freshness, intrigue, and stimulation to contemporary artistic practice, emerging as one of the primary directions for artistic research and experimentation in the new millennium.

2. Contributions of sound artists to contemporary art

Most people think that art is only classical art, painting, and sculpture, but in this era, there is already a type of art that is growing and gradually becoming mainstream art: sound art. Sound artists use sound to provide audiences with visual and auditory experiences, and utilize public spaces, musical instruments, and some modern high-tech technologies to create

a coordinated environment in a specific space. Nowadays, art is gradually developing through high-tech means. The two Venice Biennales alone are enough to illustrate this fact.

Figure 8. Project

Figure 9. Project

2.1. The influence of sound artists on contemporary art

Contemporary art is the "chosen one" in today's art world, and artistic installation is the most important form of expression in contemporary art. With the passage of time, more and more elements are being used in installation art, among which sound is included, and the involvement of music undoubtedly gives rise to a new installation art form - sound art.

Sound installation is an art form that has attracted more attention from artists in modern times and is also an artistic creation method that has emerged in recent decades. As time progresses, especially in the post-modern era, there have been new discoveries in the materials and media of artistic expressions, where sound is used in various forms. Therefore, art has a new label, and sound installations have emerged. This art form influences artists' concepts and the development of art. There are many interpretations of sound or music itself. This article mainly uses the case analysis method to explain the relationship between current installation art and sound, as well as the implementation of music visualization in artistic creation.

2.1.1. Enhancing interaction with the audience

The Japanese electronic music artist Ikeda Ryuji is also a visual artist. He pays attention to the performance of sound in visual art and visualizes abstract electronic music through images. In 2011, Ikeda Ryoji's work exhibition "The Transfinite" was invited to be displayed at the Park Avenue Armory in New York. The work creates an immersive experience environment. In the projection of constantly flickering black and white lines, the music is accompanied by the coordination of the lines' rhythm. Dense black and white data are also projected on the scene. Under the wrapper of data, sound, and light, a special spatio-temporal relationship is presented. People's sensory perception is used to decompose abstract elements and explore how data defines the world we live in.

2.1.2. Adding interest to the work

The visual presentation of sound can also be expressed through the visible state of sound-producing instruments. Physical components, either directly or indirectly, constitute the work, making the interaction and sensations between the audience and the work more intuitive, thereby adding interest to the piece.

Artist Doug Aitken drew inspiration from the landscape of Sonoma, California, and created a sound mountain bearing his name, situated in the Donum Eucalyptus forest. The work mimics the structural design of wind chimes: 365 mirrored metal chimes form three concentric circles. As the wind passes through, they produce varying sounds, regarded as a response to the surrounding natural environment. Under the influence of the environment from all directions, people cannot determine the wind's direction solely by sound. The artist stated that this is a realistic natural interactive installation, and various changes in the environment endow it with vitality. The mystery of this work further enhances its appeal.

2.1.3. Enhances artistic scalability

Auditory experience includes not only sound itself but also conveys multiple responses at the sensory, emotional, and physiological levels, going beyond mere acoustic characteristics. Artist Philipsz excels at creating "sound sculptures" that merge with local ambient sounds, integrating sound and sculpture through space, environment, and architecture to form interactive attractions. Philipsz won the Turner Prize for her work Lowlands Away. In this piece, she sang three different versions of a Scottish lament, each with slight variations. These three recordings were installed beneath three bridges spanning the River Clyde in Glasgow. It was her unprofessional singing—imbued with a sense of realism, capturing breath sounds and imperfections—that convinced the judges that her vocals articulated the complex relationships between sound and perception. Her works evoke mental and instinctive reactions, reflecting the interplay between sight and hearing.

2.2. Personal perspective on sound art

Sound art is an artistic discipline that takes sound as the primary form of art. It encompasses fields such as electroacoustics, noise music, audio media, found or environmental sound, soundscape, human exploration, geology, architecture, film or video studies, and other dynamic elements, forming part of the discourse of contemporary art.

"Sound is not a medium that follows a clear trajectory and evolves into a full-fledged movement like Futurism or Fluxus. It has a chaotic history, filled with many wonderful things. Its development is fragmented for each of us; it changes with the individual, rather than being an organized entity." For these reasons, a universal definition and a clear history of sound art may not be possible. But ultimately, it is better to value sound works created through timely, unplanned processes rather than simply categorizing sound art under experimental music, or making a lazy modification by incorporating any experimental sound composition, performance, or recording into the standards of sound art.

2.3. Sound Artists

2.3.1. Thessia Machado

As a visual and sound artist, Thessia Machado's work delves into the mechanical relationships between physical objects: how they function and how they are influenced by other things—tangible interactivity. Machado uses wires, clusters of speakers, and light-sensitive wire circuits to construct large-scale musical instruments. In 2019, she held her first solo exhibition titled Toward the Unsound, which uses machinery to create music and analog equipment for production, focusing on the physics of sound. She builds dynamic, sculptural, music-making machines to create installations and performances.

Figure 10. Project

2.3.2. Haroon Mirza

Figure 11. Project

Haroon Mirza has gained international recognition for examining the interaction and friction between sound waves, light waves, and electric current. He has designed sculptures, performances, and immersive installations—such as an anechoic chamber with a circle of light that grows brighter as drones intensify, and falls completely dark in silence. Mirza hopes to prompt a reevaluation of noise, sound, and the perceived differences between music, challenging the classification of cultural forms. He believes that "all music is organized sound or organized noise."

2.3.3. Christine Sun Kim

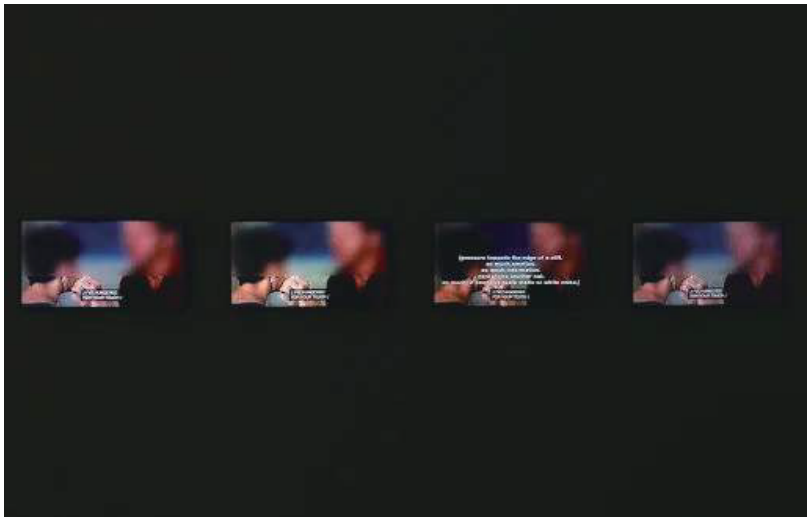

Figure 12. Project.

Christine Sun Kim, a sound artist born in California and based in Berlin, adopts a human-centered approach to sound that resonates with the concept of sound itself. Born deaf, the artist recalls being taught to believe that sound was only a part of her life, not everything. Through her work, she has explored her subjective experience of sound. Her 2015 sound and video installation Close Readings modified a series of clips and subtitles to reflect the limitations of subtitles within the deaf community and highlight the systemic barriers related to deafness.

3. The application value of sound design in contemporary art

In the process of contemporary art continuously breaking through the boundaries of media and the barriers of concepts,

sound design, with its unique sensory penetration and narrative potential, has gradually risen from an "auxiliary element" in artistic creation to a core expressive language. Unlike the direct occupation of space by visual art, and different from the abstract reference of written symbols, sound design constructs an immersive, interactive, and associative multi-dimensional sensory field for the audience through precise control of sound waves, creative construction of environmental sound fields, and delicate arrangement of auditory experiences.

3.1. The application of sound design in installation art

Sound design infuses installation art with narrative energy and sensory depth that transcend visual dimensions, adding an extra layer of sensory experience beyond visual perception. Firstly, it reconstructs the "field properties" of space—through precise control of sound wave direction, frequency, and reverberation, sound can transform a static physical space into a dynamic sensory field. For example, in a closed exhibition hall, layered speakers can simulate the distant and near bird songs and stream echoes in a forest, allowing viewers to gain an immersive "walking through nature" experience in front of a fixed installation. This space-reconstructing ability enables installation art to break free from the singularity of visual symbols.

Secondly, sound design strengthens the interaction logic between the work and the audience. When the audience's movement triggers sound-controlled sensors, or touching the surface of the installation changes the current to cause sound wave distortion, sound becomes a direct medium connecting "viewer behavior" and "work feedback". This interaction not only enhances a sense of participation but also transforms the audience from passive "onlookers" into "co-creators" of the work's completion. For instance, in Haroon Mirza's light, shadow, sound, and electricity installations, the audience's footsteps change the brightness of lights and the rhythm of electronic noise, making each experience unique.

Thirdly, sound design endows installation art with more delicate carriers of emotion and concepts. Unlike the intuitiveness of visual symbols, sound can reach the subconscious through abstract frequency fluctuations—low-frequency vibrations can arouse tension, while continuous white noise can induce meditative calm. In installations exploring memory and trauma, distorted old record noises and blurred human voice fragments can convey a "sense of fragmented time" more accurately than images, making conceptual expression more penetrating.

3.2. The embodiment of sound design in space

Through the dual deployment of the physical properties of sound waves and humanistic contexts, sound design constructs a perceivable acoustic dimension in space, whose manifestations permeate three levels: physical attributes, functional logic, and emotional narrative.

By regulating volume, frequency, and reverberation time, sound design directly shapes the auditory contour of a space. In the enclosed exhibition halls of art museums, pure sound effects with low reverberation can highlight the details of sound installations, making each note an invisible sculpture in the space. In high-ceilinged spaces such as churches, deliberately enhanced long reverberation endows pipe organ sounds with a surrounding effect, simulating the sanctity of the space through the diffusion of sound waves. This kind of design makes intangible sound a "commentator" on the physical scale of the space. For example, the reflection of high-frequency sound waves in a narrow corridor will amplify the sense of oppression, while the low-frequency resonance in an open square conveys emptiness and freedom[4].

4. Conclusion

With the development of science and technology, we have a profound understanding of contemporary art. Contemporary art, differing from primitive art and classical art in concept, is time-oriented. It employs various materials, diverse methods, and modern creative techniques[5]. Among the many forms of contemporary art, the expression of sound is essential. In my opinion, a work without sound lacks a soul. I believe there are two types of sounds: one is audible sound, and the other is invisible sound. It can also be said that the artist's inner voice is expressed in the work. Human perception includes sight,

hearing, and touch, but in a perfect work, hearing is indispensable—and the artist's inner voice can be said to make it a perfect work. The various perceptions people have through their nerves can be brought into their own imagination[6-7]. Up to now, sound is not only the sound of nature but also created and produced using technology, just like the artist's inner voice. These various sounds have thus become an important part of contemporary art.

Disclosure statement

The author declares no conflict of interest.

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