

# Design and Research of New Media Ecological Interactive Device Based on Ocean Healing

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**Abstract:** This study attempts to explore the design of new media ecological interactive device based on the perspective of ocean healing. Through the application of the interactive way, multi-modal theory, and emotional evolution theory to new media art works, the paper summarizes how to connect the marine environment and humanistic thinking with new media art and how to connect ocean healing with new media interaction. The interactive practice mode of the work is deduced according to the feasibility of interaction. Finally, the research results are summarized through the special experience factors of the interactive work and the design application, and the outlook is made on ocean healing and the ecological interaction of new media.

**Keywords:** Ocean Healing; Multi-mode; New Media Art, Interactive Device

New media interactive device is the organic combination of digital media and installation art, its form involves image device, interactive device, mechanical device, biological device and other contemporary art clusters. In the ecological application, the new media installation art integrates the users' self-projection into the scene to form interaction and realizes the space-time reconstruction of physical space and psychological space. Different from terrestrial ecological art, marine art space "transplants" from the sea to the land and its construction redefines the "object" and symbol systems in artistic works. As a new ecological theme of productivity development, the new media interactive device based on the ocean healing subverts the traditional art practice, realizes the integration of subject and object, and then generates and resets the open and critical art context with "metaphorical" meaning.

As a new healing angle and even a new ecological art angle, there are few studies and practices based on the combination of ocean healing and new media ecological interaction. Therefore, this paper attempts to design and study the new media ecological interactive device based on ocean healing for academic discussion.

## 1. Research Background and Purpose

With the development of science and technology and the improvement of people's living standards, people began to explore more challenging space fields. The space scope of new media art gradually extends below the sea surface with the expansion of people's activities. It is of obvious importance for us to find a balance between the relationship between man and the ocean through the special marine environment or the simulation of the deep-sea environment to assist humans in relieving physical and psychological pressure so as to obtain physical or mental relaxation and tranquility from the ocean healing.

Combining new media and ecology, interactive art is used as the medium to build or make people reflect on the new relationship between humans and the environment. In the process of ocean healing, the interaction between human beings and the ocean is a powerful rebuttal to the aesthetics of contemplation, breaking through the dualistic opposition mode of subject and object in an aesthetic way. Throughout the healing process, the viewer brings his or her own appreciation of the ocean fully and wholeheartedly into the process, and establishing an emotional connection with the ocean. Based on the comprehensive perception of people, new media art, space environment and time dimension: people's cultural thinking about people and the ocean has been changed through the cultural communication power and artistic driving force created by the interaction of new media art.

## 2. Design Principles and Theoretical Support

### 2.1 Multi-mode Theory

The "mode" is the sense. "Multi-mode" refers to the integration of two or more senses. Multi-mode interaction refers to the behavior of perceiving and interacting with objects through the integration and unification of information in different modal channels.

With the continuous development of experience economy, sensory sensing and tracking technology, the frequency of multi-modal interaction is gradually increasing in the design and creation of new media interactive devices, bringing users a multi-modal interactive experience process that can accept a variety of external information transmissions as well as more profound emotional value. In the design of this interactive device, through the integration of new media art and ocean healing under multi-mode, the pursuit of human convenience and emotion is strengthened, and a way to realize a person's physiological needs and spiritual level is provided. During different stages of experience, users can explore their own thoughts and behaviors on the basis of the basic perception level through different layers of vision, touch, hearing, and smell, so as to achieve the purpose of integrating emotions and resonance. Finally, users can truly comprehend the designer's concepts and incorporate their own fresh perspectives on relationships between humans and the ocean.

### 2.2 Emotional Evolution Theory

Robert Plutchik pioneered the evolutionary theory of emotions, which divides emotions into basic emotions and their feedback emotions. Basic human emotions can be roughly divided into eight kinds, and other emotions are derived from these basic emotions. The

interactive device design of new media art can enhance the emotional feelings of users' interactive experiences by stimulating different levels of emotional feedback from viewers.

This interactive device is based on the theory of emotional evolution. In the design process, the emotional feedback of the audience on the whole interactive experience is taken into account. Progressive changes in the interactive way create a complete emotional feedback link with the audience.

### 3. Interactive Practice of New Media Based on Ocean Healing

#### 3.1 The Particularity of the Interaction and Combination of Ocean Healing and New Media Art

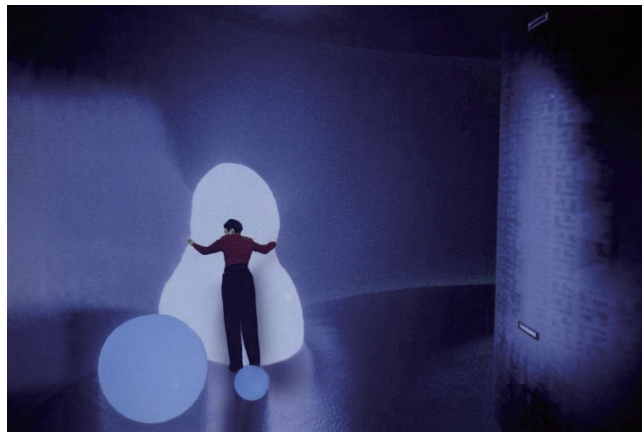
The ocean is an ideal place for exhibitions, with strong light and shadow effects and spatial effects. However, due to the open ocean field, there are various unstable factors, so the reconstruction of ocean space is a creative feature that the terrestrial ecological performance did not have in the past. The "simulacra dilemma" exists in the process of reproduction and even deconstruction of the ocean: based on the spatial scale of the environment of the ocean itself, it is difficult for any imitation to reproduce itself, so the theme of ocean healing must be deeply thought about and expressed in the creation.

Different from terrestrial ecological art, marine art space is "transplanted" from the ocean to the land, and the viewer cannot directly get the ocean experience. Though it looks like an open space, it actually has an entrance threshold: the audience enters the "water" from the "shore" in the process of ocean healing, and there is an invisible door, that is, the difference between the interactive device space based on ocean healing and the traditional ecological interactive device.

#### 3.2 Design Application

##### 3.2.1 Design Positioning

The interactive device named "Into the Sea" is inspired by a kind of marine ecological natural phenomenon called phosphorescence. In the design of the installation, the interaction is changed by the presence of the visitor. Unlike most exhibitions that require art to be viewed from a distance, this installation encourages physical interaction and immersion, envisioning the theme of ocean healing through the use of new materials and new media art. In the work, the traces of the viewer eventually disappear to make room for new traces, symbolizing the impact of human presence in the sea and even on Earth.



**Figure 1 Interactive healing between viewer and installation**

Based on this background, it is hoped that viewers can obtain self-precipitation in the interactive guidance of the installation and arouse their deep thinking about the relationship between humans and the ocean.

##### 3.2.2 Interactive Process Design

From the viewer's discovery of the device to the completion of the interactive journey of the device, it can be roughly broken down into four stages: discovery, feeling, imprinting and observation.

In the first stage, the user discovers the device and enters it. In the second stage, the viewer looks up and interacts with the "sea" through waving and motion capture, leaving fluorescence marks. At the same time, the viewer perceives the shallow ocean in terms of smell and hearing. In the third stage, the user can hug the sphere downward and leave marks. The ball is made of a pliable material. When the user embraces the ball, the ball will generate "breathing". The downward hugging process will stimulate the user's sense of touch over a large area and integrate with the olfactory and hearing experiences in the middle layer of the deep sea. In the fourth stage, the user can leave marks on the walls and floor of the entire room, but nothing else in the room itself.

##### 3.2.3 Design content

Visually, the overall environment of the device is a darkroom, which is a simulation of the deep-sea environment. When people step into a dark room to leave a mark, the viewer's trail eventually disappears. The ball in the device is made of soft material, which gives people a more healing experience in the sense of touch through the characteristics of the material. In the olfactory design, the device combines the artistic conception of ocean healing itself with the characteristics of odor factors and carries on the transition treatment. In the process of experiencing the installation, the audience will have the feeling of moving to the deep sea and feel the integration of smells in the second-

floor space, thus making the interactive logic of the whole installation clearer.

The auditory design is layered on, divided into three distinct sound parts according to the logic of the device. The overall design adopts white noise for healing and restoration. In addition, the sound transmission is taken into account in the space design. Soundproof materials are adopted in the environmental space, and the doors entering the next layer are staggered to ensure the soundproof effect to the maximum extent while the space is connected. While experiencing the ocean healing in a multi-modal way, the viewer conducts self-observation and completes the experiential journey of the installation.

## Conclusion

On the basis of ocean healing, through the “transplantation” of space and image, the expression of new media ecological interaction design can reflect a sense of presence that disseminates Oriental philosophy. The most devoted to this Oriental philosophy is to make the public feel the commonality of “born” in the crowd relationships in the field.

The interactive manner in which new media art works alters the traditional method of information transmission, which is primarily audiovisual, through multi-modal channels and provides feedback to the virtual environment through the integration and superposition of various senses, in order to enhance the overall sensory feeling and make a more real emotional experience throughout the interactive device in the process of creating this sense of marine presence. At present, as a new healing method and even from the perspective of ecological art, the design and research of new media ecological interactive device based on ocean healing not only connects the marine environment with humanistic thinking, but also provides a new thinking dimension for the design and creation of ecological interactive device.

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