

In the new media era, the inspiration that the dynamic interaction elements of new media art bring to stage art design

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ABSTRACT. *Based on new media art to study the dynamic interaction of stage art design, the purpose is to integrate stage art design with new media art, make new media art forms a kind of stage art design in the future. Its significance lies in providing more art forms and space for the development of contemporary stage art design.*

KEYWORD: *New media; Dynamic interaction elements; Stage art design.*

1. Introduction

With the rapid development of digital technology and new media technology, new media has brought new possibilities for the development of contemporary art and design. Its appearance not only deeply affects the traditional art creation and expressive forms but also affects the public's aesthetic consciousness. The emergence of new media art breaks through the limitation of traditional media. It is a brand-new way of communicating and interaction, constantly expanding people's vision and influencing people's lifestyle. New media art has also begun to infiltrate into various art forms. According to Manovich, This new, universal term of hybridization and "remixability" is different from anything seen before, and is used by most visual artists today. Stage art is one of these. When dynamic images first appeared in the elements of stage art design, the form of stage art was announced to enter a new stage. The application and development of the dynamic elements of the stage under the influence of new media also began to have some new explorations. With the continuous maturity of new media technology and new media art, the use of dynamic elements on the stage also shows the principles of interaction and multimedia virtuality. The requirements of the modern stage are no longer the same as the traditional stage, in the past to pursue beautiful scenery, gorgeous lights, and emphasize the functionality of the stage as well. Many excellent stage performances seen nowadays cannot be separated from the stage art. It becomes part of the stage work and carries part of the story and even becomes a narrative tool.

New media technology becomes a means to realize its function. As the theatre critic Lyn Gardner said, 'the growth of pervasive media and digital technologies is offering theatre-makers and audiences unprecedented new challenges and opportunities.' Dynamic interactive elements is an important part of new media art, which is in line with the narrative requirements of stage art design. Currently, the development of stage art design focuses more on the image and lighting effect, with these two methods to rendering the atmosphere, dynamic interaction elements are rarely incorporated. The stage art design with dynamic interactive elements has not developed very well. There is a lot of space for us to explore in this field.

2. New media art and contemporary stage art design

2.1 Overview of new media

At the end of the 20th century, with the popularization and development of computers, the digital age and the new media age gave birth to the unique art form of 'new media art'. When words like 'new media' and 'new media art' start to be part of the everyday art design conversation, people began to explore the meaning of 'new media' and 'new media art' in a real sense. However, the definitions of 'new media' and 'new media art' are widely divergent and often confused. The concept of 'new media' can be traced back to 40 years ago.

In 1967, P.Goldmark, director of the Columbia Institute of Radio and Television (CBS) technology, published a plan to develop electronic video products. In his plan, he called 'electronic video' as 'New Media', and the concept of 'New Media' came into being. Then, E.Rostow who is the chairman of the President's special committee on communication policy in the United States also referred to the concept of 'new media' many times in his report to the then president of the United States, Nixon. Subsequently, the word 'New Media' became popular in the United States and soon became a hot topic all over the world.

The new media art theorist Lev Manovich defined 'new media technology' as: '... Graphics, moving images, sounds, shapes, Spaces and text that have become computable; That is, comprise they simply another set of computer data.'

2.2 Overview of stage art design

With the vigorous development of new media and new media art, new media and new media art are gradually integrated into all aspects of society, just like other new technologies and new art types. New media art is gradually changing our social life. Stage art design is an important art form integrated by new media art. The stage provides

space for the actors to perform. It enables the audience to focus on the actors' performance and obtain the ideal viewing effect. In the performance, all the modeling treatment around objects for the actors' movements is called stage art design. Stage art design is often called set design, dance design, who calls it set design and why from the exact expression of its internal meaning, these names are not very appropriate. The term 'set design' is too one-sided, because the scenery is only one of the means used in stage art design, and not all stage art design uses the scenery factor. 'stage art design' is a comprehensive concept that includes stage art design, lighting design, costume design, makeup design and other factors. Therefore, the key difference between stage art design and the above concepts is 'stage'. 'Stage art design is a combination of stage, setting, props, lighting and space, shape, light color, texture and activity.' To a large extent, stage art design focuses on the interaction between the works and the audience. The relationship between the audience and the performers is in essence an artistic activity of 'creation-share-recreation'. The creator and the audience always maintain a dialectical intuition, which is indispensable to almost all stage art design, both on and off the stage. It can be seen that the tension brought by the stage to the audience is affected by the movement of the stage art. The design and presentation of the stage are also decided by the audience and the artworks. This relationship of complementary and mutual influence runs through the whole process of stage art creation.

2.3 Stage art design under the influence of new media art

Under the influence of new media art and new media technology, the artistic effect of contemporary stage art design has been greatly improved. 'It would be crazy for theatre not to embrace new technology, especially video projections, the results can be brilliant.' says the Guardian's theatre critic, Michael Billington.(2012) Of course, there are still many shortcomings in the application of new media art in stage art design. However, there is no denying that more and more new media art has been seen in contemporary stage art design. For example, in 2012, Vita Motus design studio was responsible for the stage art design of the 'Infected Mushroom', the most famous band in the history of Israeli music. They used 3D Mapping technology to project animated images onto the sculpture, making the shape and size of the sculpture seem to change with music rhythm. The lead singer of Mushroom Amit Duvdevani said, '3d mapping is incredible. You can get a complete visual effect in the field. 'The audience was not only immersed in the colorful and energetic music world, but also experienced an exciting new experience.

3. Emotional experience of dynamic elements

3.1 Get emotional experience in stage interaction experience

The dynamic interaction of stage under the influence of new media art has greatly changed the linear narrative structure of traditional art. Audiences can realize real-time interaction through the combination of visual, auditory and tactile sensing nerve and new media technology. It transforms ABSTRACT information into an art that can be perceived, communicated, and managed. It also allows the audience to experience the interaction in the virtual world, which integrates multiple senses such as vision, hearing and touch. The interactive characteristics of dynamic interaction also enable the audience to change from the passive way of receiving information to the active way of generating information. From the perspective of communication effect, the audience's experience interacts with the narrative content of the stage. It can produce the audience new aesthetic experience of 'integration, agent, turn', as well as the 'blend in' to the 'intrusion stage art experience', 'agency' gradually evolved into 'our ability to participate in the artistic creation', 'shift' as 'interactive art gives us a shift position, change the status, role, or be deformation ability' Through this series of processes, the two-way, interactive and conversational nature brought by the new stage information provides an illusion environment for the establishment of new aesthetic experience between stage art and audience.

3.2 Get emotional experience with the use of dynamic elements

In contemporary stage art design, lighting, image and sound have become the dynamic elements with the highest utilization rate, the most frequent appearance and the highest flexibility. Under the comprehensive treatment of technical means, these elements perfectly connect the virtual creation with the real scene, to achieve the whole-hearted integration and emotional communication with the audience. In the process of to achieve the emotional communication, what we call the elements such as lighting, video, sound is no longer a feeling individual or tool, but is a kind of mood after creation endowed with soul and spirit, all in the process of the complex creation. It is not only the audience that gets emotion in the interactive experience with the stage, but also the creator in the process of utilizing these elements. This also constitutes emotional immersion and emotional acquisition, and is a repetitive process of creation, emotional acquisition and re-creation.

4. The inspiration from dynamic interactive elements to contemporary stage art design

^[1]_{SEP} Contemporary stage art design itself can be regarded as a large art installation. Based on installation art, it also adds the elements of costume, modeling, make-up and other stage elements. From the perspective of installation art, it is not difficult to find that there are many similar characteristics between stage art design and installation art. We can find the inspiration for contemporary stage art design from the dynamic

interactive elements of new media installation art.

4.1 The characteristics of dynamic interactive elements bring inspiration to stage art design

(1) Interactivity

The interaction of dynamic interactive elements is embodied in the new media interactive art device. Its two-way nature reflects the essence of communication in the process of interaction. According to Mondloch (2010), the distinction between subject and object has disappeared and replaced it with an equal attitude to realize the change of artistic activity. In the creation of the new media interactive art installation, the artist puts the audience in an equal position with the artwork to participate in the artwork. The intention is to make the audience actively participate in the work and appreciate the work in a constructive manner, opposing the passive understanding and acceptance brought by the artwork. In the way of participating in the interaction, the audience mainly experiences from three aspects: material, psychological and spiritual. The material communication is mainly the physical contact or movement of the participants to the works, while the psychological and spiritual communication is the ideological communication between the creators and the viewers. The artist infuses his own artistic experience into his works and uses his works to convey his ideas. The judgment and thinking of the audience on the works is not only the communication with the works, but also the communication with the artists' thoughts. This kind of interaction of dynamic interactive elements is also applicable to stage art design. It involves both the physical touch of the actor and the stage and the exchange of ideas between the audience and the stage. There's a difference between the stage art and the interactive installation art is the two sides to complete the interaction is not only the creator and the audience, also includes the performer. It can be said that performers are also part of the installation art of the stage. They make up a complete installation art work and interact with the audience.

(2) Multimedia

Multimedia is increasingly used in art exhibitions. It integrates many media and combines these elements organically, making each independent media in it have new significance. Its advantage is to provide more available ways of expression to the artists. This form of unified integration of multiple types of media has been widely used by artists, when single media can no longer meet the needs of artists to create. It has become mainstream to integrate multimedia technology into stage art design, which presents dynamic virtual images and dance, music and stage technology together to the audience. This surpasses the barrier between virtual image and real performance, and even the virtual image has become the 'performer' on the stage. One is illusory, the other is realistic, and it works with real actors to deliver the core of the stage content to

the audience.

(3) Yirtuality

The virtuality presented in installation art is related to the surreal space-time. It makes use of the powerful technology means, uses the latest digital technology, strives to create an kind of unreal image. A virtual image that is neither a record of the real world nor a representation of real materials. In order to create a virtual scene, artists have integrated a large number of new media technologies into the installation art, leading the audience into a special 'field' environment to interact with the real space. What the audience experiences comes from this kind of virtual and real interrelationship, and then uses this kind of relationship to communicate with each other. And the stage itself is a 'field', in which actors and audiences are brought into the ever-changing virtual 'field' by the virtuality created by new media technology. This ever-changing environment can also change at any time according to the needs of the content of the performance. The content can lead the audience into a multi- space-time, location and environment. This adds more flexibility in approaches to stage art design.

3.2 The intervention forms of dynamic interactive elements bring inspiration to stage art design

(1) The introduction of dynamic elements with complex senses

The process and completion of an artwork does not depend on the artist alone. When the emotion contained in the work is higher than the emotion experienced by the audience from the work, the art works will play a role of stimulating the audience's thinking. The audience gains experience by participating in it, and needs more experience in the experience. Dynamic elements with complex sensory experience are gradually involved in stage art design. Dynamic interactive elements in the dynamic interactive art installation more than we can see the lights of the vision, image, or hear the sound, of these elements, there are many such as water, air flow, smell and other natural elements. Michael Billington highlighted this as an aspect of Nicholas Hytner's production of Julius Caesar at The Bridge Theatre (2018)

All of these, can be used in art installation as a means of creation. People's understanding of the stage is no longer limited to the simple appreciation and passive watching, but more attention is being paid to the experience and interaction with the events on the stage. The audience should be driven by all aspects of the senses, not only vision, hearing and even touch and smell. When British designer William Dudley designed the stage for "*The Ship*" (1990), he brought the industrial space into the design and use the ship as the stage, as everything in the theater. The theatre designer Tom evaluated the design as 'One of the few times when a piece of design has moved me to tears'. (2011) This huge ship carries actors and spectators at the same time. They were

deliberately placed on different deck floors. The audience is no longer a mere spectator, but a part of the crew. At the height of the show, the boat would glide across the factory. As the ship began to move, the audience was sent down more than ten metres of stairs. The tension, danger, panic they felt in the moment was the same as what the actors experienced, as if they were in an amusement park.

(2) The introduction of digital technology

Digital technology is also involved in stage art. 'Now the audience is demanding more and more. The stage is no longer just made up of lightings and scenes. There will inevitably be more multimedia applications such as light and shadow projection devices on the stage. 'It's going to go from a trend to a constant potential.'(Liu,1996) With the continuous development of new media art and technology, we have also seen more digital technology involved in stage art design. They have enriched the creative means of the stage. The participation of interactive media technology has also become a new means of narrative expression applied in stage performance. More than a decade ago, multimedia interactive technology was involved in stage creation. For example, "*The Jew of Malta*" (2002), a multimedia opera produced by the German multimedia company. At that time, this multi-media opera, which was closely coordinated with the production crew, from the stage to the performance to the multi-media interaction, was a real success. In order to maximize the use of stage space, the 'castle' in the background of the stage is projected from different angles of the projection unit, a perfect combination of virtual and real images is created in the intersecting space. During the performance, the actor can control the whole scene through the body and gesture. For example, when the leading actor waves his arm, he can change the background behind him at will. When the leading actor passes through the stage, the audience can see the 'castle' image follow the position of the main character and generate new visual changes. It is worth mentioning that to highlight the core role of the play, the costume of the protagonist is white, using the capture intake of the camera to extract the outer contour of the character, superimpose the image that needs to be projected. Finally, it is projected onto the main character on the stage. In short, interactive multimedia images are used throughout the whole opera.

4. Conclusion

As far As I am concerned, the dynamic interaction element has become a very important means of expression of stage art design. Based on new media art to study the dynamic interaction of stage art design, the purpose is to integrate stage art design with new media art, make new media art forms a kind of stage art design in the future. Its significance lies in providing more art forms and space for the development of contemporary stage art design. This essay has defined new media and new media art, discussed the emotional experience of new media dynamic elements for the stage,

analyzes the diversified improvement of dynamic elements for stage art design with examples. Using the power of science and technology to create the illusion of space that cannot be realized in the traditional sense, free translation between the real and the imaginary, to stimulate the awareness of the human body, bringing a new experience full of fantasy to the audience, these are the most attractive part of new media. The stage art design concept which integrates the new media art concept is more diversified and integrates various elements together. The story line, plot structure and scheduling are carried out from a diversified perspective. Stage art design itself is an emotional experience, focusing on direct and emotional communication. In today's age of diversity, the rapid development of digital technology has given us a new understanding of the stage under its influence. This not only promotes the stage art design to the three-dimensional span, the spatial extension, but also provides designers with more means of expression. Contemporary stage art design has entered a new era of digital media.

Reference

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