

# Research and dynamic analysis of interactive methods of film in the context of new media

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**Abstract.** Since the 20th century, art has undergone a radical change in both concept and form under the influence of technology. With the mutual integration of modern technological means and artistic thinking, new media art came into being. Its birth and development is a remarkable novelty, and its rapid development in turn pushes the innovation and transformation of traditional media art, opening a new window for the development of film art. Interactive cinema has grown rapidly based on new media technology, and its all-round interactivity has had an almost revolutionary impact on traditional cinema, thus attracting widespread attention from many researchers in the field of film art. As a new form of image, interactive film has an irresistible charm for audiences. Interactivity, as one of the essential features of interactive film, is also increasingly prominent in terms of expressiveness, and interactivity has become a higher level of interactive film development. The interactive intervention shifts the image narrative from linear to non-linear, and the creative approach from closed to open and diversified, in addition to which the audience deeply experiences the drenching sound of viewing. The interactivity of interactive movies transforms a person sitting passively in a theater quietly enjoying a movie into a person or a group of people actively participating in the creation of the movie, making the movie a real entertainment object for people to manipulate and play with.

## 1 INTRODUCTION

The 21st century is the era of rapid development of information technology, and in this context, the form of art has changed dramatically accordingly<sup>[1]</sup>. Interactive film is such a new media art form with interactivity as its basic feature. After the emergence of interactive film, its all-round interactivity has grabbed people's attention tightly. The earliest new media interactive art can be traced back to the 1920s, during which Duchamp's work "Spinning Glass Plate" is the most typical. In the 1960s the concept of new media interactive art became more active, in the 1970s new media artists began to experiment with new media technologies such as video for live performance interaction, and in the 1990s computer interaction technology emerged, allowing humans to enter a new era of art experience. The "human" and "machine" create a unique work for the audience through a dialogue<sup>[2]</sup>. After entering the 21st century, this interactive new media art form has injected a vibrant element into the development of traditional film art, turning movie watching into movie playing and audiences into real participants or players. The idea that human-computer interaction is an inevitable trend first appeared in the book *Digital Survival* by Negroponte, who unveiled the prologue of the vast show of digitalization with transcendent courage and insight. It is based on a human-centered approach, and the digital

future has another important dimension beyond the technology-only theory that is obsessed with computing speed and display resolution, which is the harmony between humans and computers in interaction<sup>[3]</sup>. The pioneer of new media art, Roy Ascott, said that the most distinctive qualities of new media art are connectivity and interactivity. There are five stages to understanding the creation of new media art: connection, integration, interaction, transformation, and emergence. This leads to the transformation of the work and consciousness, and finally to the emergence of new images, relationships, thoughts and experiences. When we generally speak of new media art, we are mainly referring to circuit transmission and creations that incorporate computers. However, this media, based on silicon crystals and electronics, is merging with biological systems, and concepts derived from molecular science and genetics. The most innovative new media art will be the combination of "dry" silicon crystal computer science and "wet" biology. This newly emerging new media art has been called "MOIST MEDIA" by Roy Ascott.

There are many forms of new media art, but they all have one thing in common: the user is involved in changing the image, the shape, and even the meaning of the work through direct interaction with it. They trigger the transformation of the work in different ways - touch, spatial movement, vocalization, etc. Whether the interface with the work is a keyboard, a mouse, a light or

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sound sensor, or some other more complex and sophisticated, even invisible "board", the relationship between the viewer and the work is primarily one of interaction. Connectivity is about transcending the barriers of time and space, connecting people around the world. In these online spaces, users can assume various identities at any time, searching distant databases, archiving information, learning about foreign cultures, and generating new communities.

## 2 The way of interaction

Among these characteristics of interactive films, interactivity is undoubtedly the most attractive, and interactivity is also the basis for the development of other characteristics, which is the characteristic that truly distinguishes interactive films from general art films, so that interactivity is a kind of yearning, an interaction between audience and artist, audience and artwork [4].

In the era of new media art, interactive films, with the help of interactivity, allow audiences to reprocess and recreate their works.

This view of Abrams still holds if the four elements here are changed to the film work, the creator, the visitor, and other visitors in interactive cinema. In interactive movies, interaction can take place between people, between people and devices, and through speech, text, pictures, and video [5]. In general, visitors interact with interactive movies in three main ways. The relationship of these four elements we can represent by a diagram:

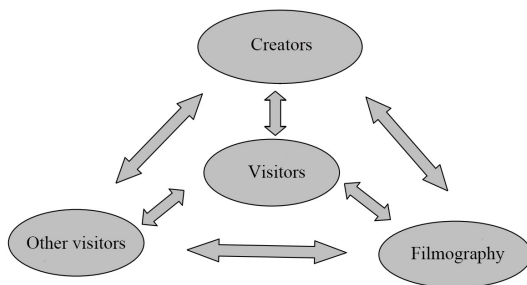


Fig. 1. Interactive movie four elements interaction diagram

From this diagram, we can see that these four elements of interactive film interaction work with each other and their interactions can be complex and varied, but no matter how they change, the visitor is always the core element [6].

### 2.1 Interaction between visitors and creators

In interactive cinema, we call the viewers who watch the film "visitors," i.e., people who come to visit the film. The people who create the film, such as the writer, director, actors, camera crew, etc., are called "creators," i.e., the people who create the film [7].

### 2.2 Interaction between visitors and works

One of the greatest features of cinema, and arguably one of the most detrimental to communication with the viewer, is that the playing process and the ending are

determined and the viewer can only passively receive information. In interactive cinema, two different ways of interaction exist in the process of interaction between the visitor and the work [8].

#### (1) Indirect interaction with the work

The participants interact with the work indirectly, mainly through the medium of the film maker during the creation and filming stages of the work [9]. In our country, interactive movies are still in the primary stage. In the creation stage of works, the so-called interaction is mainly for the audience to process and process the relevant information of the movie, and then the demand for the movie is acted on the movie creator through the form of network interaction or live interaction, and then the movie producer acts on the movie afterwards, and this interaction is simple and delayed. China's first interactive movie, PK.COM.CN, was met with the audience in 2008, and the movie was made from this interactive concept. Before the movie was finally produced and presented on the screen, the audience could choose to participate in the movie's subject matter, script selection, director, cinematographer, and actors through an interactive online platform by voting, and the director then finally decided the specific The director then makes the final decision on the shooting plan based on the audience's opinion [10].

#### (2) Direct interaction with the work

The interaction generated by the audience indirectly with the work is when the audience does not come into direct contact with the work, but uses the creators such as the director as an indirect medium. In contrast, the direct interaction between the audience and the work is when the audience comes into contact with the film work and processes it directly [11].

At the present stage, especially the interactive film works seen in some art exhibition halls, most of them belong to the capture of participants' position, movements, expressions, brain waves and other information through various information collection devices, thus changing the state of the film works. The creator envisions several possible storylines and endings for the development of the film's plot, and shoots and produces film clips with different story directions and endings. When the story is at a crossroads of choices, the viewer only needs to use the remote control or selection button to choose the desired storyline or ending of the movie according to his or her wishes. Alternatively, a higher level of direct interaction involves viewers uploading images in real time as they enjoy the film, so that the uploaded material is integrated with the movie being played. While this approach can produce freer interactions, it is more difficult to achieve under current conditions.

#### (3) Group interaction between visitors and other visitors

The collective interaction among visitors is mainly manifested in online real-time interaction. When several visitors enjoy a movie together, they are unconsciously divided into subgroups according to their preferences, and the number of subgroups is dynamically changing.

In an interactive movie, several visitors are gathered in one place, and each person can work on the movie

according to his or her own preferences, but because there are several people participating at the same time, chaos can occur if there is no effective rule to control it. In order to avoid creative conflicts, we can imagine that there is an auxiliary screen or a small window on the screen or next to it that displays the parameters of the participants' order, number, and deconstruction of the film story. This parameter can be divided into several levels, and each level will have several options, much like a tree menu option, with the first level option being the overall structural part, the second level option being the scene, the third level option being the characters, and the fourth level option being the change of action behavior parameters. Designing in this way allows for greater freedom of choice for the audience on the one hand, and for the visitor to become a collaborative and orderly whole on the other. The similarities and differences in choices between the visitor and other visitors work together to develop the plot and ending of the movie story, which provides entertainment for the visitor while also increasing responsibility.

### 3 Performance of Interactivity

Interactivity is the most basic characteristic of interactive film in the era of new media art. Interactivity is derived from other characteristics. New media interactive device technology has revolutionized the narrative, creation and viewing experience of interactive films, mainly involving three aspects: the diffusion and interaction of the narrative, the openness of the creation and the innovation of the viewing experience of the participants. In terms of narrative, the traditional passive linear narrative has changed to an interactive non-linear narrative in which the participants are actively involved; in terms of creation, the traditional one-way creation by the author has changed to an interactive creation by the author and the audience; in terms of viewing experience, the audience has changed from individual appreciation to active interaction with other participants, and through collective participation and interaction, they can jointly control the development of the film story.

#### 3.1 Interactive narrative representation

Narrative plays a pivotal role among the constituent elements of cinema. In the glorious history of cinema in the past hundred years, we can find that cinema relies on narrative to present a splendid scene, and at the same time makes cinema transformed and increasingly prosperous. Although interactive films formally rely on new media devices to make the experience immersive, no matter what stage of film development, the basic narrative is inseparable. Interactive film has also become a highly influential and fashionable art and cultural form due to the intervention of interactive narrative.

##### (1) Choice based narrative

Interactive films appear as different narrative texts depending on the subjective choice of the audience. Traditional narrative events occur in chronological order and focus on continuity. The film that the audience

eventually sees on the screen is shot and produced according to the director's intention, and even if the audience has a million different opinions about the storyline and the ending, they can only keep it in their minds. With the support of new media interactive technology, this passive situation can be completely overturned. In the world of interactive movies, different audiences have different interpretations of different movie texts, and viewers make full use of interactive means to choose different characters, different ways of participation, different plot developments and different endings. For example, when the audience chooses the characters for the interactive movie, they can name the characters they choose, set their physical characteristics, and give them their own personal style of speech and behavior. At this point, the "audience" is transformed into a "participant" and "creator", creating their own personal narrative style in the process of selection and creation, thus constructing their own small narrative The film.

In traditional films, the narrative subject of the medium is the director, while in interactive films, the narrative subject of the medium is constructed by the audience, who makes interactive choices in the process of watching the film and reprocesses the film in the choices to construct a new narrative system, which will lead to the instability of the film's narrative structure and the fragmentation and diversification of the narrative meaning.

##### (2) Diversity of narrative styles

The narrative of traditional films generally develops in a linear mode according to the director's leading ideas, and after the film is produced, it cannot be modified or added to, so the audience can only passively accept the director's arrangement of the storyline and follow the director's thoughts to understand the director's one-way creation. Audiences agree with some of the director's ideas, but also sometimes not very satisfied with the development of the story, but no matter how opposed, the audience must still be good to enjoy the director's planning of the film's content. This kind of narrative is a linear fixed pattern, for the audience, sometimes you can easily guess the end of the story, making people feel too flat. The application of interactive technology in interactive movies can easily subvert this traditional linear narrative, allowing the audience to rely on interactive technology to control the story development and ending of the movie, deconstructing the movie in a non-linear way, making the narrative more open and the ending more unpredictable, with free combinations of narrative styles and presenting diversified possibilities.

#### 3.2 Interactive creative expression

The biggest innovation of interactive film is that it breaks through the traditional fixed one-way creation space of the director and turns into an open space where the experienter actively participates in two-way creation or even multi-way creation, which liberates the experienter's mind to a certain extent and opens up his

thoughts and vision to feel the dream scenery in the free creation.

The creative expression of interactive film interactivity is mainly the openness of the creative process and the diversity of creative subjects and creative carriers. From the perspective of creative subjects, traditional movies generally rely on professional production teams with professional writers, directors, actors, lighting technicians, cinematographers, choreographers and professional shooting equipment, however, in interactive movies, the creative subjects are diversified, and the creative subjects in interactive movies are professionals and film experiencers, especially with the rapid development of new media device technology, which makes it possible for ordinary movie watchers to become directors.

### 3.3 Interactive viewing performance

In the era of new media art, many of our audience behaviors have the characteristics described in the "immersion theory". The viewing experience in interactive movies is mainly an immersive viewing experience, which is an uninterrupted behavior caused by human-computer interaction based on the support of interactive technology, in which users truly forget to immerse themselves, enjoy the rich experience brought by it, and achieve a "self-motivating" effect. Csikszentmihalyi believes that immersion has the following eight elements:

- (1) Challenging and manageable tasks;
- (2) The subject is fully immersed in the task and is distracted;
- (3) A sense of subjectivity that can be fully controlled;
- (4) Complete freedom of the subject to focus on the task;
- (5) The task has a clear objective;
- (6) Subjects can get immediate feedback from their actions;
- (7) The subject does not feel the slightest change in time;
- (8) The sense of identity diminishes and then increases.

Almost all interactive movies have content corresponding to the eight elements of immersion. It is the setup of these movie systems and the arrangement of content that makes it easier for users to generate immersion experiences based on interactive technology, which proves that interactive movies are one of the activities that are particularly likely to cause immersion experiences through human-computer interaction.

## 4 Conclusion

New media is a form of communication that uses digital technology to provide information and services to users through computer networks, wireless communication networks, satellites and other channels, as well as terminals such as computers, cell phones and digital TV sets. From a spatial perspective, "new media" refers to

the media that can be globalized across geographic boundaries, supported by digital compression and wireless network technology, with its large capacity, real-time and interactivity, as opposed to "traditional media". In fact, new media can be regarded as a product of new technology, and the latest technologies such as digitalization, multimedia and network are all necessary conditions for the emergence of new media. After the birth of new media, the form of media communication has undergone a radical change, such as subway reading, office building big screen, etc., are the traditional media communication content transplanted to a new communication space.

As an important part of the new media art form, in order to create a visual breakthrough and better satisfy the participants' all-round three-dimensional physical pleasure, interactive film is always drawing on and absorbing new technologies and new creation methods, and its interactive features are becoming more and more prominent. This paper takes the interactivity of interactive film in the era of new media art as the main object of study. Through the analysis of the connotation and relevant characteristics of interactive film, it is concluded that interactivity is the essential characteristic of interactive film, and the depth and extensiveness of interaction is also the inevitable trend of the future development of interactive film. Then we analyze the specific manifestations of interactivity to gain a deeper understanding of film interaction and lay the theoretical foundation for script creation. The creation of the script is mainly based on the non-linear narrative of the interactive film, the script is discrete, and then the montage principle is applied to these seemingly unrelated fragments, and various arrangements and combinations are made to reflect the interactive features within the interactive film. We hope that the general public can gain an in-depth understanding of interactive film interactivity and take an active part in the process of making their own personal style of film.

## References

1. Liu Chen. When film encounters the Internet--film communication in the new media field[J]. *Beauty and Times(Up)*,2022(12):64-67.DOI:10.16129/j.cnki.mysds.2022.12.033.
2. Qi Xin,Wan Shu-Liang. The cultural reflection of new media film[J]. *Film Literature*,2022(23):82-85.
3. Wang Yan. On the role of new media films in promoting the originality of the content of theatrical films[J]. *Tomorrow's Style*,2022(22):37-40.
4. Xiao Nuan. Exploring the development path of new media film communication[J]. *Tomorrow's Style*,2022(06):25-28.
5. Wang Xiaoshang. The construction of mainstream values of new media films under the Internet[J]. *Da Guan (Forum)*,2021(01):62-63
6. Lu Jingren. Analysis of the aesthetic characteristics of new media films[J]. *Art Tasting*,2019(36):290-291.

7. Zhang Guoyan. Exploring the combination of new media film art and painting art[J]. *Global Premiere*,2019(08):25-26.
8. Huang Cangsu. Exploring the combination of new media film art and painting art[J]. *The House of Drama*,2019(20):121.
9. Wei Jun. Analysis of the impact of new media film industry on the development of Chinese film industry[J]. *China Media Science and Technology*,2019(05):85-87.DOI:10.19483/j.cnki.11-4653/n.2019.05.026.
10. Chen Jie. Comparative analysis of traditional film footage and new media film footage[J]. *Media Forum*,2019,2(08):37+40.
11. He Xinguang. The construction of mainstream values of new media films in the context of the Internet [J]. *Youth Journalist*,2018(35):87-88.DOI:10.15997/j.cnki.qnjz.2018.35.056.