
Interactive movie in digital era: A systematic literature review

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Abstract

Purpose: *Interactive movie as a new genre became controversial. Response and criticism varies on this new genre. Arguments arose among the products of interactive movie. It has been compared with video game or traditional movie, resulting in the ambiguous expectations. This paper investigates the development and the background of interactive movie in the digital era, and explore the significance of the interactive movie.*

Methodology: *A qualitative research approach is adopted in this study. To be specific, related existing literature and audio-visual material are explored, investigated, and documented, in order to establish a whole map about interactive movie. It covered but not limited to journals, conference proceedings, online database, books and documentary materials.*

Findings: *Although how controversial interactive movie is, scholars hold positive attitude on the future development of interactive movie. It is considered to meet the demands of the cultural consumption and entertainment in digital era. Few issues should be paid attention to, such as the high-cost of production, the ambiguous definition of this genre.*

Conclusion and recommendation: *Interactive movie with its distinctive narratology provides unique viewing experience for every individual audience. As being immature, the future development of interactive movie is looking forward to. Scholars and researchers suggested that further studies should be conducted on multiple dimensions of the viewing experience, the trade-off between the form and content and to lower the cost of interactive movie production.*

Key words: *interactive movie, digital era, digital culture*

1. Introduction

As the digital era came, the whole industry, society and culture are facing huge transformations. People now don't need to go to cinema to watch a movie, instead, they can watch it at home with television, or anywhere else with smartphone on streaming platform. The influence of digital era in movie doesn't limit to production, exhibition, distribution, but it also change the aesthetics of the cinematography.

Cinema is of the interesting subject to study within the digital era circumstance, because it has struggled becoming digital to some extent, remaining hard to produce, reproduce. However, cinematography somehow reflects the transformation into a new media. (Daly, 2008)

Interactive movie could be considered as the comprehensive product in movie industry reflecting the digital era. However, current interactive movie received quite various response and criticism, and became controversial. Argument arose whether it is video game instead of being a movie. As a new genre, interactive movie still remained immature. It is suggested that further researches should be done with interactive movie field. (Daly, 2008; Sun & Liu, 2011) This paper investigates the development and the background of interactive movie in the digital era, and explore the significance of the interactive movie.

2. Definition of movie

The usage of term “movie” varies from North American and British English.

The word ‘movie’ is defined as ‘a film shown in a cinema or on television and often telling a story’ by Cambridge Dictionary. For ‘film’, it is defined as ‘a series of moving pictures, usually shown in a cinema or on television and often telling a story. (Cambridge Dictionary Press, 2023)

By Longman dictionary, movie is ‘a film made to be shown at the cinema or on television, while for ‘film’, it is defined as ‘a story that is told using sound and moving pictures, shown at a cinema or on television. (Longman Dictionary, 2023)

Similarly, Collins Dictionary define that ‘a movie is a film’. For ‘film’, it is defined that a film consists of moving pictures that have been recorded so that they can be shown at the cinema or on television. A film tells a story, or shows a real situation. (Collins Dictionary, 2023)

Both ‘movie’ and ‘film’ refer to the motion picture as a work that combined visual and audio stimulation in North America and British English. In this study, these two terms are used as synonymous. Based on the definition from authentic dictionary above, it could be concluded that a movie/film tells a story using moving images, and it is exhibited to the audience, which could be distinguished from video games.

2.1 movie as the reflection of reality

Bazin considered movie is the reflection of reality from realism perspective. By examining the psychological complex of human beings, Bazin concluded that the development of all plastic arts can point to the ‘Mummy complex’. The development of painting replaces the production of mummies. The reappearance of this object, due to the emergence of photography, and the elimination of human intervention in its recording process, makes the desire to overcome time come true. (Bazin, 2004)

This point of view that the movie is the reflection of reality, to some extent, was also agreed by Arheim and Badiou. (Arheim, 1957; Badiou, 2014)

Although Bazin’s discussion focused on the realism, the author’s creative attitude may be his concern. It could be found in almost all his articles that asking the question: “How does a film writer express his material? What does he mean? How to reproduce the reality in the film is mainly related to the author’s idea.” It could be seen that his concern is that the filmmaker uses empirical facts to achieve his personal purpose, or to explore the meaning of empirical facts themselves.

2.2 movie as mass art

Badiou analyzed movie from philosophy perspective, and he concluded that movie is mass art. The movie is considered as the combination of other forms of arts, and is an impure art. From the technique perspective, he added that movie is “nothing but takes and editing.” He defined mass art to be the masterpieces which are seen and loved by millions of people at the very time they were created. He took Charlie Chaplin’s movies for instances, as they could be understood all over the world because of the humanity beyond its difference in the movie. Since cinema shares the

social imaginary with the masses, it is indisputable that cinema is a mass art. Cinema reproduces the reality of the real world which are the impure materials of contemporary imagery. These impure material implied that cinema is a shared art form, by which everyone recognizes contemporary imagery in a film. Everyone can go and see it, and will recognize themselves in it since these material is common to all films.(Badiou, 2014)

2.3 movie as private industry

Whether movie is an art or not is always an arguable statement. Some people insisted that movie is an art, scholars found it more suitable to be illustrated as “not a pure art”.

Arheim refuted the erroneous view that ‘film is not art’ in the intellectual and cultural circles at that time. In 1930s, although film as an emerging art form has gained popularity and aroused the interest of avant-garde artists, there are still many people who insist that film cannot be counted as an art. Arheim summarize the arguments of the proponent of this view as: Reproducing reality mechanically is not art. A film is a mechanical representation of reality. Thus film is not art.(Arheim, 1957)

Badiou(2014) pointed out the movie is a private industry when he was explaining that movie is a private spectacle. The industrial characteristics of the movie was highlighted. He quoted what Malraux’s opinion on comparing the differences between movie and other forms of art “In any case, the cinema is an industry.” He added that “In actual fact, the cinema is first and foremost an industry”, based on the fact that the vast majority of the the great artists worked in the industrial system of the cinema. The cinema itself begins with an impure infinity as the money not only implies about the social conditions of cinema, but also something about cinema itself.(Badiou, 2014)

Yang pointed out that it is important to clarify the commodity attribute of the movie as mass entertainment and cultural consumption product, instead of being pure art. In current circumstance, with the globalization of the film industry and the rapid development of computer technology, subtle changes have taken place in the financing, production, distribution and projection of contemporary film production, as well as the relationship between various links.Movie should be considered as an extremely complex cultural industry. A minor in the financing, production, distribution, or exhibition will result in the failure of the whole movie.(Yang, 2017)

She agree with Arheim’s opinion on the industrial manufacture feature of the movie. From vulgar playthings to elegant art, it is undeniable that film art and capital, commodity trading and labor cooperation are involved in the unbreakable relationship. No matter what kind of movie, it is almost impossible to avoid financing, production, distribution and exhibition when producing a movie. Hence, the circulation of a movie is completed.

From the perspective of the movie producer, no matter how respectful they profuse to be to the movie, the ultimate goal is the commercial profit. When the commercial profit matters for the producer, it is difficult to ignore the commodity attribute of the movie. Therefore, to some extent, the audience response/feedback or the profit of the box office means a lot for one movie. It is unavoidable to analyse a movie without the audience. (Yang, 2017)

3. Digitalization: the current movie development and the trend

3.1 The influence of digital culture on movie

In this digital era, contemporary life and culture have inevitably transformed during the development of information technology that we represent, manipulate and communicate in a quite different way than we did before (Creeber & Martin, 2009). The digital culture, also known as Internet culture, cyberculture, is one of the most major features of our daily life patterns now. It includes but are not limited to: Blog, Bulletin board systems, Chat, Cybersex, E-Commerce, Games, Internet forums, Internet memes, Microblogs, Online videos, Peer-to-peer life sharing, Social networks, Usenet, Virtual worlds, and Wikis.

Interactivity is one of the most significant feature in digital culture, as Dery(1994) pointed out early in 1994 that the development of computer technology will increasingly reinforce our interaction with the whole world. It is undoubted that the digital culture reshape the way how people interact.

Nowadays audiovisual and information culture is fulfill in our contemporary life that the our strategies for seeing and saying are influenced by cinema's ways of working through the relations of image concepts.(Daly, 2008) On the other hand, the ubiquity of audiovisual media, for instance streaming platform, has been taking place from cinema. As he pointed out that:

The ubiquity of audiovisual media has seeped the aura from cinema. We are used to experiencing audiovisual works in the midst of a tele-communicative environment, alternating between immersion, distraction and interaction. The "scene of the screen," as Vivian Sobchack points out, has changed, and is increasingly a variable and interactive experience. (Daly, 2008)

Daly adds that the influence of digital culture on movie industry also includes the changing of how society everyday navigate space and time, which may result in a new language, contrary to the dominant language of classical montage and may be better to present and anticipate how we receive and transfer information in the contemporary world. Demands for new narratology has been created based on the regular interaction with digital media technologies, that as Daly emphasized: "We are accustomed to interacting with our media, not passively absorbing." The viewers have been trained for this scenario with the digital device usage, and the fourth wall and intertextuality are already familiar for the viewers.(Daly, 2008)

Ayten, Bulat & İnceismail summarized the uses and gratifications theory that it revealed that people are usually in control of media, and therefore are not particularly influenced by it. This theory stressed the power of individual over the power of media. (Ayten, Bulat & İnceismail, 2019)

To be specific, the difference of viewing habit of the audience has been found by Ayten, Bulat and İnceismail(2019). The Generation Z, as know as the digital natives, shows preferences on being online and constantly interactive. (Ayten et al., 2019) They share some basic factor, which are phygital (physical plus digital), hyper-custom, realist, FOMO, economists, DIY and driven. It is highlighted that binge watch is one of the characteristics among Generation Z. It is defined, by Netflix, as 'watching many or all episode in rapid succession; the word 'binge watcher' is used to describe people who binge watched. Binge racer refers to the people who show the behavior of watching one season of a series in one sitting. (Ayten et al., 2019) Bayındır and Karadağ pointed out that the watching habit has changed that nowadays audience tend to watch movie and series via media platform.

Audience now can choose whenever, wherever and whatever to watch. (Bayındır & Karadağ, 2019)

3.2 the digitalization of movie

The digitization of movie has completely influence the cinematography and movie industry. Nowadays, the movie utilized stereo-photography techniques, animation and 2D to 3D conversion during producing, which relied heavily on the digital technologies. Movie distribution and storage also altered as the digital technologies developed. Cinema is not the only place where people can enjoy the movie. Personal viewing boosted since the video tape and DVD popularized and as the streaming platform flourished. As the Information Technology and Internet developed, content platform and streaming media provided another way for people to enjoy movie. Netflix was one of the worldwide example for offering online and TV network content. Waldfogel (2017) describe how digitization has create the golden age of movies. Daly(2008) provided detailed insight:

cinema today is created, stored, distributed, and viewed primarily with computer and digital technologies and has increasingly taken on the characteristics of digital creations. Cinema in digital form can be radically reproducible, manipulable, networked, interactive, hybrid, variable, and dispersive, thus differing greatly from traditional cinema and transforming into a new media.

The influence of digitalization on movie could be found in the financing, the production, the distribution and exhibition, and other procedure of the making a movie. (Daly, 2008; Yang, 2017)

Bordwell, Thompson and other scholar believed that the most distinct changes in film style patterns always occur in the period of technological change. In the short history of movie development of within one hundred years, it has experienced many technological innovations, and the rapid frequency of innovation has led to the continuous breakthrough of the image expression. The development of movie from black and white to color, from silent to sound, from wide screen to IMAX, all of which are broken through simultaneously with the technology innovations. When examining the history of cinema, we often think that too many valuable ideas and advances can be attributed to the invention of technology; However, from another point of view, technology is also constantly improving itself under the promotion of artistic expression, and is absorbed into the existing aesthetic system and economic interest system at the moment of its emergence. It is the whole including technology, industry and aesthetics that jointly breeds and catalyzes the prosperity of film. Yang emphasized that digitalization is a revolutionary challenge to film that goes well beyond the advent of sound in silent films or color in place of black and white.(Yang, 2017)

Digital technology has revolutionized and continues to change the production of the film. In fact, the influence of digitalization in the field of film is not only limited to shooting. This new technology has a profound impact on all aspects of film sound, post-production, special effects realization and so on. In contemporary film production, digital effects have become an indispensable element. Not only those commercial blockbusters dedicated to creating visual wonders, but also traditional genres such as comedies or family dramas have begun to use digital technology to create creative transitions or to modify and cover up flaws in actual shooting.(Yang, 2017)

3.3 the concept of cinema 3.0

Already people are using, creating and experiencing cinema in new ways--- ways that are essentially digital and interactive.(Daly, 2008)

Deleuze defined Cinema 2 as ‘cinema of the seer and no longer of the agent’ when the time-image replaces movement-image.(Deleuze,1957)

The concept of cinema 3.0 was proposed by Daly in 2008. The large shift of digital and computer technology transformed cinema from industrial art to an electronic art and increasingly to a tele-cultural form in the interstices of art and information, giving rise to new structures of presentation, new content and a new role for cinema in society. A new form of cinema based on interactivity, play, search, database and non-obvious relationship was demanded in the globalized, networked, digital society. He examined the information technology and inferred the digital cinema in future. It is emphasized that instead of digital cinema, the term cinema 3.0 will not be limited, or implied to the digital technique in the movie. The core concept of cinema is about the changes of cinema in the digital era from the perspective of physical, social, aesthetic, phenomenological and ontological. His research “Cinema 3.0: How digital and computer technologies are changing cinema” could be easily found as references or bibliography in many researches related to movies in digital era. According to Daly, the viewing experience, production, distribution, exhibition, aesthetic and style, narratives and social aspects of movies in Cinema 3.0 era were to be changed identically. It is not difficult to find out that the digital technology not only just influence how to produce or distribute or exhibit a movie, but it also modify the way people experience a movie, and accompanied with many other factors. It’s not just a evolution in technology, but in culture. (Daly, 2008)

The narratology in movie has been changed due to the digital and computer logic. It could be based on database, interactivity, algorithms, hypertextuality and search.(Daly, 2008)

Rodowick(1997) predicted this ways of development as “the spectator is no longer a passive viewer yielding to the ineluctable flow of time, but rather alternates between looking and reading as well as immersive viewing and active controlling.” (Rodowick, 1997)

4. Interactive movie

4.1 the definition of interactive movie

Interactive movie is a new genre compared to traditional movie. When viewing interactive movie, audience are able to interactive with some factors in the movie with devices such as remote control, touch pad etc. With various forms of interaction, the narrative in the movie may be varied according to the result of the interaction.

However, it is not difficult to confuse interactive movie with moviefied video-game. The purpose of producing such interactive work is different in interactive movie from the video-game. Therefore, the term ‘interactive movie’ in this study refers to the artworks that are produced as movie with interactive sections, while video-game is not in this scope.

4.2 the development of interactive movie

One significant early example of interactive movie was *Kinoautomat* (1967) presented at Expo '67 in Montreal. This interactive movie was written and directed by Radúz Činčera. The audience used devices to vote for the path of the story.

The root of interactive movie could be traced back to interactive narrative in literature, or to say, books. *Choose-Your-Own-Adventure* was one of the well-known example of this form of narratology. The *Choose Your Own Adventure* is a series of children's game book that the reader can make choices for the protagonist in the book, which will lead to different storyline. This concept came from Edward Packard back in 1976, and this series of books have been published since then.

In 2017, Netflix released '*Puss in Book: Trapped in an Epic Tale*' which is a children interactive cartoon. The viewer makes decision for Puss in Boots and help him to escape from the book. The target audience is children over 7 years old.



Figure 1. stage photo of '*Puss in Book: Trapped in an Epic Tale*' with interaction section

The most controversial example of interactive movie was "*Black Mirror: Bandersnatch*"(2018) released by Netflix on its streaming platform in 2018. It is in the science fiction anthology series *Black Mirror* with target audience aged 18 above, written by Charlie Brooker and directed by David Slade. In this interactive movie, viewers make decision within limited options, which may result in different path of narratives and endings.

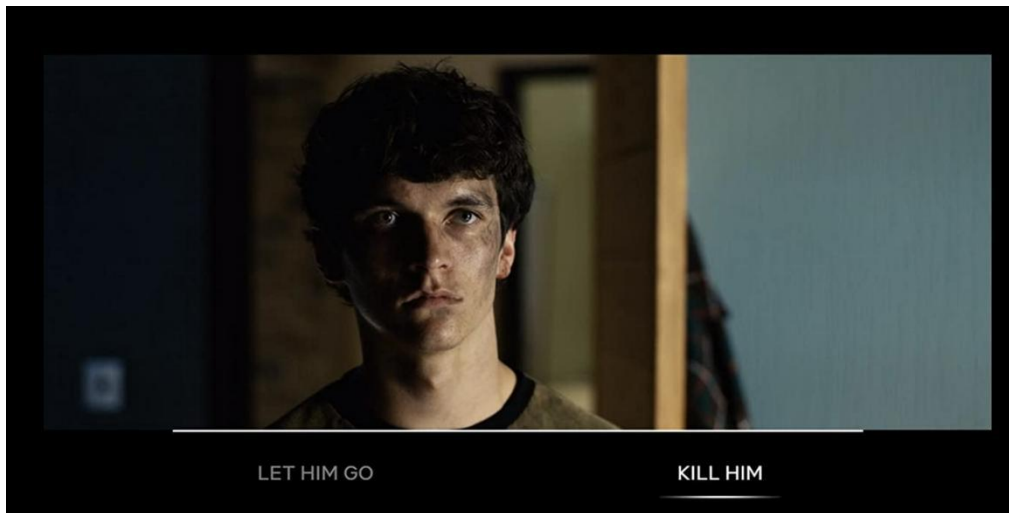


Figure 2. stage photo of 'Black Mirror: Bandersnatch' with interaction section

Black Mirror: Bandersnatch receive quite various critical receptions. Positive response includes the technical design, while the criticism focuses on the story's characterization. The narrative and the extent to which viewer choices affected the story were controversial for the commentary. No matter how controversial this movie was, it garnered numerous awards and nominations, and won two Primetime Emmy Awards.

It is necessary to be noted that the interactive narratology could be found beyond book and movie. Before "Black Mirror: Bandersnatch" released, numerous interactive video/advertisement have been published with positive feedback. For example, the advertisement of Chevrole DS 3 car, and Casarte household appliances. (Xu, 2014)

Raney, Arpan, Pashupati and Brill(2003) conducted an experiment on the effects of including entertaining and/or interactive content on evaluations of automotive Web sites and automotive brands. Totally four relative websites were exhibited with various degrees of entertaining content and interactivity. Research participants visited and evaluated these four websites. The result shows that highly entertaining site (which included a mini, suspenseful movie) was associated with the most positive evaluations, greatest intent to return to the site, highest levels of arousal and significant increase in purchase intent, compared to with other websites. In addition, it is assumed that the reason why viewer's attention and attitudes were influenced by the interactivity, was that interactivity results in greater arousal, which may intensify the emotional experience, compared with passive viewing.(Raney, Arpan, Pashupati & Brill, 2003)

4.3 the preparation for interactive movie

The digitalization of movie industry provides all support for the interactive movie, no matter the digital distribution or the popularity of the streaming platform. It could be concluded that the movie industry has been prepared for the interactive movie. However, the cost of making an interactive movie is not low. Take 'Black Mirror: Bandersnatch' for instance, the official runtime is 90 minutes, while the whole footage last for more than 5 hours.(Johnson & Irwin, 2019)

From the audience's perspective, the ubiquitous digital device and digital media have trained us to navigate space and time in different way than before. The society has been accustomed to interactivity instead of passively absorbing, which create new demands for narrative. (Daly, 2008)

4.4 improving viewing experience

As the digital technology developed, cinema will no longer the only place to watch movies, thus personal watching experience should be paid attention to. Interaction is a natural consequence of digital media. Daly(2008) argued that compared with traditional movie, in Cinema 3.0 era, audience are not only the viewer, but 'viewser', with the combination of 'viewer' and 'user', who participates in the interactive narratives, which meet the demand of the new form for narratology. It is believed that the increasingly complex movie narrative with new forms of contingency could be better to representing "a world of stochastic equations, neural networks, and web surfing." (Daly, 2008)

Sun and Liu (2011) accepted Daly's concept of 'Cinema 3.0'. They added that within one interactive movie, audience can experience completely different according to different narratives that they chose. However, it is suggested that 'Cinema 3.0' is a comprehensive system, within which the audience psychology demand and viewing experience should be considered during the production. It will ultimately modify the thinking, concept and aesthetic of movie industry.

According to the feedback from the audience, most of the dissatisfaction of the audience comes from the ending of the movie, such as the life and death of the protagonist, and the acceptance or rejection of love. In some traditional movie-making, studios often prepare several different endings during test screenings to avoid bad reviews for the ending. Once test audiences are more satisfied with the alternative ending than the original one, the producer will change the ending without hesitate. The family thriller *Fatal Attraction* (1987) was screened for four different endings. *Terminator 2* (1991) had three different endings: the world was still destroyed by nuclear war; The world was saved by the destruction of the last computer chip from the future; With an uncertain end and an uncertain future, the car sped through the night. In the end, the distributor chose the optimistic ending, and the other two endings were included on the special edition DVD.(Yang, 2017)

Vorderer, Knobloch, and Schramm(2001) investigated whether interactivity enhances entertainment in interdependence with individual factors or not. A quantitative study was conducted with 427 German participants in the experiment. The result shows that previous experience with interactive media did not impact on the participants' experience of entertainment, empathy, suspense and movie evaluation; viewers with higher empathy with the protagonist felt better entertained. The diversity of cognitive capacity level will influence the experience of entertainment that viewers with lesser cognitive capacities empathized more with the protagonist in traditional non-interactive mode. Viewers with less cognitive capacity felt distracted and could not concentrated on the protagonist as easily, whereas viewers with greater cognitive capacities found the interactivity made them feel even more involved with the story and more concentrated, and more on the protagonist. It was implied that interactive movie could be even more attractive than regular entertainment for particular audiences. At last it was suggested that further

research could be conducted with more refined measures, and higher levels of interactivity should be addressed as well. (Vorderer, Knobloch, & Schramm, 2001)

Deng(2019) predicted that there are huge business opportunities and prospects in the genre of interactive movies. Interactive movie is attractive due to its interactive narratives. It fulfills the audience's needs of freedom in viewing experiences to some extent. In addition, the interactive movie maintains the immersive viewing experiences as traditional movie did. The interactive narrative characteristic in interactive movie is somehow beyond the traditional narratives, which provide the audience multiple choices on the storyline. This could be considered as the precursor for the movie in future.(Deng, 2019)

Zhao(2020) dissected the detailed techniques in producing interactive movie. He defined interactive movie as a completely new genre that is quite different from previous ones. It turned the standard notion of the traditional communication and perception in visual-audio mode that audience could participate with the narrative and to some extent control the of the narration. What distinguished interactive movie and the traditional movie is the interaction mechanism and the multi-narrative that beyond the traditional ones. The experience of immersion that created by the participation and the fact that audience turned from passively receiving visual-audio stimulation to actively participate with the narrative, are also the important the features of interactive movie. Although interactive movie could provide the interactivity and unique experiences, it is also quite different from video games that it focuses on the narrative, instead of simply presenting this new form of narrative. (Zhao, 2020)

4.5 Concerns about interactive movie

Cai(2015) noted that the alternative of identify of the audience should be considered. In interactive movie, the audience's role are changed from passively perceive to actively participate. On the other hand, he remarked that when providing interactive sections, it interrupts the continuity of the viewing experiences dramatically.

Liu(2015) explored the business mode for the interactive movie in 2015. He claimed that at the first stage of development of the interactive movie, it is the best way that interactive movie to adopt the micro-movie mode, because of the advantages of the highly-expansion and low production cost of micro-movie.

Deng(2019) pointed out some issues about interactive movie remained to be solved:

1. The difficulties in both production and marketing of the interaction movies. The fact that audience's obsession with choosing the 'right' ending is way too far from the original intention of the movie to convey proper content.
2. The lacking of sophisticated production flow both domestically and worldwide. To be specific, the nature of interactive movie is based on the interactive narrative which is much more complicated than traditional narrative. It required both strong logic and proper interaction design to constitute and accomplish a outstanding interactive narrative and movie script.
3. The indistinct categorization between interactive and AVG (adventure video game).

It is emphasized that the narrative of interactive movie are, mostly, of dendritic or mesh structure. This structure somehow limits the motif of the movie to adopt the interactive movie. In other words, not all movies are appropriate to be produced with interactive genre. He hold positive attitude on the future development of interactive movie, although he also noticed that the production of interactive movie remained

immature. Few issues were pointed out that the target audience of interactive movie may not be of wide range, and it's difficult to spread widely due to the platform channel, which may influence the profit that it would made.(Zhao, 2020)

5. Conclusion

Based on the literature above, it could be found that scholars hold positive attitude on the development and application of the interactive movie. Interactive movie as a new genre received quite mixed response and criticism. It is also argued to be gamified movie or moviefied video-game. No matter how controversial the interactive movie is, the demand of this genre in digital era is difficult to be neglect. In this digital era, the audience and the technique support have been ready for accepting interactive movies. The producer are aware of this ,with the evidence that numerous streaming platforms have provided special sections for launching interactive movie/video by the users (Tencent Video, iQiyi and Bilibili, n.d.) and Netflix continuously release 'You vs. Wild' interactive series by Bear Grylls (2019). The significance of interactive movie in narratology of movie should not be underestimated, especially in improving and providing unique private viewing experience. However, few interactive movie released. One of the reason is that the cost of making an interactive movie is high, due to the complexity of the narratology.

As a new genre, interactive movie remained under-developed. The narratology is one of most important sections in traditional movie, and is even more essential in interactive movie. The sophisticated narratology is especially critical in interactive movie, to avoid the unbalance of 'form and content'. Nowadays, the expansion of interactive movie is limited, since this genre require to be watched with its official platform that the pirate version of interactive movie doesn't work. This limitation on one hand protect the copy right of the product, and on the other hand preserve the unique individual viewing experience that not all the audience watch the same content. However, it may result in the various response to one interactive movie, since audience experience different narratives.

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