

Research on immersive emotional experience design of interactive digital video art

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Abstract. With the comprehensive popularization of media digitalization and interactive technology, new art forms such as VR documentaries, interactive videos, film-game integration animations, and immersive light and shadow installations have emerged rapidly. The aesthetic system established by traditional film and television and documentary creation based on live-action shooting and one-way communication can hardly adapt to the contemporary media ecosystem. Traditional video creation adheres to the creative logic of replicating reality with live scenes, and creative power is highly concentrated in the hands of directors, leaving the audience to passively watch from a fixed perspective. However, the emergence of representative works such as *Waltz with Bashir*, *Black Mirror: Bandersnatch*, *White Snake 2: The Tribulation of the Green Snake* and *The Weather Project* has reshaped the underlying aesthetic paradigm of digital video: documentary truth is no longer limited to live-action shooting; the creative subject shifts from a single creator to a diverse co-creation group; and the audience transforms from onlookers to participants in immersive experiences. Based on academic literature related to new media video and interactive narrative, combined with classic domestic and foreign digital video cases, this paper systematically sorts out three major aesthetic turns of digital video art in the context of media convergence. Combined with the practical development pain points in industrial creation, campus aesthetic education and public exhibition halls, this paper proposes feasible and lightweight innovative creation paths, providing theoretical references and practical solutions for digital video creators and new media art practitioners.

Keywords: media convergence, digital video, interactive aesthetics, immersive installation, interactive narrative

1. Introduction

In the media stage dominated by film and traditional television, video art has formed a set of rigid creation and aesthetic paradigms. In the field of documentary, Bazin and Kracauer's "ontology of photographic image" is taken as the core criterion, and live-action shooting is regarded as the only legitimate way to preserve objective reality. Theatrical films follow the "auteur theory", with the narrative and visual expression of works completely dominated by directors. In the static video exhibition in art museums, there is a clear physical boundary between the audience and the works, so the audience cannot intervene in the generation process of video narrative and spatial expression. Cheng Qiang and Yang Chenxi pointed out in their research that

traditional video art media only serve as content-bearing tools, with creation, communication and reception separated from each other. The media itself does not participate in aesthetic construction, and the audience does not have the aesthetic right to participate and interact [1]. Lu Xiaobo and Zhao Chao further proposed that in the traditional art system, science and technology only serve as auxiliary production means and have not been deeply integrated into the core of art, resulting in a long-term separation between technology and aesthetics [2].

With the popularization of digital technologies such as mobile terminal shooting, VR virtual reality, motion capture and online hypertext narrative, a number of landmark works have broken the boundaries of traditional video aesthetics: the animated documentary *Waltz with Bashir* completely relies on rotoscoping animation to restore historical tragedies, eliminating the dependence of documentary creation on live-action shots; the interactive film and television work *Black Mirror: Bandersnatch* endows the audience with narrative choices through multi-branch plots; the domestic animation *White Snake 2: The Tribulation of the Green Snake* integrates game-level spatial narrative into the animation text, forming the narrative feature of film-game integration; Olafur Eliasson's immersive light and shadow installation *The Weather Project* completes the complete expression of the work relying on the audience's on-site behavior, making the audience itself a constituent element of the work. Wu Shuai believes that digital video technology has reconstructed the evaluation criteria of video aesthetic value, and virtual-real integration, interactive participation and spatial immersion have become the core aesthetic dimensions distinguishing digital video from traditional video [3]. Bao Yuanfu systematically discusses the visual logic of virtual-real symbiosis under media convergence, and proposes that simulation aesthetics is reshaping the judgment scale of video truth, and virtually constructed videos also have complete aesthetic value [4]. The above works jointly confirm that digital special effects and real-time interactive technology have dissolved the inherent boundaries between reality and virtuality, creators and audiences, and viewing and experience. Traditional video theories established on the basis of linear live-action shooting and one-way output can no longer fully explain the current diverse digital video forms. Combined with academic research on interactive documentaries, film-game integration animations and immersive installations, this paper analyzes the new aesthetic characteristics of digital video with typical works as cases, and proposes layered and lightweight innovative practice strategies in view of practical problems such as high industrial creation thresholds, narrow communication coverage and high implementation costs.

2. Deconstructing the logic of the aesthetic turn of digital video art

2.1. Changes in documentary aesthetics: emotion and internal logic support the authenticity of documentaries

Traditional documentary theory regards live-action shots as the only carrier of real traces. Digital video works break through this single standard and form three new documentary forms: animated documentary, VR virtual-real documentary and fragmented interactive documentary, realizing the integration of "factual truth" and "constructive truth".

The first is animated documentary, with *Waltz with Bashir* (Figure 1) as the representative work. The film records the real historical event of the Lebanese massacre. Without any live-action shooting throughout the process, it restores the fragmented memories of witnesses through rotoscoping animation, and carries objective historical facts with virtual visual carriers. It realizes the two-way integration of historical fact indexicality and artistic composition, proving that the core of documentary value is historical logic and emotional truth rather than live-action shots.



Figure 1. Animation clip of *Waltz with Bashir*

The second is VR virtual-real integrated documentary. As China's first VR documentary, *Kindergarten in the Mountain Village* (Figure 2) fully records the daily life of rural preschool teachers through live-action shooting, which is a preservation of established objective reality. The cultural museum VR work *Journey to Ancient Books* (Figure 3) integrates live-action shooting of cultural relics with 3D digital modeling. It not only retains the real images of collected cultural relics, but also virtually restores ancient book collection scenes, constructing historical spaces that have not been preserved in reality. It achieves the aesthetic integration of "actual reality" and "potential reality" and expands the temporal and spatial boundaries of documentaries.



Figure 2. VR live recording of *Kindergarten in the Village*



Figure 3. Live recording of the virtual book collection scene in *Journey to Ancient Books* VR

The third is online fragmented interactive documentary. The Canadian video work *High-Rise* (Figure 4) disassembles urban life into fragmented video, image and text materials. The audience can independently click

and reorganize the viewing order, and there is no fixed finished text. Objective reality is disassembled into operable data fragments, completely disintegrating the complete linear narrative logic of traditional documentaries.



Figure 4. Interactive documentary *High-Rise*

2.2. Creation involves multi-party participation, no longer limited to the director's single discourse power

Traditional film and television have long adhered to the director-centered system, with highly concentrated power over narrative and visual expression. Against the background of media convergence, the creative discourse power of animation, interactive video and immersive installations is split by multiple parties, and the creative subject presents the characteristic of "degradation", which is mainly divided into two paths: industrialized collective creation and audience participation in co-creation.

First, industrialized collective creation weakens the director's single discourse power. Taking the sci-fi video series *The Wandering Earth* (Figure 5) as an example, the visual narrative of the finished film highly relies on the collaborative creation of special effects teams, production coordinators and technical engineers. The director's personal artistic expression needs to adapt to the industrial production process, and technical creators and operation teams are deeply involved in the overall construction of the work, which conforms to the theoretical characteristic of "degradation of creative subject" in digital video [5].



Figure 5. Sci-fi video of *The Wandering Earth*

Second, the audience deeply participates in narrative co-creation, which is divided into two types of practice: offline installations and online film and television:

The interactive film and television work *Black Mirror: Bandersnatch* (Figure 6) builds a multi-branch narrative framework. Every choice made by the audience directly changes the direction of the story, deriving

more than ten independent endings. There is no official unique narrative text, and the audience completes secondary narrative construction during viewing, dissolving the creator's absolute right to define the story;

The immersive light and shadow installation *The Weather Project* (Figure 7) constructs the exhibition hall space with artificial fog and giant mirrors. The audience's physical behaviors such as walking and lying will continuously change the mirror reflection images. Without the participation of the on-site audience, the work cannot form complete expression, making the audience an indispensable constituent element of installation art.

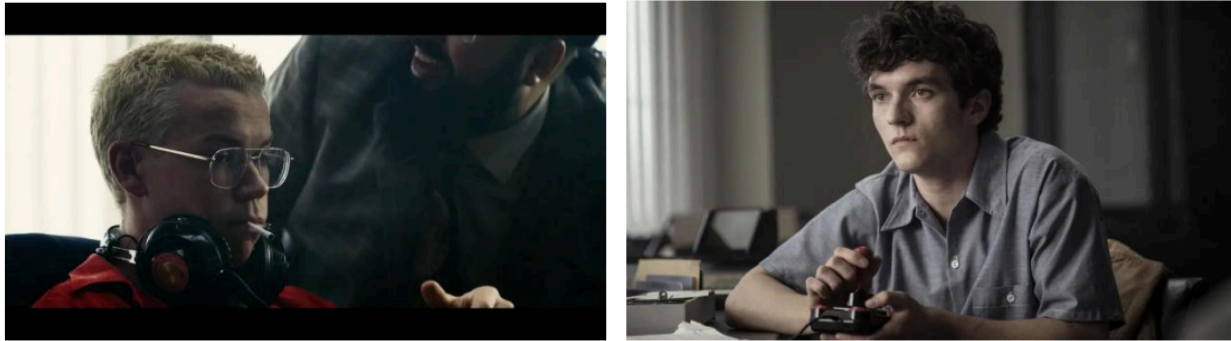


Figure 6. Interactive film and television work *Black Mirror: Bandersnatch*

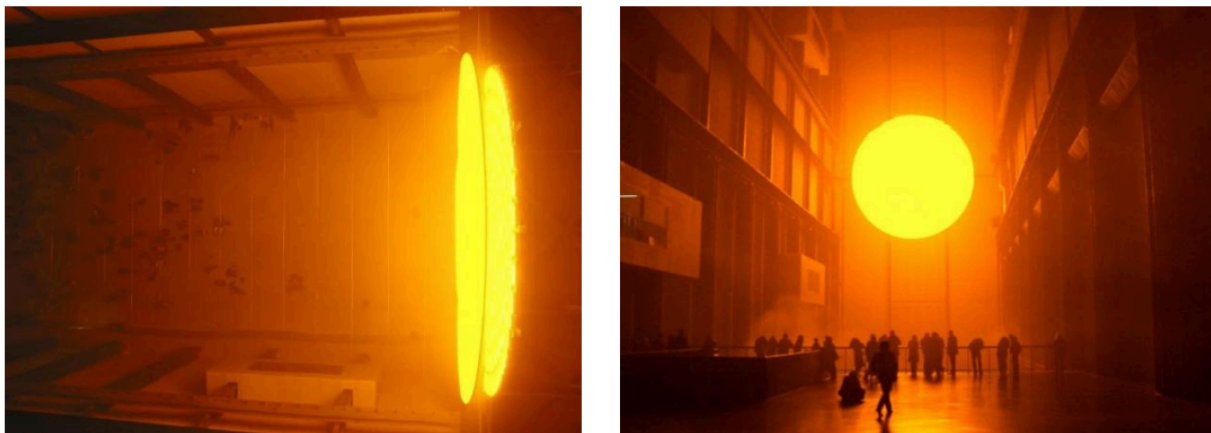


Figure 7. Immersive light and shadow installation *The Weather Project*

Domestic film-game integration animations further amplify the characteristic of audience co-creation. After the release of *Ne Zha* and *White Snake 2: The Tribulation of the Green Snake* (Figure 8), the public has created a large number of character rewrites and spin-off secondary creations through online platforms, and derivative interpretations have continuously expanded the connotation of the works. The director's single text expression is supplemented and improved by national co-creation. The concept of "imaginary immediate interaction" proposed by Su Yichen and Wu Zhiyao can explain this aesthetic phenomenon: film-game integration texts guide the audience to engage with the narrative from a player's perspective, independently reconstruct the story in their imagination, and achieve implicit co-creation [6].



Figure 8. *Ne Zha* and *White Snake 2: The Tribulation of the Green Snake*

2.3. Comprehensive upgrade of viewing experience: "immersion" creates new aesthetic experience

Digital video breaks the viewing limitations of traditional cinema and television two-dimensional screens, and reconstructs the aesthetic experience from three dimensions: viewing scene, narrative structure and sensory reception:

Fragmented viewing scenes: Video viewing is no longer limited to fixed cinema spaces. Animations such as *White Snake 2: The Tribulation of the Green Snake* and *Thirty Thousand Miles from Chang'an* are adapted for playback on mobile phones and tablets, and fragmented short video editing has become the mainstream form of communication, with unrestricted viewing time and space;

Gamified narrative logic: Asura City in *White Snake 2* constructs a level-based spatial map, and Xiao Qing advances the plot in the form of level-breaking and upgrading. *Thirty Thousand Miles from Chang'an* (Figure 9) uses fragmented memories to intersperse the life course, replacing traditional linear narrative with non-linear level-breaking narrative. The audience naturally develops a sense of player immersion when watching the film, forming the aesthetic experience of "imaginary immediate interaction" [7];

Full-body sensory immersive experience: The VR documentary *Titanic: Echoes from the Past* (Figure 10) builds an underwater virtual space relying on head-mounted display devices. The audience can shuttle between the wreckage of the sunken ship and the cruise ship scenes a hundred years ago, realizing all-round wrapping of visual and spatial perception. The interactive installation *Ideomotor* (Figure 11) relies on ground somatosensory capture technology. When the audience steps on the ground, it can trigger changes in the water ripple images on the wall. Aesthetic perception is no longer limited to visual viewing, but extends to full-body multi-sensory linkage.



Figure 9. *Thirty Thousand Miles from Chang'an*



Figure 10. VR documentary *Titanic: Echoes from the Past*

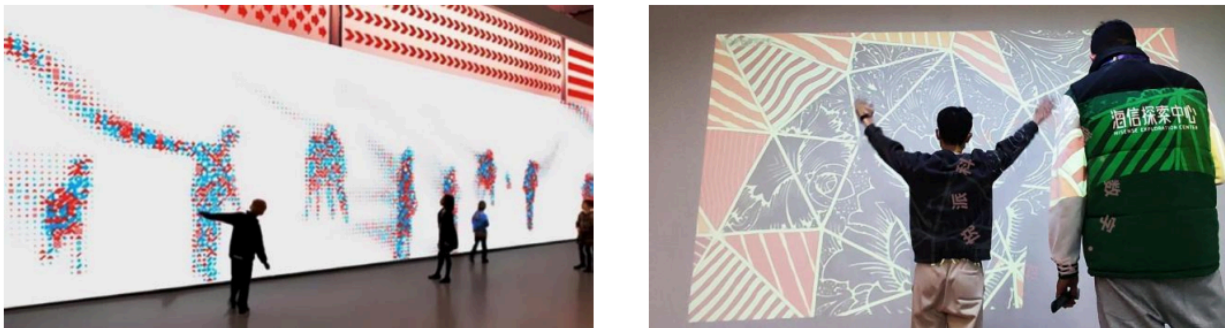


Figure 11. Interactive installation *Ideomotor*

3. Exploration of innovative practice paths for digital video art

At present, there are significant practical barriers to interactive video creation: professional interactive documentaries such as *High-Rise* have high production thresholds and high costs, making it difficult for ordinary creators and the public to participate; *Journey to Ancient Books* focuses on the single theme of cultural museums, with narrow content coverage; large-scale immersive light and shadow installations are expensive, making it impossible for small and medium-sized exhibition halls, communities and campuses to implement them. In response to the above pain points, this paper proposes lightweight and low-cost implementation strategies from four dimensions: documentary video, film-game integration animation, offline interactive installations, and universal inclusive creation tools.

3.1. A new model for national interactive documentary short film creation

The existing problems of interactive documentaries are concentrated in high professional thresholds, limited themes and strong sense of distance from the audience, corresponding to two implementation paths: First, a national fragmented interactive documentary mini-program: drawing on the fragmented narrative logic of *High-Rise*, it greatly reduces the threshold of shooting and production. It collects materials of hometown, daily life and grassroots life shot by ordinary people with mobile phones from the whole network, supports users to independently upload, filter and stitch video clips, and creates a continuously updated public documentary project without a fixed ending, eliminating the gap between professional documentaries and ordinary people. Second, lightweight mobile VR documentary short films: referring to the VR documentary

creation logic of *Kindergarten in the Mountain Village*, it abandons professional VR shooting equipment, adapts to affordable mobile VR glasses, and focuses on realistic themes such as delivery workers and grassroots laborers. It integrates daily live-action videos with virtual simulation branches, balances objective reality recording and virtual life experience, and takes into account documentary authenticity and interactive immersion [6]. At the same time, it adapts to cultural and tourism public exhibition halls to build intangible cultural heritage interactive documentary light and shadow walls: it collects live-action craft materials of craftsmen, matched with simple touch projection. When the audience touches the wall, old photos and craft animations will pop up, realizing the combination of live-action documentary materials and interactive light and shadow technology.

3.2. Innovative strategies for interactive game animation

At present, domestic animations generally have the problem of homogenization of mythological themes. Film-game integrated interactive narrative can expand the creation boundaries of realistic and popular science themes: First, realistic level-breaking interactive animations: taking job hunting, exam preparation and daily life of grassroots workers as the core content, they set multi-branch level-breaking plots, and support barrage camp interaction during online playback. The audience can choose the direction of the plot through barrage, forming online collective interactive narrative and making up for the shortcomings of homogenization in mythological theme creation. Second, traditional culture popular science interactive animations: drawing on the virtual-real interaction idea of cultural relics in *Journey to Ancient Books*, they transform historical figures such as Li Bai and Du Fu into gamified characters, with poetry and historical knowledge points as character skills, matched with simple web page text mini-games, adapting to digital aesthetic education and popular science scenarios in primary and secondary schools. At the narrative level, referring to the multi-branch parallel narrative framework of *Black Mirror: Bandersnatch*, disaster and realistic animations set multiple independent character perspectives, and the audience can freely switch narrative clues, breaking the limitation of single linear stories.

3.3. Creation scheme of small-scale immersive interactive installations

As a large-scale light and shadow installation, the core problem of *The Weather Project* is its high cost, making it difficult to popularize to cultural and creative spaces, communities and independent bookstores in small cities. Accordingly, two types of affordable alternatives are proposed: First, create a city memory interactive projection wall: collect decades of local old urban images and oral recordings, and only use ordinary projection equipment matched with mobile phone human body capture technology. When passers-by walk around, city images of different eras can be automatically switched, replicating the immersive effect of human-space symbiosis in *The Weather Project* and greatly reducing production and implementation costs. Second, create a simple emotional light and shadow sensing device: matched with an affordable heart rate sensing module, after the audience's hand touches the sensing device, the color and lines of the wall image change with the real-time heartbeat, visualizing internal emotions, replicating the physical interaction logic of *Ideomotor*, and adapting to community exhibition halls and campus aesthetic education spaces.

3.4. Simple creation tools and implementation methods for campus aesthetic education

To reduce the technical threshold of interactive video creation for ordinary creators and students, online lightweight creation tools are built, and the popularization of campus digital aesthetic education is simultaneously promoted: First, a simple multi-branch short film editing mini-program: no professional film and television post-production technology is required. Ordinary users can independently build multi-branch

interactive short films by uploading multiple short video materials, replicating the interactive narrative mode of *Black Mirror: Bandersnatch* and realizing zero-threshold interactive video creation for the public. Second, an online virtual video exhibition hall: relying on the web terminal to replicate the visual effects of the immersive exhibition halls of *The Weather Project* and *Journey to Ancient Books*, the audience can experience virtual-real integrated videos without leaving home, breaking the limitations of offline venues and regions. Third, a digital aesthetic education curriculum system for primary and secondary schools: teaching practice is completed only with mobile phones and simple projections. Students are organized to shoot micro documentary short films and simple interactive light and shadow works. Combined with well-known works such as *Waltz with Bashir* and *Ne Zha*, the aesthetic concepts of virtual-real documentary and interactive narrative are explained, realizing the popular implementation of new media art aesthetic education.

4. Innovative expansion directions of cross-border integration of digital video

In addition to the three mainstream creation forms of documentary, animation and installation, media convergence provides diverse cross-border creation tracks for digital video. The three basic innovation directions have strong social value and implementation feasibility. On this basis, six segmented expansion dimensions are extended: metaverse, public services, commercial cultural tourism, intangible cultural heritage activation, interactive theater, and AI-generated video, enriching the cross-border creation system.

4.1. Combining sound and dynamic images to create immersive nostalgic documentary interactive content

Taking audio narrative as the core carrier, matched with clickable old photos, short animations and live-action micro-video materials on web pages and mini-programs, the audience can unlock hidden branch stories by clicking the corresponding graphic images, filling the gap in audio interactive documentary creation, and adapting to various scenarios such as middle-aged and elderly people, campus nostalgic aesthetic education, and urban local chronicle recording.

Local urban oral interactive broadcasting: cooperate with local archives and community sub-districts to collect oral audio of urban changes from older residents, matched with old live-action images of old streets and 3D restored micro-animations of old city buildings. When listening to the broadcast audio, the audience can slide the page and click on building points to pop up life images and historical event annotations of the corresponding era. For themes such as old city demolition and the disappearance of old factories, a dual documentary carrier of "sound memory + virtual video" is constructed to make up for the lack of vision in pure text and pure audio documentaries.

Campus nostalgic interactive broadcasting project: create campus memory interactive works for primary, secondary schools and universities, collect oral stories of previous teachers and students, matched with live-action photos of old school buildings and student hand-drawn animations. When listening to audio in class, students can independently click on campus landmark images to unlock virtual images of previous campus activities, old textbooks and old teaching aids, transforming school history education into an interactive immersive experience.

Advantages of lightweight implementation: no VR or large-scale projection hardware is required, and communication can be completed only relying on mobile phone mini-programs and campus multimedia equipment. A single creator can produce it with mobile phone recording and simple picture animation tools, which greatly reduces the creation threshold of interactive documentaries and is suitable for independent creation by grassroots cultural centers and campuses.

4.2. Combining animation images with immersive light and shadow interaction to connect multiple application scenarios of film, television, cultural tourism and exhibitions

Animation IP linkage with offline XR light and shadow installations: simultaneous launch of the same offline immersive light and shadow exhibition with the theatrical release of animations. Referring to the XR project model of *The Rise of the Great Sage: Wandering of Ten Thousand Demons*, offline real scenes restore animation narrative scenes, extend the life cycle of film and television IP, and link the cultural tourism and exhibition industries [8];

Gradient implementation mode adapted to venues of different scales. Full version for large exhibition halls: combined with VR headsets, somatosensory interactive floors and giant screen projections, it fully replicates key scenes of the main animation storyline. The audience walks through the narrative space from the perspective of the animation protagonist and triggers branch plot images. Lightweight version for small and medium-sized cultural and creative stores / business districts: no wearable equipment required. Simple interaction is realized through touch walls and dynamic projections. Touching the character images on the wall can play hidden animation side story short films, realizing offline IP transformation at low cost.

Joint development of research education. Domestic traditional culture animations such as *Thirty Thousand Miles from Chang'an* and *White Snake 2: The Tribulation of the Green Snake* can be matched with research XR light and shadow installations. Poetry and traditional mythology knowledge points are implanted in immersive scenes, and students unlock cultural and historical popular science images during walking interaction, realizing the combination of film and television entertainment and traditional culture aesthetic education. Cultural and tourism scenic spots can build exclusive light and shadow exhibition halls based on local mythological animation IP, becoming the core check-in content of scenic spots and driving cultural and tourism consumption.

Two-way diversion closed loop between online and offline. QR codes for mini-programs are set in offline light and shadow installations, and audiences can scan the codes to unlock interactive branch short films that have not been released in animations. Online animation feature films and short video platforms implant offline light and shadow exhibition reservation entrances, forming a complete traffic closed loop of "online viewing—offline immersive experience—secondary online secondary creation and communication", continuously extending the commercial life cycle of IP.

4.3. Using VR documentaries for disaster prevention popularization and creating interactive safety education content for the public

Drawing on the historical virtual restoration model of *Titanic: Echoes from the Past*, combined with live-action oral videos of disaster survivors, VR simulates the real results derived from different disaster prevention behaviors, taking into account the true background of documentaries and the value of public popularization and safety warning, and implementing them in batches for campuses, communities and emergency management units.

Layered creation of segmented themes. VR documentaries on natural disasters: for themes such as floods, earthquakes and landslides, they integrate live-action documentary materials of disaster areas with 3D virtual scenes. The audience simulates the different consequences of correct risk avoidance and wrong operations in VR, intuitively strengthening safety awareness. Urban safety interactive videos: for themes such as fire, elevator failure, drowning and traffic safety, they adapt to safety education courses in primary and secondary schools, and the lightweight mobile VR version can be directly used for classroom teaching. Industrial documentaries on work safety: industry-specific interactive VR videos are produced for factories and

construction sites. Combined with oral documentaries of accident witnesses, they virtually restore the whole process of accidents for enterprise safety training.

Guarantee mechanism for documentary authenticity. All virtual restoration scenes are based on official disaster records and live-action interview videos of survivors, and no disaster historical facts are fabricated. The design of interactive branches strictly follows the standard risk avoidance specifications of emergency management departments, balancing virtual interactive experience and popular science rigor. Different from entertainment VR games, it retains the realistic educational core of documentary videos.

Inclusive promotion plan. Develop 360° panoramic interactive short films without wearable devices, which can be played on ordinary tablets and touch large screens. Community service centers and schools can carry out regular disaster prevention popularization without purchasing professional VR equipment, expanding the public coverage of safety documentary videos.

4.4. Combining virtual and reality to create interactive videos and vitalize traditional intangible cultural heritage

Deeply binding interactive narrative and immersive technology with intangible cultural heritage, solving the pain points of traditional intangible cultural heritage exhibition such as static, boring and loss of young audiences, and forming an independent cross-border creation track.

Interactive documentary videos of intangible cultural heritage craftsmen. Referring to the virtual-real integration logic of *Journey to Ancient Books*, the complete production process of intangible cultural heritage craftsmen is shot in live action, matched with 3D virtual restoration of ancient techniques. When the audience touches the screen or walks into the light and shadow exhibition hall, they can split and view the virtual animation of craft details. For endangered crafts, interactive videos are used to completely preserve the whole set of processes, forming permanently preservable digital intangible cultural heritage archives.

Interactive XR videos of traditional opera. Opera plays break the linear narrative of fixed stages and produce multi-branch interactive videos. The audience can independently switch the perspectives of different roles such as Sheng, Dan, Jing and Chou to watch the complete story. Offline matching opera light and shadow installations are provided, with costumes and facial makeup presented by dynamic projection. The audience can check the historical origin of facial makeup patterns and costume embroidery by raising their hands to interact, adapting to opera entering campuses and intangible cultural heritage exhibition halls.

Rural cultural tourism intangible cultural heritage interactive wall. Low-cost human body induction projection is adopted and placed in rural intangible cultural heritage workshops. When passers-by pass by, it automatically switches live-action documentary short films of handicrafts and folk festivals, taking into account rural cultural tourism drainage and digital preservation of intangible cultural heritage.

4.5. With AI tools, ordinary people can also create interactive video works

Relying on AIGC digital tools to break the boundary between professional creation and public creation, forming a new cross-border integration direction, adapting to the needs of campus aesthetic education, public documentaries and small commercial videos.

AI lightweight interactive short film tool. It integrates text-to-video and multi-branch narrative templates. When ordinary users input text scripts, AI automatically generates multiple segments of virtual-real integrated video materials, and builds *Black Mirror: Bandersnatch*-style multi-branch interactive short films with one click. Students and ordinary creators can complete interactive documentaries and popular science animation creation without mastering professional editing and 3D modeling technologies.

AI restoration of historical interactive documentaries. For old and blurry historical live-action videos, AI is used for high-definition restoration and missing picture completion, matched with an interactive narrative framework to reconstruct interactive documentaries of urban history and revolutionary history. When the audience clicks on the restored old images, AI automatically generates virtual scenes of the corresponding era, realizing the secondary activation of old documentary materials.

Balance mechanism of human-machine co-creation. It is clear that AI only serves as an auxiliary production tool for pictures and materials, and the narrative core, humanistic emotion and live-action shooting of documentary materials are dominated by creators, avoiding technology overriding humanistic expression, which conforms to the creation principle of "adhering to the humanistic core" of digital video mentioned above.

4.6. Combining video with stage performance to create an immersive interactive theater effect

Breaking the boundary between digital video and offline drama stages, building a theater-specific interactive video system, and expanding the offline performance track of interactive narrative.

Real-time interactive projection video on stage. The whole drama performance is matched with giant screen dynamic digital video. Actors' stage movements and on-site audience's hand-raising votes can change the narrative branches of the background video in real time. The video images and story details of each performance are different, realizing real-time co-creation among stage, video and audience.

Mini campus interactive theater. Taking classrooms and small auditoriums as carriers, with low-cost projections matched with simple somatosensory equipment, students write their own scripts and complete stage performances with self-made interactive documentary short films and animation videos, becoming an innovative form of aesthetic education courses in primary and secondary schools.

4.7. Immersive interactive video for psychological relief and healing relaxation

Expanding the social healing function of digital video, opening up a new cross-border direction of humanistic medicine, and taking into account documentary authenticity and sensory immersive experience.

Lightweight interactive light and shadow device for soothing and healing. For hospital wards and psychological counseling rooms, combined with live-action documentary materials of natural scenery and soft dynamic virtual light and shadow, after the audience touches the sensing device, the rhythm and tone of the video change with heart rate and emotion, relieving anxiety and soothing emotions;

Interactive documentary videos of patients' oral accounts. Collect oral documentary materials from patients with chronic diseases and severe diseases, and produce fragmented interactive videos for psychological counseling. At the same time, it preserves patients' life stories, which has both documentary humanistic value and psychological healing effect.

4.8. Expanding online creation and exhibition forms of digital video with metaverse virtual scenes

Relying on the web-based metaverse space, all the interactive video types mentioned above are integrated to build a permanent online digital exhibition hall, breaking the limitations of offline venues, regions and time, and realizing permanent exhibition of all categories of digital videos and free experience for all people.

Planning of zoned theme exhibition halls. Five theme spaces are set up: interactive documentary hall, film-game integration animation hall, small installation light and shadow replica hall, intangible cultural heritage digital video hall, and disaster prevention popular science VR hall. Users' virtual avatars can walk freely and click on works to experience the complete interactive narrative;

Public submission co-creation exhibition hall section. Open the entrance of lightweight creation tools. Ordinary creators and students can upload self-made interactive short films and have independent exhibition space in the online metaverse exhibition hall, building a threshold-free and normalized online exhibition platform for digital videos, and promoting the popularization of interactive video communication.

4.9. Implementing urban public digital video to integrate art content into citizens' daily life scenarios

Implant interactive videos into urban public spaces to replace single static billboards and build carriers of urban public aesthetic education. Low-cost human body induction projection walls are set up in urban parks, pedestrian overpasses and subway passages to display interactive documentaries of urban changes and short films of local traditional culture animations. When pedestrians pass by, the video content is automatically switched, and clicking the sensing area can unlock more urban documentary branches, allowing interactive digital videos to integrate into citizens' daily travel scenarios and realizing the artistic and digital upgrading of public spaces.

In addition to the three mainstream creation forms of documentary, animation and installation, media convergence provides diverse cross-border creation tracks for digital video. The three basic innovation directions have strong social value and implementation feasibility. On this basis, six segmented expansion dimensions are extended: metaverse, public services, commercial cultural tourism, intangible cultural heritage activation, interactive theater, and AI-generated video, enriching the cross-border creation system:

5. Conclusion

Under the wave of media convergence, representative works such as *Waltz with Bashir*, *Black Mirror: Bandersnatch* and *The Weather Project* clearly confirm that the aesthetic system of traditional video based on live-action shooting and one-way communication has undergone a fundamental turn. Digital technology reconstructs the evaluation criteria of documentary truth, dissolves creators' exclusive right to narrative power, and promotes the transformation of the audience from passive viewers to participatory co-creation subjects. Immersion, interactivity and virtual-real symbiosis have become the core aesthetic characteristics of digital video art.

Digital video art is not a substitute for traditional documentary, film and installation art, but broadens aesthetic boundaries on the basis of classic video theories. In the future, digital video creation should not blindly chase the visual gimmicks of virtual special effects and interactive technology, but must adhere to the core of humanistic expression. While making good use of VR, somatosensory interaction and multi-branch narrative technologies, it should retain the realistic background of documentary creation and the humanistic speculative value of video art [9]. At the same time, the authors will continue to promote the construction of lightweight creation tools, low-cost interactive installations and inclusive aesthetic education systems, so that interactive documentaries, gamified animations and small-scale immersive light and shadow works can go out of professional studios and large art museums, and sink to ordinary people, primary and secondary schools, and cultural and creative spaces in small cities, truly realizing the popular implementation of the new digital video aesthetics born from media convergence.

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