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Research on the Innovation of Program Forms Driven by Artificial Intelligence

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ABSTRACT
This paper focuses on the innovation of program forms driven by artificial intelligence. It analyzes the coupling mechanism between technology and program innovation, deconstructs the innovation paths from three dimensions: narrative space, creative subject, and communication medium, reveals the ontological crises in innovative practices, and proposes the construction of a collaborative evolution ecosystem of "technology - culture - ethics" and a sustainable development framework of "technology governance - industrial collaboration - global dialogue". The aim is to promote the deep integration of artificial intelligence and program production, and achieve a dynamic balance between technical rationality and cultural rootness.

KEYWORDS
Artificial Intelligence; Innovation of Program Forms; Human - Machine Collaboration; Cultural Value

In the current era of the deep integration of digitalization and intelligence, the media field is undergoing unprecedented changes. As the core driving force of this transformation, artificial intelligence, with its powerful technical capabilities and innovative potential, has deeply penetrated into all aspects of program production. From the intelligent conception of content creation, to the innovative expansion of narrative space, and then to the comprehensive innovation of communication media, artificial intelligence is reshaping the development pattern of program forms. Against this backdrop, in - depth research on the innovation of program forms driven by artificial intelligence is not only related to the current transformation of the media industry but also determines its future direction in global cultural exchanges and competitions.

1 The Dual Coupling Mechanism between Technological Iteration and Program Innovation

The breakthroughs in artificial intelligence technology are reshaping the underlying logic of program content production. From the perspective of communication studies, the theory of technological possibilities provides an important perspective for understanding this transformation. AI technology expands the boundaries of media production by constructing a cycle system of "data learning - intelligent generation - human optimization". This technological feature breaks the linear process of traditional program production, shifting content creation to a flexible and modular production model. The assertion of "the medium is the message" by McLuhan, a representative figure of the media ecology school, finds new confirmation in the AI era. When generative artificial intelligence is deeply embedded in the program production process, technology has transcended its tool - like property and evolved into a "meta - technology" that reconstructs the media ecology. Take Eternal Ode to Poetry on CCTV, China's first generative artificial intelligence animated film broadcast on television, as an example. This program, with the help of the "CCTV Media Convergence Big Model", presents the artistic conception of poetry in the form of ink - wash animation, achieving an innovative transformation from the excavation of cultural connotations to the presentation of artistic forms. In the program production process, different from the linear process of traditional animation production, AIGC technology allows links such as storyboard generation and scene modeling to be carried out in parallel. The production team can more efficiently transform creativity into actual images. For example, when depicting the scenes in ancient poems, through AIGC technology, multiple scene drafts in different styles can be quickly generated for creators to select and modify. The production cycle is shortened from 8 months to 4 months. [1]However, there are deep - seated structural contradictions between technology and artistic expression. This contradiction stems from the internal tension between algorithm standardization and cultural uniqueness: artificial intelligence conducts patterned production based on data laws, while artistic creation requires unconventional and personalized expression. Take the reality show The PD Disappeared produced by South Korea's MBC as an example. As the world's first variety show directed by an AI director, it constructs a human - machine collaborative creation model centered around the AI PD named "M - Phago", subverting the traditional variety show production logic. The AI PD undertakes various links from program casting, program process control, to game design and real - time editing. While improving production efficiency, it has triggered questions such as the "algorithm trap" and "style convergence". This phenomenon essentially reflects the "innovation paradox" when technology intervenes in cultural production - the AI system, which aims to improve creative efficiency, instead compresses the space for creative diversity through data path dependence. This warns us that when using artificial

intelligence in program production, we cannot only focus on technical efficiency but also need to deeply understand cultural connotations. Eternal Ode to Poetry adopts the "real - world shooting + AI generation" mode and digitally restores museum cultural relics. It not only takes advantage of technological superiority but also retains the authenticity of culture, which provides a good reference for program production. When shooting cultural relics, the production team obtains accurate data of cultural relics through high - precision 3D scanning and then combines AI technology for scene restoration, making the historical scenes in the program not only in line with cultural historical facts but also artistically beautiful.

2 The Three - Dimensional Deconstruction Path of Program Form Innovation

2.1 The Reconstruction of Narrative Space: From Physical Field to Information Ecology

With the rapid development of artificial intelligence technology, the narrative space has undergone a transformation from the traditional physical field to an information ecology that integrates the virtual and the real. This transformation not only expands the boundaries of narration but also brings a new immersive experience to the audience. Take Eternal Ode to Poetry as an example. Through 3D scanning and AR projection technology, the program constructs a triple - space matrix of "poetry text - historical scene - digital image" on the ancient city wall of Xi'an. The production team first conducts on - site investigations and data collection of the ancient city wall of Xi'an, and then, according to the content of the poetry, uses AR technology to superimpose the virtual historical scenes on the real ancient city wall. When watching the program, the audience seems to travel through time and space, being in a scene where reality and virtuality are intertwined, feeling the charm of poetry and completing a deep - level interpretation of cultural meaning. This reconstruction of the narrative space that integrates the virtual and the real is not only an innovation at the technical level but also a subversion of the traditional narrative logic. From a theoretical perspective, generative artificial intelligence creates a "super - medium" that integrates multiple media forms and functions through the "re - mediation" of multi - modal media such as text, pictures, and images. This technological iteration has pushed modern narration to a new peak and further expanded the co - evolution of humans and technology. [2] At the same time, this technology - driven reconstruction of the narrative space also reflects the "space - time stacking" feature of digital narration, that is, different space - time elements are collaged and interacted through digital technology to create a new narrative experience. However, the double - edged sword nature of technology also emerges in the reconstruction of the narrative space. AI Love You on Netflix embeds the audience's consciousness into the plot space through brain - computer interface technology. Although it greatly enhances the sense of immersion, it also leads to the loss of narrative coherence. This shows that when using new technologies to expand the narrative space in program production, we must fully consider the audience's viewing experience and the integrity of the narrative. The application of technology should not only pursue immersion but also take into account the logicality and coherence of the narrative, avoiding the damage to the expression of content due to the excessive intervention of technology.The application of artificial intelligence technology in the reconstruction of the narrative space not only provides new possibilities for the innovation of program forms but also puts forward higher requirements for creators. How to achieve a balance between technology and content in the space that integrates the virtual and the real is an important topic for future program innovation.

2.2 The Reconstruction of the Creative Subject: The Evolutionary Map of Human - Machine Collaboration

The "dual - subject system" initiated by The Three of Us on Hunan Satellite TV brings new ideas to program creation. In the program production process, the AI director "Aimang" is responsible for executive tasks such as itinerary planning and rough editing. For example, in the outdoor experience segment of the guests, "Aimang" can quickly plan the best shooting route according to the shooting plan and venue information, improving the shooting efficiency. The human team focuses on value guidance and artistic adjustment, ensuring that the program conveys correct values and conducts artistic creation in aspects such as picture composition and color matching, endowing the program with a unique style and emotional warmth, forming a good human - machine symbiosis mechanism. The exploration of "digital avatar" technology in The PD Disappeared, although it has triggered copyright disputes, also provides an attempt for the expansion of the creative subject. In program production, by simulating the creative characteristics of a specific PD through deep learning, it brings new creative perspectives and possibilities to the program. However, this also reminds us that when using new technologies, we should pay attention to copyright protection and the balance of the rights and interests of the creative subject.

2.3 The Reconstruction of the Communication Medium: The Technical Embodiment of Participatory Culture

The intelligent development of communication media has promoted the rise of participatory culture. The intelligent

bullet - screen system of Mango TV, through emotional calculation, visualizes and feeds back the audience's emotions in real - time, realizing the transformation from one - way communication to a closed loop of "creation - feedback". In program production, the production team can understand the audience's preferences and opinions on the program content according to the bullet - screen feedback, improving the audience's sense of participation and the stickiness of the program.Eternal Ode to Poetry constructs a multilingual transformation system in international communication, and with the help of AI translation and localization adaptation technology, it enables the reproduction of the meaning of poetry images in different cultural contexts. During the program production, the production team optimizes the translation and interpretation of poetry according to the cultural characteristics of different countries and regions. For example, when spreading to Japan, it adjusts the translation of poetry in combination with Japan's poetry culture and aesthetic habits, enabling Japanese audiences to better understand and appreciate the program content.

3 Ontological Crises in Innovative Practices

With the widespread application of artificial intelligence in program production, some problems that need to be solved urgently have emerged. In The PD Disappeared, the imitation of human director styles by AI has triggered controversy, which reflects the threat to creative subjectivity. When AI can replicate the narrative styles of human directors, the uniqueness and irreplaceability of artistic creation are challenged. In the program production industry, this may lead to the dilution of the styles of some creators, and the works lack individuality.Although Eternal Ode to Poetry maintains the authenticity of culture by means of digitalization of cultural relics, some AI - generated scenes have the problem of blurred historical details. In the program production process, due to the possible deviation of the AI algorithm's understanding of historical culture, the generated scenes may deviate from the real history. This "technical distortion" may mislead the audience's cognition of historical culture and cause confusion in cultural memory.Programs like Meeting Because of AI rely too much on algorithm matching, which affects the naturalness of interpersonal communication. In program production, the algorithm may oversimplify the complexity of interpersonal communication, ignoring the subtle aspects of emotional communication between people, making the interpersonal relationships in the program seem stiff and unreal, and exacerbating the atomization tendency of social relations. In order to solve these problems, some programs try to start from the institutional design.

4 Construction of the Collaborative Evolution and Sustainable Development Framework

In the process of program form innovation, the application of artificial intelligence has entered a complex and crucial "deep - water zone". This situation not only triggers many technical problems but also gives rise to in - depth thinking in the cultural and ethical dimensions. To properly address these challenges, this paper constructs a comprehensive governance and development framework, striving to achieve a dynamic balance between technical rationality and cultural rootness. Specifically, a collaborative evolution ecosystem of "technology - culture - ethics" is first constructed, and on this basis, a sustainable development framework of "technology governance - industrial collaboration - global dialogue" is further formed. This framework promotes the rational application of artificial intelligence technology in program innovation through multi - level governance strategies, while effectively maintaining cultural diversity and ethical norms.

4.1 Technology Governance: A Dual - track Mechanism of Transparency and Value Calibration

The key to technology governance lies in breaking through the dilemma of the algorithm black box and constructing a full - process transparency mechanism. Drawing on the "risk classification" criterion in the European Union's Artificial Intelligence Act, the artificial intelligence systems involved in program production are classified and managed. For example, for core algorithms such as the cultural relic digitalization system in Eternal Ode to Poetry that are related to cultural inheritance and historical representation, it is necessary to disclose the sources of training datasets, model deviation detection reports, and manual verification records. Such high - transparency requirements can not only enhance public trust in technology but also lay a solid foundation for the protection of cultural values.At the same time, technology governance also needs to introduce a dynamic calibration system to deal with the potential risk of cultural homogenization caused by artificial intelligence systems. Taking the "ethical embedding" model of South Korea's KBS television station as an example, by embedding a cultural value assessment module in the AI director system, the degree of deviation between algorithm decisions and local cultural values can be monitored in real - time, thus achieving a dynamic balance between technology and culture. In addition, to prevent the erosion of local culture by "algorithm colonialism", it is recommended to introduce a technical architecture of the "cultural adaptation layer". Through the

secondary calibration of regional cultural characteristic vectors, it can be ensured that the generated content conforms to the local cultural context.

4.2 Industrial Collaboration: Reconstruction and Breakthrough of the Closed - loop Ecology

The core point of industrial collaboration lies in reconstructing the traditional production chain to create a closed - loop ecology that integrates technology research and development, content production, and communication feedback. First of all, the joint construction of infrastructure is the cornerstone for realizing industrial collaboration. We can refer to the construction experience of the artificial intelligence computing power network in the Yangtze River Delta region of China and actively promote the establishment of a regional "AIGC Public Service Platform", which provides low - cost technology access solutions for small and medium - sized production institutions, thereby narrowing the "Matthew effect" caused by the technological gap. Secondly, the innovation of talent cultivation is also an important part of industrial collaboration. It is recommended to establish a "Human - Machine Collaboration Director Certification System", incorporate AI tool operation and algorithm ethics assessment into the core courses of media majors, and cultivate compound talents with both "technical general knowledge" and "cultural insights". In terms of business models, the "copyright blockchain + smart contract" model can be explored. Just like the AIGC content rights confirmation system adopted in Eternal Ode to Poetry, the copyright revenue of AI - generated content is automatically distributed through smart contracts, thus achieving two - way empowerment of technology and industry.

4.3 Global Dialogue: A Cross - cultural Technical and Ethical Consensus Framework

In the context of globalization, the promotion of technology governance and industrial collaboration is inseparable from the construction of a cross - cultural technical and ethical consensus framework. The global dialogue mechanism should not be limited to the docking level of technical standards but should penetrate into the field of cultural values. Referring to the Recommendation on the Ethics of Artificial Intelligence by the United Nations Educational, Scientific and Cultural Organization, the program production field can establish a "Cultural Sensitivity Assessment Matrix", set algorithm no - go areas for sensitive content such as historical representation and religious symbols, and avoid the erosion of cultural diversity by technology application. Technical diplomacy practice is also an important part of global dialogue. Taking the multilingual communication system of Eternal Ode to Poetry as an example, an "AI Cultural Translation Alliance" can be constructed, and a multimodal translation system with the ability to understand cultural contexts can be developed to prevent the distortion of meaning in cross - cultural communication. In addition, a global AIGC content traceability network can be established to jointly manage risk content such as deep fakes and cultural misinterpretations. For example, the digital watermark technology for generated content developed by the EU's "AI Truth" project is an effective practice of the global dialogue mechanism. In global dialogue, we need to be vigilant against the damage of "technological hegemony" to cultural diversity. It is recommended to implement the "technology - culture equivalence principle" in international cooperation, requiring participating parties to contribute both technical data and cultural interpretation resources, ensuring the continuation of cultural diversity in the process of technological evolution.

Artificial intelligence has brought opportunities and challenges to the innovation of program forms. In the program production process, we have seen the positive changes brought about by the expansion of narrative space, the collaboration of creative subjects, and the transformation of communication media, but we also face problems such as the dissolution of creative subjectivity, the damage to cultural authenticity, and the deconstruction of emotional communities. The program production industry should continuously pay attention to the development of artificial intelligence technology, explore more reasonable application methods, make artificial intelligence better serve program creation, inherit and carry forward excellent culture, promote the continuous innovation of program forms, bring more high - quality program works to the audience, and promote the exchanges and prosperity of global culture.

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