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Study on the Relationship between AIGC Performative Behavior and Social Media Interaction Patterns: A Case Analysis based on A-SOUL

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Abstract

With the advancement of AIGC (Artificial Intelligence Generated Content) technology, AIGC has gradually assumed the roles of content production and interaction facilitation in many domains, particularly in social media. Taking the virtual idol group A-SOUL as a case study, this research attempts to analyze the interaction patterns of AIGC performative behavior on social media and its impact on culture. The study explores the potential social and ethical risks of AIGC in cultural production and proposes recommendations for the sustainable development of AIGC performative behavior in social media, with the aim of providing guidance for policymakers, content creators, and regulatory bodies.

Keywords

AIGC; Interactive Performance; Cultural Participation; Digital Media.

1. Introduction

Previous research has demonstrated that technological transformations tend to profoundly influence the patterns of sociocultural production and dissemination. For example, the popularization of broadcast television altered people's modes of entertainment and channels of information transmission, while the rise of social networks reshaped interpersonal interactions and changed the speed and scope of information dissemination. In these transformations, technological progress has driven the continuous evolution of media forms and prompted deep changes in cultural consumption patterns. Particularly against the backdrop of digitization and virtualization, artificial intelligence technology is progressively becoming the core force of this transformation.

With the rapid development of AIGC technology, AIGC has begun to exist not merely as a tool but has gradually become a "subject" of cultural production, appearing on social platforms in the forms of virtual idols and digital humans, and participating in people's everyday cultural consumption. However, current research predominantly focuses on the technical and industrial dimensions, lacking in-depth exploration of how AIGC, as an "acting subject," participates in cultural construction through anthropomorphized interaction and influences audience cognition and aesthetics. This study selects the representative virtual idol group A-SOUL as its research object, analyzing how it establishes deep connections with fans on social media platforms through highly anthropomorphized image design and interaction patterns, and accumulates cultural influence through meticulously constructed "personas" and content creation. AIGC not only assumes the roles of content creation and cultural dissemination but also influences audience cognition, social experience, and aesthetic habits, driving the reconstruction of artistic expression and media forms.

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2. Literature Review

2.1. The Technological Background and Cultural Creation of AIGC

AIGC refers to the use of artificial intelligence technology to generate content such as text, images, audio, or video. Its development is grounded in breakthroughs in core technologies including deep learning, natural language processing, and computer vision. In recent years, with the maturation of the Transformer architecture and generative adversarial networks, AIGC has achieved notable advances in language understanding, visual generation, and multimodal creation. This technological innovation has not only enhanced the efficiency and diversity of content generation but has also endowed AIGC with the capability to simulate human creativity, thereby gradually intervening in the domain of cultural production.[1]

In cultural creation, the role of AIGC has transcended that of a mere tool, becoming a new cultural "actor."[2] Its generated content has been widely applied in fields such as advertising design, virtual idols, and digital art, driving deep transformation of media arts and the entertainment industry. Researchers have noted that the intervention of AIGC in artistic creation has not only altered the relationship between creator and work but has also triggered the reconfiguration of cultural production mechanisms.[3] As AIGC technology achieves anthropomorphized presentation, it has gradually assumed the functions of cultural expression, narrative construction, and aesthetic interaction, becoming an important performative subject in the context of digital culture. This trend injects new possibilities into cultural creation while also raising new questions concerning originality, creator identity, and cultural value.

2.2. Theoretical Foundations of AIGC and Performativity

Performativity, as an important concept in cultural studies and communication studies, was first proposed by philosopher J. L. Austin within his speech act theory and later extended by Judith Butler into the domains of gender and identity studies. Butler emphasized that identity and behavior are not inherent attributes but are constructed through continuously repeated "performances."[4] This theory has received new interpretation in the digital media environment: online identities, virtual interactions, and symbolic practices can all be viewed as processes of "performance."

In social media contexts, AIGC products such as virtual idols and digital humans exhibit highly anthropomorphized interactional logic. Their "performance" is manifested not only in visual presentation but also in pragmatic strategies, emotional responses, and the scripted mechanisms of sustained interaction.[5] Furthermore, algorithm-driven content generation reinforces the repetitiveness and predictability of performance, yet simultaneously creates a sense of "authenticity" through personalization strategies. This provides a new dimension for the application of performativity theory in the field of digital culture.

The performativity of AIGC is not merely the result of technological simulation but is a product of the joint operation of technology, culture, and user interaction. It extends performance from the exclusive domain of human beings to artificial intelligence, revealing new pathways for the construction of identity and behavior in the digital age.

2.3. Related Research on Performative Interaction of Virtual Idols

In the research on virtual idols and performative interaction, current academic attention is primarily concentrated on three aspects. First, some studies explore how virtual idols construct a sense of "realism" through technological means such as motion capture, real-time rendering, and voice generation.[6] Second, a substantial body of research indicates that fans often form parasocial relationships with virtual idols,[7] establishing emotional dependence through formats such as livestreaming, bullet-screen comments, and community interactions. Such interaction not only enhances fan loyalty but also promotes group participation and content

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creation. Third, media platforms and commercial mechanisms play a decisive role in shaping the performance strategies of virtual idols; algorithmic recommendation, brand endorsement, and marketing events significantly shape their performance logic and public visibility.[8]

However, existing research exhibits notable deficiencies. Most studies still treat "performative behavior" as content output dominated by operation teams, overlooking the "re-performativity" manifested by fans through AIGC tools in their derivative creations-such as AI-generated illustrations, voice synthesis, and animation production. Moreover, there remains a lack of in-depth exploration into how AIGC technology, as a medium, empowers the performance-interaction mechanism and constitutes a systematic influence pathway together with fan identification and ethical issues. This study addresses this theoretical gap precisely by approaching the topic from the perspectives of technological empowerment and fan participatory creation.

Based on the above research gaps, this study aims to answer the following questions: How does AIGC manifest performative behavior in the operation of virtual idols? How does such performative behavior generate cultural impact on social media? Does fan-generated derivative creation based on AIGC further reinforce this performativity and produce cultural influence?

3. Case Analysis based on A-SOUL

This study selects A-SOUL as the case analysis subject, primarily based on its representativeness in terms of technological application, performative behavior, and social media influence. On the one hand, as one of the most prominent and influential virtual idol groups in China, A-SOUL employs AIGC-related technologies such as real-time rendering to achieve highly anthropomorphized dynamic performances, making it a quintessential sample for studying virtual performance practices. On the other hand, A-SOUL has established a highly interactive fan culture on social media platforms (such as Bilibili and Weibo), with an operational model that encompasses not only official content production but also extensive AIGC-based fan derivative creations, making it an important context for observing how AIGC drives the expansion of "performative behavior" into user practices. Employing the case analysis method and drawing on the distinctive characteristics of A-SOUL, this study aims to answer three core questions: (1) During the official operation phase, through which specific AIGC performative behaviors did A-SOUL construct its interaction patterns with fans? (2) In the "resurrection plan," how did fans use AIGC to perpetuate A-SOUL's performative behavior? What new social media interaction logics did this unofficial performance mode engender? (3) During the official operation and fan resurrection phases respectively, what cultural impacts did A-SOUL's AIGC performative behavior exert on the fan community, and what problems were exposed?

3.1. Case Introduction

(1) Overview of A-SOUL

A-SOUL is a significant representative of China's virtual idol industry, launched by ByteDance and Yuehua Entertainment, and officially debuted in 2020. The group rapidly attracted a large fanbase through its highly anthropomorphized virtual character images, real-time interactive technology, and continuous content output. A-SOUL not only employs advanced motion capture and real-time rendering technology to achieve natural and fluid character performances but also continuously pushes boundaries in language generation, social interaction, and content creation through AIGC technology, forming a distinctive interactive ecosystem on social media platforms. Furthermore, A-SOUL experienced a character "withdrawal" incident and the subsequent phenomenon of fans using AIGC technology to "resurrect" the character, highlighting the interweaving of technology, performativity, and cultural emotion, which holds

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unique value for exploring the performativity and cultural influence of AIGC. Therefore, the A-SOUL case not only possesses cutting-edge significance in terms of technological and content innovation but also reflects the complexity of interaction patterns between virtual idols and social media, providing rich analytical material for this study.

(2) The Development Trajectory of A-SOUL

The development trajectory of A-SOUL can be broadly divided into three phases:

Phase One (2020–2021): Rise to Fame and Fan Base Establishment. A-SOUL primarily engaged in virtual livestreaming, enhancing fan participation through real-time interaction, and leveraging high-fidelity motion capture and refined modeling technology to create an immersive experience approximating that of real idols. During this phase, the official team emphasized persona construction and daily interaction for the characters, rapidly amassing a large-scale fan base.

Phase Two (2022): Controversy and the Rise of Fan-Driven Creation. With the occurrence of the member "Carol" (Jiale) hiatus incident, contradictions between the official operational strategy and fan expectations gradually surfaced. At this point, the fan community launched extensive derivative creations on social platforms, including fan art, music remixes, and recreated virtual performance clips. Some of these creations employed AIGC tools to achieve "character resurrection," enabling the retired character to continue "participating" in the virtual social space and maintaining emotional connections.

Phase Three (2023 to Present): AIGC-Empowered Fan Reproduction. In recent years, with the popularization of AIGC tools such as Stable Diffusion and ChatGPT, fans have further lowered the creative threshold in content reproduction, producing highly realistic animations, voice content, and interactive texts. This has formed a cultural field interwoven with official content and fan creations. Such AIGC-empowered derivative creation has not only reinforced A-SOUL's "performativity" but has also propelled the virtual idol operational model toward a "co-creative culture."

3.2. Case Analysis

(1) The Performative Foundation of Virtual Idols Under AIGC Technological Empowerment

The emergence of virtual idols is essentially a product of the fusion of digital technology and performing arts. In the A-SOUL project, AIGC technology not only undertakes the function of character image generation but also provides the technological foundation for the virtual idol's "performance." Through artificial intelligence means such as motion capture, voice synthesis, and natural language processing, A-SOUL achieves dynamic presentation and real-time interaction of characters in livestreams, short videos, and on social platforms. This technological system enables characters to display emotions and engage in anthropomorphized expression, thereby creating a highly immersive performative space.

From the perspective of performativity theory, Butler argues that identity does not exist a priori but is constructed through continuously repeated performances. For A-SOUL, virtual identity is not merely conferred by the development team but is gradually formed into a stable "persona" through countless social interactions and content outputs. Through everyday linguistic style, body language, and emotional expression, this performative practice not only reinforces character personality traits but also gains cultural identification within the fan community.

However, this performative process has not remained entirely confined to the domain of official operation. With the popularization of AIGC technology, fans' participatory creation has gradually intervened in the performative logic of characters, driving the extension of performative boundaries through generative technology. Particularly after the member retirement incident, fans leveraged AIGC technology to "reawaken" the character, enabling it to remain active on social platforms even after the official narrative had been terminated. This

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phenomenon not only reflects the empowering function of technology but also reveals AIGC's role as a "co-performer" in virtual idol culture.

(2) AIGC Performative Practices in Fan Derivative Creation

Following the A-SOUL retirement incident, the fan community's emotional identification did not dissipate; rather, it stimulated an intense need for creative expression. Unlike traditional derivative creation that relies on manual skills, the application of AIGC significantly lowered the technical threshold, enabling fans to reproduce and even expand character images at lower cost and higher efficiency, thereby forming a technology-based performative practice.

AIGC has been widely used in the generation and re-performance of voice. Through voice cloning and text-to-speech technology, fans are able to train specific voice profiles of characters and subsequently produce new songs, voice dialogues, and even "livestream clips." For example, after Carol's (Jiaran's) retirement, a large number of AI-synthesized songs based on her voice profile rapidly appeared on Bilibili, with some works exceeding one million views. Such practices are not merely technological reproduction but constitute a "re-performance of performance." Through the act of generating voice, fans reproduce the auditory performance of the character while imbuing it with new emotional expression.

AIGC supports fans in the reconstruction of visual imagery and performative extension. With the aid of image and video generation tools, fans are able to create highly realistic character images, dance clips, and even complete "virtual concerts." Such content not only preserves the original characteristics of the character but also achieves creative re-performance through new plotlines and new actions. A typical case is fan-produced "Carol AI dance videos," which achieve highly realistic dance performances through AI-driven motion generation, enabling the character to "return to the stage" and achieving wide dissemination on social platforms. This visual reconstruction not only reinforces the character's cultural presence but also highlights fans' proactive construction of performative scenarios.

AIGC has intervened in the simulation and extension of interactive discourse. Through dialogue generation models (such as ChatGPT and Character.AI), fans are able to reconstruct the linguistic style of characters and simulate the interaction process between idol and fan. Such "virtual companionship" practices are widespread in online communities such as Tieba and QQ groups, and are referred to by fans as the "resurrection plan." Through AI-driven real-time dialogue, fans experience immersive interaction, and the character continues to "perform" in this process, breaking through the performance interruption caused by official termination through technological means.

These practices collectively demonstrate that fans' derivative creation is not merely content production but constitutes a form of performative action mediated by AIGC. Through generation, reconstruction, and re-performance, AIGC liberates the character from the official discourse system, enabling it to achieve "technologically mediated life extension." In this process, fans are not merely cultural consumers but become co-creators of virtual idol performance.

(3) Human-Machine Co-Performance and Cultural Reproduction

Fans' AIGC-based derivative creative practices constitute not only individual artistic expression but also a technology-supported "performative network" in which human creators and algorithmic systems jointly participate in cultural production. This network reshapes the life cycle of virtual idols, social media interaction patterns, and their cultural significance.

AIGC has restructured the life cycle of virtual idols. Under traditional logic, the existence of virtual idols is highly dependent on official operation; once a project ceases, the character image gradually dissolves. However, the A-SOUL case demonstrates that fans, through AIGC technology, have transcended this limitation, enabling characters to continue existing through generative performance even after official withdrawal. This decentralized extension practice

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endows virtual idol identities with a high degree of resilience, forming a "technology-driven vitality."

AIGC has driven the transformation of social media interaction patterns. With the rise of fan derivative creation, social platforms have become not only channels for content dissemination but also fields where character performance continuously occurs. AI-generated videos, audio, and interactive content have stimulated the participatory enthusiasm of fan communities, promoting collaborative creation and emotional sharing, and forming a community cultural cycle centered on AI technology. In this process, AIGC is no longer merely a creative tool but a co-performative subject in the "re-performance" of virtual idols.

This trend has a profound impact on the construction of cultural meaning. Through the intervention of AIGC, virtual idols transcend their singular positioning as commercialized symbols and are transformed into emblems of cultural identification within fan communities. Fans leverage technology to create new narratives and emotional memories, achieving the reproduction of idol culture. This not only reflects the characteristics of "participatory culture" emphasized by Jenkins but also reveals the role transformation of AIGC in the digital cultural ecosystem-it is not merely a tool but a cultural actor whose performative characteristics shape new logics of cultural interaction.

4. Future Trends of AIGC Application in Social Media: Challenges, Development, and Governance Strategies

4.1. Future Development Trends of AIGC in Social Media

With the continued evolution of generative AIGC technology, AIGC has become an important driving force in the social platform ecosystem. In the future, AIGC is likely to exhibit notable trends in the following areas. First, virtual idols and digital humans will move beyond reliance on "the person behind the character" and achieve greater fidelity and real-time interactivity. Through technologies such as AIGC real-time rendering and semantic generation, AIGC will be capable of generating more complex images and emotional expressions, enhancing the immersiveness of interaction with users. Second, the creative boundaries of fan culture will be restructured. Leveraging the highly efficient generative capacity of AIGC, users' derivative creations will break through technical barriers, forming a large-scale collaborative creative ecosystem that further blurs the traditional boundaries between "creator" and "consumer."

These trends not only signify that the cultural production model of social platforms will undergo a deep decentralizing transformation but also portend a reorganization of social interaction structures.

4.2. Ethical Issues Raised by AIGC

In the A-SOUL case, ethical issues are primarily concentrated in the risk of emotional dependence arising from the anthropomorphization of virtual characters, as well as the disputes over portrait rights and copyright triggered by fans' use of AIGC technology to "resurrect" retired characters. These reflect institutional gaps in the virtual idol industry regarding emotional management and intellectual property protection. With the advancement of technology and the extensive application of AIGC in social media, it is evident that the ethical issues exposed by A-SOUL are not merely an isolated case within the virtual idol industry but represent a universal predicament faced when AIGC becomes deeply embedded in social media cultural practices.

On social media, unclear intellectual property rights and content attribution constitute a pervasive problem. Virtual images, voice, or short video works generated by fans through AIGC often involve the copyright of original materials and the attribution of character images. Unauthorized dissemination or commercialization may infringe upon the rights of creators and

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platforms. On social media, the blurred boundary between UGC and AIGC amplifies the risk of infringement.[9] Issues of virtual personality and emotional ethics manifest even more broadly on social media. As Wu has noted, certain AIGC technologies may lead to the formation of pseudo-intimate relationships, thereby affecting the quality of interpersonal interaction.[10] AIGC-generated anthropomorphized characters or digital content can form emotional interactions with users, reinforcing a sense of immersion. Users may develop excessive dependence in "virtual companionship," finding it difficult to distinguish between the real and the virtual. This phenomenon exists not only in the context of virtual idols but also in social scenarios such as AI customer service, virtual streamers, and chatbots. Content authenticity and information security have become new challenges. AIGC can generate highly realistic images, videos, or texts, but the lack of traceability mechanisms leads to the occurrence of misinformation, misleading content, or malicious tampering. Once such content is widely disseminated on social media, it may trigger risks to public opinion and crises of social trust.

To address these issues, solutions can be proposed from three dimensions-technology, platform, and policy. At the technological level, the introduction of content labeling and traceability mechanisms for generated content should ensure that AIGC creations are traceable. At the platform level, clear rules for AIGC derivative creation and dissemination should be established, with governance over copyright, authorization, and content standards. At the policy level, laws and regulations should be refined to clarify the ownership, scope of use, and attribution of responsibility for AIGC-generated works. Meanwhile, user education should be strengthened to raise public awareness of the boundary between the virtual and the real, thereby promoting the healthy and orderly development of social media.

5. Conclusion

This study has explored the performative behavior of AIGC in virtual idol culture and its social media interactions, revealing the profound influence of AIGC on the digital cultural ecosystem. AIGC has not only transformed the mode of content production, enabling virtual characters to continuously participate in cultural interaction, but has also promoted fan co-creation and the development of digital communities. At the same time, the accompanying ethical and copyright issues remind us that technological innovation must be coordinated with social norms and legal institutions. Overall, AIGC is reshaping cultural creation, media representation, and social interaction patterns, and its development will continue to influence the future cultural industry, audience behavior, and the construction of digital identity.

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