Postprint: Technological Empowerment and Content Innovation Practices in Short Videos from the Perspective of Platform Affordances

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Abstract

Short videos represent a novel media carrier resulting from the deep integration of technology, creativity, and culture, inherently possessing the capacity to connect social interactions. The examination of short videos and their platforms should be situated within a broader media ecosystem. Based on platform affordance theory, this article investigates the interactive relationships among technological innovation, short video platforms, and users from the perspectives of visibility, participatory culture, and the affordance of traffic resourceification. The author argues that technological innovation not only empowers platform content innovation, scenario construction, and interactive creativity, but also enables users to acquire greater visibility and effective attention within internet scenarios.

Full Text

Platform Affordance Perspective on Technological Empowerment and Content Innovation Practices in Short-Form Video

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Abstract: Short-form video represents an emerging media carrier that deeply integrates technology, creativity, and culture, possessing an inherent capacity for social connection. Examination of short-form video and its platforms should be situated within the broader media ecology. Based on platform affordance theory, this paper investigates the interactive relationships among technological innovation, short-form video platforms, and users from the perspectives of

visibility, participatory culture, and traffic resource-ization affordances. The author argues that technological innovation not only empowers platform content innovation, scene construction, and interactive creativity, but also enables users to gain greater visibility and effective attention within internet-based contexts.

Keywords: platform affordance; visibility; short-form video; technological empowerment; content innovation

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Short-form video constitutes a cultural form that deeply integrates digital technology and creative thinking. Platforms such as Douyin and Kuaishou, as platform media representing short-form video, embed audiences'daily lives and social interactions through quality content attraction and consumption scene construction, providing more opportunities, motivation, and possibilities for public participatory culture. Furthermore, short-form video platforms "continuously and complexly entangle cultural imagination, technical architecture, and business models" within the media field, making short-form video an increasingly important medium for public self-expression and identity reconstruction. Affordance theory primarily focuses on how different technologies empower communication practices, and in the context of network platforms and media research, it has become a key to analyzing the complex relationships among media interfaces, communication technologies, and user participation. Consequently, scholars have advocated using "affordance" theory to examine the intricate relationships among short-form video platforms, communication technologies, resource supply, and users. In the era of intelligent communication, the "affordance" of platform media primarily refers to "visibility" —whether one can be seen by others, whether one can gain others' attention, and whether the attention reaches a certain scale. In other words, visibility has become a new perspective for understanding media, and the affordances of intelligent technology-based platform media are manifested as visibility affordance, participation affordance, and traffic resource-ization affordance.

1. Visibility Affordance: Diversified Intelligent Algorithmic Distribution Resolving Content Supply-Demand Mismatch

Visibility affordance primarily refers to the possibility of users and their produced content being discovered, encountered, and viewed by others on platform media. The vigorous development of mobile internet technology has given rise to various emerging and social media, making accessible channels and information resources increasingly abundant and diverse. Users' roles have shifted from passive consumption in traditional content industries to active searching, with short-form video platforms gradually becoming the main arena for information acquisition and exchange. However, while platform media such as short-form video have facilitated user participation in information content production and consumption, the massive data on the internet has also created a crisis of "information overload," causing users to lose their ability to identify effective infor-

mation due to attention dispersion. In other words, although content resources and user groups on platform media are both substantial, effective connections among content, producers, and consumers are difficult to form, and the supply side struggles to precisely match users' personalized and differentiated demands. This supply-demand relationship faces issues of mismatch and structural imbalance.

To effectively address the content distribution crisis caused by information overload, help users gain more exposure and effective attention on the internet, and improve the supply-demand adaptability between content and users, platform media need to crack the supply-demand matching problem through both material space externalization and embedded visibility genes. Tags represent a means for platforms to attach additional information to user-generated content. As a simple and convenient externalized visibility indicator, tags not only constitute an information flow logic for short-form video content understanding but also enable structured information aggregation. Short-form video emphasizes the mutual embedding of humans and technology. Through platform-embedded visibility content aggregation technologies such as content tags, user tags, and topic tags, an interaction ritual chain mediated by tags is formed. While users can quickly consume works they enjoy, their own creative works can also gain certain visibility. In other words, short-form video tags are set autonomously by users, which can effectively avoid tag errors caused by imprecise algorithmic recognition. Embedded tags become anchors that attract users to participate in content production and consumption, and good tags can effectively hit algorithmic recommendation logic, enhancing works' recommended exposure.

In fact, short-form video tag technology has been widely applied in user profiling, recall, ranking, and other stages. Short-form video platforms based on tag-based real-time inverted index algorithms utilize these tags to complete analytical matching of massive users and information content, providing users with precise content recommendation or search services and expanding the visible range of platform content. Furthermore, the materiality of technology also influences user behavior. Platform association algorithms can effectively enhance visibility affordance. Data such as views, comments, likes, collections, and LBS (Location-Based Services) for various works on short-form video platforms are clearly displayed on the user interface, becoming important pathways for measuring and expanding their visibility and presence.

With the deep application of high technologies such as blockchain, big data, and artificial intelligence in the media field, AI algorithm paradigms based on 5G technology and big data continuously reconstruct media logic and the media ecosystem. Data intelligence, based on intelligent algorithmic recommendation technology and user data, has gradually become the mainstream tool for short-form video platform content distribution by embedding algorithmic analysis and decision-making into resource allocation, thus becoming an effective intermediary connecting people and society. In media practice, AI technology increasingly serves as the main pathway for short-form video content understanding and dis-

tribution. Many short-form video platforms have designed a complete set of AI technology solutions 贯穿 video production, content understanding, user profiling, and video recommendation, efficiently allocating users' attention to massive short-form videos and enabling content producers to connect with more users. This allows users to gain greater display space while also seeing a broader world. This also helps optimize platform supply-demand resource allocation efficiency and enhance social information flow efficiency. To break the dilemma that algorithmic value-based content recommendation can easily place users in "information cocoons," and to enhance users' social capital, economic capital, and cultural capital, platforms continuously integrate multi-dimensional value optimization algorithms while embedding users' social relationships into supply-side reforms. Through an intelligent social distribution logic that combines algorithms and social networking, they can break circle barriers, meet the needs of multi-circle users, enable long-tail videos to be seen by more users, and promote the fission of communication effects.

2. Participation Affordance: Intelligent Creation Technologies Empowering Users' Participatory Cultural Competition

American scholar John Fiske pointed out in his 1989 monograph *Understanding Popular Culture* that fans' investment in popular texts is "participatory" —they are producers of culture rather than consumers. Fiske' s student Henry Jenkins, when studying the phenomenon of fans interacting with cultural texts in the 1990s, not only explicitly proposed the concept of "participatory culture" but also conducted in-depth exploration of it. Jenkins argued that participatory culture represents a deeper level of user behavior in the cultural consumption process than interactive sociality, better reflecting the complex interactive relationship between fans and producers. Platform media affordances are closely related to media technology. In discussions about the materiality of media technology, although technology itself cannot directly produce participatory culture, it can provide a technological affordance framework for short-form video platforms and offer action possibilities for users' new cultural actions and imaginations in short-form video. The vigorous development of communication technologies has enhanced the affordances of short-form video platform technical frameworks, causing short-form video media technology to gradually transform from a technical intermediary that restricts or even prohibits ordinary public participation into a material actor that empowers individual creativity. By launching technical services and artificial intelligence tools to empower ordinary people' s participatory cultural innovation, platforms encourage and support ordinary users to move toward more participatory positions. In a "mediatized" society, the "coupling and assembly" between ordinary people and new media such as short-form video gradually develops into a "relationship embedding" with strong stickiness through material convergence.

However, because different actors have varying endowments and abilities to master media technology, and because platform media participatory culture is

highly dependent on technical intermediaries, ordinary users who cannot master short-form video creation technology lose their qualification to participate in short-form video cultural production at the starting line. This requires short-form video platforms to minimize user technology entry barriers as much as possible, empower ordinary users with technology, and rely on various new technologies to reduce costs and increase efficiency for users' personalized creation. The interface is users' first impression of platform media, and different types of users form complex relationships with platform internal and external other users through the interface. Therefore, platform affordance requires short-form video platforms to employ internet thinking in UI design, fully consider the connectivity of user interfaces, and make adaptive adjustments to platform devices or systems by launching different versions such as mobile, iPad, and PC versions to facilitate use by users at different levels. Kuaishou and Douyin have relatively simple and recognizable interface designs. On the short-form video interface homepage, platform works are presented as information flow thumbnails, providing convenience for users to find and publish information. Additionally, Douyin has launched a Creator Learning Center with modules including platform policy courses, content creation upgrades, category content advancement, and creator monetization courses to help improve creators' capabilities. Kuaishou' s creator service platform provides logged-in users with advanced service functions such as work promotion, work/live streaming analysis, and fan analysis.

Intelligent creation emphasizes the automated capabilities of technology, playing a role in reducing costs and increasing efficiency for users' short-form video creation. To further lower the threshold for short-form video creation and empower participatory cultural competition for low-visibility groups, the vast majority of short-form video platforms have launched supporting editing tools (such as CapCut, Kuaishou Video Editor, Suike Creation, and Miaojian), template videos (such as Kaiyan Quick Creation), video matting, special effects tools, object occlusion, and other powerful content production tools to help users solve pain points in short-form video production, enabling them to create higher-level videos at lower costs. The rise of AI technology has endowed special effects with rich imaginative space. Based on AI technology infrastructure platforms, ordinary users can not only use special effects but also easily transform complex technologies into user-friendly effects. Volcano Engine has launched a special effects open platform that collaborates with external teams and has opened up to enterprises more than 10,000 Douyin-equivalent special effects toolkits including beauty filters and portrait intelligence, as well as special effects shooting resources and template resources. Since its inception, Kuaishou has deeply cultivated its content creation ecosystem. In addition to portrait beautification (beauty, body shaping, filters, etc.) and audio-visual special effects (face AR decorations, sticker animations, mini-games, etc.), its intelligent creation products have also developed independent creation tools such as Kuaishou Video Editor, Yitian Camera, Original Film, A-Station Face Capture Assistant, Biyang Special Effects Platform, and intelligent soundtrack matching, enabling the video quality created by ordinary users to approach professional production standards

as much as possible. With the support of production tools, users can create short-form video works more conveniently and efficiently.

3. Traffic Resource-ization Affordance: Technology Empowering Content and Scene Innovation to Enhance User Experience

After experiencing an initial explosive period of intense competition, short-form video platforms face a continuously tightening industry regulatory environment as hot money "cools down." In the second half of the internet era with diminishing traffic dividends, the scarcity value of high-quality content resources has become increasingly prominent, and competition over platform technology innovation "paradigms" has intensified. Against the backdrop where "content" has become the core variable for short-form video platforms, how to empower through technology, construct resource-ized traffic that is more stable and continuous through content empathy and more interactive application scenarios, enhance user experience, increase platform user stickiness, and thereby enable users to carry out embodied social interaction practices on platforms has become an urgent appeal for major short-form video platforms.

The history of China' s media development can be regarded as an iterative history of content and technology. In the mobile internet era dominated by 5G technology, the relationship between technology and content is dialectically unified—the two are as indispensable as the brain and heart: technology rewrites the content ecology, technological innovation drives content upgrading and optimization, and expands the imaginative space of content; content is the carrier of technology application and the core competitiveness of platform media, as even the best technology is useless without high-quality content. Therefore, technology should empower the content industry around business scenarios, solving practical problems through technological innovation. It can be said that the integration of 5G with AR/VR, AI, and other technologies will give rise to more diverse short-form video content forms, and the deep integration of technology and content has become the inevitable path for platform media development. As the core capability connecting content production and consumption ports, AI empowering short-form video brings more possibilities for activating content creativity, allowing every user to record and share life more interestingly and meaningfully. Conversely, these interesting contents constitute a uniquely distinctive content ecology for short-form video platforms, capable of breaking circles to attract more user participation. Furthermore, embedding AR technology into short-form video applications, combined with facial recognition technology, allows users to not only change hair colors and add facial stickers during shooting but also integrate virtual elements into real life, improving the interaction efficiency between the virtual and real worlds. Such creative videos can bring users more novel experiences.

To compete for limited traffic resources, some short-form video platforms fully leverage the cross-boundary integration effectiveness of "short-form video +," actively seek new growth points, explore more interesting scene-based gameplay,

conduct strategic layout in content consumption fields such as knowledge traffic, creative content production, and vertical segmentation, and compete to develop new consumption scenarios that interpret content power. First, they focus on the pan-knowledge domain to build a closed loop of content production and consumption. Short-form video platforms such as Bilibili, Kuaishou, ByteDance series, Toutiao series, and Baidu series have all laid out pan-knowledge domain content ecosystems, elevating knowledge-based videos to strategic status, with approximately 60% of top pan-knowledge creators across the internet having joined Kuaishou. Second, they expand copyright layout in sports events to establish new interactive communication methods between sports content and users. Leading short-form video platforms such as Douyin and Kuaishou have already formed billion-scale ecosystems centered on creators and users, reaching deep cooperation with top events including the Olympics, World Cup, Copa América, Asian Cup, NBA, and CBA. A large number of sports stars have joined short-form video platforms, high-qualityly satisfying users' consumption needs for sports content. Third, they partner with reading promotion to rediscover the value of reading. On short-form video platforms such as Kuaishou and Douyin, topics like "short-form video book recommendation"have been created, gathering leading publishers, bookstores, authors, book-related institutions, and cultural influencers. Through regularly held topic activities and live streaming support, they empower the publishing industry with technology and operations.

The innovation and empowerment of network information technology profoundly influence ordinary users' social interaction behaviors and interaction methods. To better achieve user traffic conversion, short-form video platforms need not only high-quality video content but also to rely on new technologies to create various innovative and interesting interactive ideas that enhance universal interactive participation and experience, building a one-stop interactive platform of "content + social + entertainment." First, they integrate AI special effects with traditional festival elements to lead users to experience the beauty of the fusion of traditional culture and short-form video. For example, Tencent Weishi' s Mid-Autumn Festival series short-form video creative gameplay such as "Super Moon," "Tengu Swallowing the Moon," and "Dancing Under the Moon," which embrace traditional culture with technological innovation, were instantly screenshotted by users upon launch. Second, they partner with major sports events to launch various event-exclusive magic expressions and cheer sticker effects, allowing users to shoot special effects short-form videos with stars/athletes/influencers according to personal preferences, enabling users to participate in sports events in alternative ways and enhancing their sense of immersion. Third, they jointly launch creative topic challenge competitions with third parties, bringing users unique interactive experiences based on AI technology and native content, triggering imitation challenge shows in short-form videos, and thereby forming powerful traffic potential energy. Short-form video content exhibits long-tail effects, and because the content and topics themselves possess 趣味性 and participativeness, they continuously attract user attention. For example, Douyin platform' s #Buick Envision Plus Challenge# reached

5.25 billion views in one month, and the conversion rate of traffic resources brought by the challenge was also very high.

As a new type of audio-visual medium, the rise of short-form video has its own media logic and social value. In the technological empowerment and content innovation practices of short-form video platforms: AI algorithm supply to short-form video platforms enables users to be seen by more people while also seeing more content they are interested in; the independently developed intelligent creation technologies of short-form video platforms further awaken the communication instincts of ordinary people, empowering ordinary people' s participatory cultural competition; in the deep integration of technology and content, only through technological empowerment, content empathy, and more interactive application scenarios can continuous and stable resource-ized traffic be constructed. Therefore, examining the impact of communication technology on users based on the platform affordance framework helps better promote the coordinated development of humans and media.

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Note: Figure translations are in progress. See original paper for figures.