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Research on the Construction of Aesthetic Communities Based on Intelligent Recommendation Mechanisms in the Social Media Context: A Case Study of Short Video Visual Content

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Abstract. With the rapid growth of short video platforms, applications such as Douyin and Kuaishou have become major channels for information and visual content via algorithmic recommendation. In this process, recommendation systems track users' viewing patterns and personalize content delivery based on individual preferences. By using user profiling and collaborative filtering, recommendation systems consolidate existing preferences, limit exposure to varied content, and also promote the emergence of stable aesthetic communities. Based on the theory of aesthetic taste, reception aesthetics and the S-O-R model, this paper analyzes the formation mechanism and impacts of aesthetic circlization in short videos. The study suggests that the phenomenon results from the combined influence of algorithmic distribution mechanisms, user preference feedback, and social identity processes. In turn, this process accelerates the circulation of specific content and strengthens community interaction, while also increasing content convergence, narrowing aesthetic diversity, and deepening differentiation between communities. Accordingly, this study proposes strategies from four dimensions: algorithm optimization, platform governance, user media literacy improvement, and multi-stakeholder collaboration.

Keywords: social media, intelligent recommendation, aesthetic community formation, short video, visual content

1. Introduction

With the development of mobile Internet and digital media, short videos have become an important platform for cultural consumption and aesthetic practices [1]. In this context, platforms including Douyin and Kuaishou leverage big data and recommendation algorithms to match content based on users' clicks, viewing duration, and interaction behaviors, continuously delivering similar content. Thus, users' exposure range gradually narrows, and users with similar preferences increasingly cluster to form relatively stable aesthetic communities. Therefore, aesthetic community formation is not merely a content aggregation phenomenon but also reflects changes in the distribution patterns of aesthetic information in the digital environment [2]. Besides, while improving content matching

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efficiency, recommendation mechanisms tend to reinforce existing preferences, reduce exposure to differentiated content, and intensify content segmentation among different user groups [3]. Existing studies have mainly examined algorithmic mechanisms or "information cocoons", but systematic analysis of how recommendation systems specifically shape aesthetic community formation and generate broader impacts remains insufficient. Against this background, this paper focuses on short video visual content, examines how algorithms drive community formation, analyzes the underlying logic and characteristics of aesthetic communities, and discusses their impacts and optimization strategies. Consequently, the findings can provide references for the governance and structural improvement of the short video aesthetic ecosystem.

2. Aesthetic structures and issues on short video platforms

2.1. Aesthetic phenomena and emerging issues

Short video platforms integrate various types of visual content, including daily records, folk culture, fashion trends, and artistic creation, thus presenting a coexistence of mainstream aesthetics, niche aesthetics, and subcultural aesthetics. However, under the influence of intelligent recommendation mechanisms, content distribution has gradually become centered on users' existing preferences, narrowing their exposure range and strengthening the separation between different aesthetic groups. Algorithms continuously reinforce existing interest structures, enabling users with similar aesthetic preferences to rapidly form stable communities.

Through repeated interaction, community boundaries become consolidated, leading to increasing homogenization within communities and aesthetic differentiation between communities, with implicit hierarchies of aesthetic value emerging in some cases [2, 4]. Thus, this study explores how algorithms influence the formation and consolidation of aesthetic communities, how communities develop internal identification and external differentiation, the specific impacts of this process on individual aesthetic experiences and the broader aesthetic ecosystem, and how more open aesthetic structures can be achieved within algorithmic environments.

2.2. Core concepts and definitions

The social media and short video environment refers to a digital space based on social connections, visual content production, and algorithmic distribution, characterized by immersive interaction. And its features include low barriers to creation, rapid dissemination, high user participation, and the integration of aesthetics into everyday life [1].

Intelligent recommendation mechanisms are technological systems that construct user profiles based on behavioral data and achieve personalized content distribution via collaborative filtering and popularity weighting. These mechanisms aim to increase user retention and platform traffic [5]. Meanwhile, aesthetic community formation refers to the process in which users with similar visual preferences and aesthetic tastes continuously aggregate under the combined impact of algorithmic recommendations and social interactions, forming relatively stable group structures. Such structures demonstrate shared aesthetic values, strong identity attachment, relatively independent discourse practices, and clear community boundaries. They represent the application of community-based communication patterns within the aesthetic domain.

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2.3. Theoretical foundations and research limitations

This study is based on aesthetic taste theory, reception aesthetics, the S-O-R model, and community communication theory. Aesthetic taste theory is employed to explain social differences in aesthetic preferences and their mechanisms of differentiation. Reception aesthetics emphasizes the active role of audiences in the construction of aesthetic meanings. The S-O-R model reveals how algorithmic stimuli influence user perception and further transform into community behaviors. Community communication theory explains the aggregation patterns, identity mechanisms, and boundary structures of online groups.

However, existing research still has three major limitations. First, discussions on the specific mechanisms underlying aesthetic community formation remain insufficiently detailed. Second, related studies have mainly focused on the negative effects of algorithms, with limited attention given to the potential positive functions of community structures. Third, systematic analysis of the interactions among algorithmic mechanisms, user psychology, and communication outcomes remains lacking. Therefore, this study further explores aesthetic community formation from the perspective of multi-mechanism interactions.

3. The construction logic and mechanisms of aesthetic community formation

3.1. Technological drivers and algorithmic operations

The intelligent recommendation system continuously collects and analyzes user interaction data on short video platforms, including viewing duration, dwell behavior, likes, comments and shares, to generate user interest profiles and realize content matching and distribution accordingly.

The recommendation mechanism depends on historical user behaviors. When users repeatedly engage with a specific type of content, the system increases the recommendation weight of similar content, giving it greater visibility in users' feeds. This repeatedly reinforces existing preferences and gradually compresses the visibility and exposure range of cross-type content [5]. In this process, users with similar interest structures are continuously guided to similar content environments, and form relatively stable preference clusters through repeated consumption and interaction. As these preference clusters continue to develop, different content streams gradually diverge, and aesthetic community structures become increasingly stable. Their boundaries are further reinforced through continuous recommendation and feedback loops [6].

3.2. Aesthetic construction and identity logic

Algorithms build the technological framework, while aesthetic psychology and social needs shape the cultural foundation of aesthetic communities. Under repeated exposure to high-frequency and homogeneous content, individuals' fragmented aesthetic experiences are continuously reinforced and gradually transformed into shared forms of expression and evaluation criteria.

For instance, terms such as "sense of atmosphere," "sense of sophistication," and "healing style" have become shared aesthetic expressions within communities. And the formation of this common language shifts aesthetics from individual perception to collective consensus and transforms users from content consumers into community members with shared evaluative frameworks. On this basis, aesthetic communities support users' identity formation. Through comment interactions, imitative creation, and shared opinions, individuals receive responses from the community, strengthening their sense of belonging and identity while reinforcing their acceptance of community

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aesthetic standards. Meanwhile, the stability of aesthetic communities also relies on external differentiation mechanisms. Users define their positions by comparing their aesthetic preferences with those of other communities and strengthen internal cohesion through differentiated expressions. Therefore, aesthetic communities operate as social structures shaped by interest aggregation, identity formation, and differentiation.

3.3. The evolution and dynamics of aesthetic communities

Once formed, aesthetic communities enter a phase of ongoing reproduction. Though content spreads efficiently within communities, algorithmic recommendations of similar content gradually restrict information diversity and reduce exposure to different perspectives, creating relatively closed "echo chambers" [4].

Within this structure, creators are more likely to imitate and reproduce highly visible content on platforms, gradually establishing stable patterns of expression and evaluation standards. As a result, content production increasingly relies on a small number of replicable models, leading to greater homogenization. From a dynamic perspective, aesthetic communities continue to evolve through user mobility and algorithmic adjustments. Typically, niche visual styles initially emerge within specific interest-based user groups and gain early-stage dissemination. As interaction data increases, algorithms expand their recommendation scope, enabling these styles to enter a phase of rapid diffusion. With repeated exposure, content patterns become increasingly fixed, while community boundaries gradually become clearer and more stable [6].

When users experience fatigue with similar content, platforms adjust recommendation weights, or new visual styles emerge and gain higher levels of interaction, existing communities may undergo fragmentation and replacement. Some content may decline in popularity or even disappear, such as the "retro film style," which experienced rapid popularity before gradually spreading and declining. This process indicates that the evolution of aesthetic communities directly depends on the combined effects of user behavioral feedback and algorithmic distribution strategies.

4. The dual impacts and optimization paths of aesthetic segmentation

4.1. Positive impacts and facilitating functions

Within digital culture, aesthetic community formation reflects both individual support and cultural dissemination. At the individual level, aesthetic communities rooted in shared aesthetic tastes foster users' emotional connections and identity belonging through continuous interaction and collective content creation. This is particularly evident among adolescents and niche interest groups. Through continuous browsing, imitation, and recreation, users gradually boost their aesthetic judgment and visual expression abilities. At the social level, algorithmic distribution reduces the barriers to visual content dissemination and helps diverse visual cultures reach relevant audiences. And this process promotes the visibility of Chinese aesthetics, intangible cultural heritage, rural imagery, and street documentaries [7]. For example, by December 2024, China's online audiovisual users had reached 1.091 billion, covering 98.4% of internet users. This large-scale user participation enabled diverse aesthetic content to reach broader audiences. Under this mechanism, ordinary users increasingly participate in content production and redistribution. As a result, aesthetic practices have expanded beyond professional creation into everyday participation, while traditional culture has gained new forms of dissemination and expression.

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4.2. Practical dilemmas and negative effects

Aesthetic community formation boosts content matching efficiency while also generating structural problems. However, recommendation systems continuously push similar content, keeping users in relatively homogeneous aesthetic environments for extended periods. Limited exposure to diverse aesthetic styles gradually narrows users' perspectives and reduces the diversity of their aesthetic evaluations, contributing to the formation of relatively closed "aesthetic echo chambers." On this basis, different communities gradually separate due to their distinct aesthetic preferences. Through label-based evaluations and oppositional expressions, these communities reinforce their boundaries, and in some cases even generate hierarchies of aesthetic judgment and group conflicts, weakening the space for rational aesthetic exchange [2].

At the level of content production, traffic-oriented mechanisms encourage creators to replicate highly visible content patterns and engage in rapid reproduction based on "viral content templates." This makes aesthetic content increasingly similar and reduces space for original and experimental expressions. Meanwhile, certain types of content centered on appearance-based displays and refined lifestyles may reinforce idealized representations via continuous circulation, intensifying pressures of comparison regarding appearance and lifestyles and also fostering user anxiety and competitive behaviors [8, 9]. At the level of platform-based communication mechanisms, traffic allocation tends to favor highly interactive and stimulating content. Thus, content that generates strong interaction and immediate responses is more likely to gain visibility, whereas content emphasizing artistic value, intellectual depth, and cultural significance receives less exposure. This overall process shifts aesthetic content structures toward more superficial and entertainment-focused forms [3].

4.3. Multi-dimensional optimization and improvement paths

To address the structural problems caused by aesthetic communities in short videos, coordinated optimization is needed across four dimensions: technology, platforms, users, and social governance. This aims to reduce community isolation and improve the mobility and diversity of the aesthetic ecosystem.

At the technological level, platforms can integrate cross-interest recommendations into existing systems to increase content diversity. Without completely deviating from users' preferences, these mechanisms can increase content diversity, reduce the continuous reinforcement of single-interest pathways, and enhance the circulation between different types of aesthetic content. At the platform level, clearer content quality assessment and creator incentive mechanisms should be established to provide traffic and resource support for original and diverse content. Meanwhile, repetitive and template-based content should be downranked, and recommendation systems should be optimized to reduce excessive reliance on users' historical behaviors, alleviating the continuous amplification of homogeneous content [10]. At the user level, media literacy and aesthetic education can improve users' understanding of recommendation mechanisms and also encourage more active and diverse content choices. This can encourage greater autonomy and awareness of diverse content selection, reducing aesthetic convergence caused by long-term consumption of limited content. At the level of social governance, algorithm regulation and content governance frameworks should be improved to clarify platforms' responsibilities in content distribution. Moreover, schools, media organizations, and industry institutions should participate in aesthetic education and value guidance. Through multi-stakeholder collaboration, external constraints and positive guidance can be established for the platform content ecosystem.

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5. Conclusion

This study shows that the aesthetic community formation of short videos emerges from the interplay of recommendation technologies, users' aesthetic preferences, social identity dynamics, and cultural communication processes. Through user profiling, collaborative filtering, traffic distribution, and pseudo-personalized recommendations, algorithmic systems facilitate the aggregation of aesthetic preferences, the consolidation of community boundaries, and the reinforcement of group identity, making aesthetic communities an important form of contemporary aesthetic engagement.

This phenomenon has dual attributes: it promotes aesthetic diversity, empowers public creativity, strengthens community connections, while strengthening the innovative dissemination of traditional culture. However, it also generates problems like aesthetic echo chambers, community polarization, content homogenization, aesthetic anxiety, and imbalance in the aesthetic ecosystem. Its overall influence is jointly shaped by algorithm design, platform responsibility, user literacy, and social governance.

Nevertheless, further empirical research is needed, particularly quantitative comparisons of user behaviors and aesthetic characteristics across different communities. With the ongoing adoption of emerging technologies such as AIGC, virtual digital humans, and immersive video, the aesthetic forms and community structures of short videos will continue to evolve. Future efforts can combine empirical investigation, cross-group comparison and algorithm mechanism experiments to further analyze the impact mechanism of new technologies on aesthetic circles, so as to enrich research on digital aesthetics and media communication.

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