Analysis of Short Video Algorithmic Marketing Strategies from the Perspective of Uses and Gratifications Theory: Postprint

Authors: Zhang Rongrong, Zhang Guiyan

Date: 2023-10-08T00:00:00+00:00

Abstract

Short-video apps achieve the integration of algorithmic technology and marketing models in content recommendation and distribution. Based on the Uses and Gratifications theory, this article explores the motivations behind short-video apps' adoption of algorithmic marketing, and employs a quantitative SWOT research methodology to analyze Douyin' s algorithmic marketing strategies. The study indicates that Douyin' s current algorithmic marketing landscape is characterized by strengths outweighing weaknesses and opportunities surpassing threats, necessitating a proactive high-intensity expansion strategy. The Douyin platform should capitalize on its inherent advantages while advancing with the times to rapidly adapt to evolving media markets and consumer dynamics.

Full Text

Analysis of Short Video Algorithm Marketing Strategies from the Perspective of Uses and Gratifications Theory

Zhang Rongrong[1], **Zhang Guiyan**[2]
[1] School of Media, Anqing Normal University, Anqing, Anhui 246133
[2] Suzhou University, Suzhou, Anhui 234000

Abstract: Short video apps have achieved a convergence of algorithmic technology and marketing models in content recommendation and distribution. This article explores the motivations behind short video apps'application of algorithm marketing based on uses and gratifications theory, and employs SWOT quantitative research methods to analyze Douyin' s algorithm marketing strategies. Research indicates that Douyin' s algorithm marketing status shows strengths outweighing weaknesses and opportunities outweighing threats, warranting an

aggressive expansion strategy. The Douyin platform should leverage its inherent advantages while adapting to changes in the media market and consumer behavior.

Keywords: short video app; uses and gratifications; attention economy; short video algorithm marketing

---

The 46th Statistical Report on China' s Internet Development [1] reveals that as of June 2020, China's short video users reached 818 million. Since the emergence of short videos, user numbers have surged dramatically, with short video apps entering the market successively to capture "traffic dividends"through innovative marketing mechanisms.

Algorithmic intervention breaks the traditional one-way model of audience media exposure, influencing contact outcomes. Short video apps have shifted their product marketing strategies toward more efficient algorithm marketing, with high conversion rates serving as the ultimate goal of marketing activities. Empowered marketing effects become more precise and intelligent, while algorithms provide more economical technical support in the competition for attention resources. Based on big data matching and user profiling techniques, these platforms increase the possibility of public-media contact. Collaborative filtering recommendation methods and usage by similar interest groups positively influence new users' media choices. Algorithm marketing reconstructs the communication environment while changing communication effects, as audiences are guided by algorithms to make value judgments aligned with designers' intentions. Therefore, when examining algorithm marketing, we must also consider the mechanism of algorithmic technology' s role in the audience' s media selection process to discover the fundamental motivations behind short video apps' use of algorithm marketing.

1. Literature Review and Theoretical Framework

1.1 Literature Review

Research in journalism and communication has primarily focused on the negative effects of algorithmic recommendation mechanisms. Scholars have argued that algorithmic recommendations lead to a downward spiral in content quality [2], critiquing these negative impacts and proposing regulatory measures suitable for media platforms [3]. Algorithm technology, born from big data in the Internet era, drives technological innovation in new media platforms under market competition pressure. The integration of media and technology represents a 试探过程 (exploratory process) for innovating media production and distribution mechanisms, where technical dilemmas inevitably emerge [4], prompting scholars to propose optimized algorithm designs [5]. As commercial media mature, the marketing needs behind their application of algorithm technology have garnered attention, with scholars arguing that algorithms reconstruct marketing

systems and proposing omnimedia marketing theories [6].

The "2020 Douyin Data Report" [8] indicates that Douyin's daily active users (DAU) have exceeded 600 million, contributing 4.1 billion yuan to the online economy. Since its establishment in 2016 under the umbrella of Toutiao, Douyin has occupied a significant position in the short video industry through algorithm technology, capturing substantial user attention. The following SWOT analysis examines its current algorithm marketing mechanisms to propose optimization recommendations that meet the requirements of deepening media convergence under the attention economy.

1.2 Uses and Gratifications Theory

Audience research based on uses and gratifications theory provides the source for studying short video app algorithm marketing motivations. Previous research has focused on media effects research and user behavior analysis [7], with no scholars examining the relationship between enterprises' application of algorithm technology and users' media selection processes. Research combining algorithm marketing strategies with usage motivations more easily identifies problems in algorithm marketing status and explores future development paths against the backdrop of media convergence.

Algorithm marketing, as a technological implant, connects people and media through big data algorithms during information dissemination, manipulating the variable "media impression" with an "invisible hand" and intervening in the audience's process from media contact to need satisfaction. This article constructs an audience media contact behavior process model under algorithm marketing scenarios from the perspective of how environmental changes in the communication process constrain and guide audience agency [Figure 1: see original paper].

The motivations for algorithm marketing application can be explained as follows: Under the combined influence of external conditions and psychological factors, audiences generate media contact needs. Media impression and media contact possibility are two factors influencing audience media selection. Media impression serves as the basis for audiences to choose whether to contact or use a medium. New media introduce algorithmic recommendation technology to intervene in information dissemination, achieving precise communication while significantly improving the possibility of audience need satisfaction. Regardless of satisfaction level, algorithmic intervention directly affects users' media impression for their next selection.

Analysis concludes that algorithm technology, as a process implant, directly influences audiences' subjective judgments when selecting media, achieving technical control over communication effects. This result demonstrates that for short video apps in commercial models, using algorithm marketing currently represents the optimal approach for increasing user stickiness and improving return on investment.

2. Motivations for Short Video App Algorithm Marketing Application

The favorable investment climate in the new media industry has expanded market size, with advertising revenue comprising the main portion of such apps' income. High advertising conversion rates and marketing ROI are important metrics for advertisers when selecting placement platforms. Compared with traditional marketing models that simply expand user bases to increase advertising exposure, short video apps combine algorithm technology with advertising marketing to achieve ultra-precise marketing with equivalent user scale. The motivations behind enterprise algorithm marketing design are necessarily linked to potential revenue growth.

New media user volume and growth demonstrate unprecedented economic value compared to traditional channels. Enterprises use algorithm technology to screen users, solving the high-cost dilemma posed by massive user bases in traditional marketing models. Algorithm marketing as a technological implant directly affects media communication effects, influencing the role and function of algorithms in the audience' s process from media contact to need satisfaction, which can be examined through uses and gratifications theory.

3. SWOT Analysis of Short Video Algorithm Marketing

Algorithm marketing communication effects are simultaneously constrained by internal and external platform factors. Taking Douyin as an example, this section qualitatively selects influencing factors for its algorithm marketing application, employs quantitative methods to measure environmental factors and calculate their intensity, and determines strategic vectors. Quantitative analysis can more intuitively reveal problems facing Douyin' s current algorithm marketing and propose reasonable recommendations combined with future algorithm technology development trends.

3.1 Qualitative SWOT Analysis of Short Video Algorithm Marketing Application

Through deep understanding of Douyin App' s internal production elements and external market environment and national policies, this article analyzes and organizes four key environmental factors in enterprise development.

3.1.1 Strengths Analysis (1) Mature Algorithm Technology Support Douyin pioneered the use of algorithmic push to vertically explore markets, successfully capturing niche markets after audience segmentation. Algorithm design undergoes optimization through manual adjustment and algorithm self-learning, enabling technology to influence user decisions while participating in enterprise decision-making within Douyin' s organizational structure.

(2) Precise User Positioning

The UGC production model determines that Douyin is a social media platform based on user interpersonal relationships, where user characteristics and psychology directly influence platform decisions. Douyin' s existing user base possesses certain economic capacity and is typically accompanied by curiosity, making them more receptive to Douyin' s KOL marketing and more susceptible to advertising content "recommendations."

(3) Production Mechanism Innovation
In April 2020, Douyin expanded into live streaming, and in 2018, Douyin Enterprise Accounts officially launched. This new market positioning transforms Douyin into an information aggregation platform integrating enterprises and consumers. Short video platforms under Toutiao achieve traffic sharing, establishing user channeling systems that reduce user acquisition costs.

3.1.2 Weaknesses Analysis (1) User Juvenilization Risk
Short video industry reports show [9] that Douyin' s user group includes 33% minors. With imperfect platform supervision mechanisms, some content negatively guides youth values. Douyin has increased manual supervision, but with large user and content production volumes, manual supervision inevitably proves insufficient.

(2) Content Gatekeeping Deficiency
Technology empowerment grants users production freedom while creating unprecedented supervision pressure for media. Exposure-based recommendation mechanisms determine content homogenization and pan-entertainment on Douyin, whose content review mechanism lacks value assessment of disseminated content.

(3) Frequent Infringement Incidents
In 2019, the viral "Douyin Haidilao" phenomenon became a new form of "human flesh search," disregarding citizens' privacy rights. Douyin' s "shoot the same style" function aims to attract user participation but ignores copyright issues of the content itself.

3.1.3 Opportunities Analysis (1) Social Attributes of Douyin Platform
Douyin' s "decentralized" content recommendation algorithm achieves precise distribution supported by user relationship networks. Recommendations based on geographic location and social networks strive to refine users' "circles," and Douyin' s algorithm marketing leverages this social proximity to increase user trust in recommended advertisements.

(2) Crossover Integration of E-commerce and Live Streaming
The crossover integration of e-commerce and live streaming represents a successful attempt. Dynamic real-time video shopping experiences clearly hold advantages over static web-based shopping in eliminating product uncertainty.

(3) Government Agencies and Mainstream Media Entry

Reports show that as of June 2020, domestic government service users reached 773 million [1]. Official agency entry affirms Douyin's important position among new media, with high reputation from official institutions promoting Douyin' s influence development.

3.1.4 Threats Analysis (1) User Stock Loss
The current short video market structure is in perfect competition, with similar apps continuously entering. Penguin Research Platform data indicates Douyin' s user stock loss rate reaches 17.8%, with over half of lost users switching to Kuaishou. Maintaining individuality without homogenization among numerous similar short video apps presents a new challenge.

(2) Similar Products Entering Market
As algorithm technology popularizes and becomes more transparent, almost all short video apps on the market now use algorithm technology, fully enjoying the convenience of technological innovation in personalized production and precise distribution. When substitute products enter the market and Douyin' s own product quality is low, user attention becomes dispersed.

(3) User Algorithm Fatigue
Users long immersed in algorithm-controlled virtual environments find platform-recommended content gradually homogenizing. Over time, users inevitably experience algorithm fatigue from lack of exposure to fresh information. When users access too much similar content, resistance psychology emerges.

3.2 Quantitative SWOT Analysis of Short Video Algorithm Marketing Application

The above analysis of four environmental aspects affecting Douyin' s algorithm marketing application yields conclusions with fuzzy judgment limitations. This section employs a SWOT quantitative analysis model to verify these hypothetical conclusions, thereby avoiding subjectivity and blindness in strategic decision-making.

3.2.1 Constructing IFE and EFE Matrices For more accurate results, the author constructed Douyin algorithm marketing' s IFE and EFE matrices based on the above strategic factors. Ten domain experts were invited to calculate each factor' s weight using the AHP method (q 0,1) and score using the Delphi method (p -4,4), as shown in Table 1 and Table 2 .

Table 1: Douyin App Algorithm Marketing IFE Matrix

Strength	Weighted Score z
S1: Mature algorithm technology support	
S2: Precise user positioning	
S3: Production mechanism innovation	

Strength	Weighted Score z
Weakness	
W1: User juvenilization risk	
W2: Content gatekeeping deficiency	
W3: Frequent infringement incidents	

Table 2: Douyin App Algorithm Marketing EFE Matrix

Opportunities	Weighted Score z
O1: Douyin platform' s social attributes	
O2: Crossover integration of e-commerce and live streaming	
O3: Government agencies and mainstream media entry	
Threats	
T1: User stock loss	
T2: Similar products entering market	
T3: User algorithm fatigue	

3.2.2 Calculating Strategic Indicators Based on the above strategic choice hierarchical structure, the intensity calculation results for each factor are as follows:

3.2.3 Calculating Strategic Orientation Angle According to the characteristic vector scores, weighted calculations yield coordinate points for four dimensions: overall strengths, overall weaknesses, overall threats, and overall opportunities. This plots the algorithm marketing decision quadrilateral [Figure 2: see original paper]. Relevant data calculations show that the center of gravity P falls in the first quadrant.

3.2.4 Determining Strategic Intensity Coefficient Strategic positive intensity: .2 × =
Strategic negative intensity: .0 ×
Strategic intensity coefficient:

Analysis Conclusion:
The analysis reveals that the most influential factors in the characteristic vectors are: mature algorithm technology support (S1), content gatekeeping deficiency (W2), government agencies and mainstream media entry (O3), and similar products entering market (T2). Douyin' s algorithm marketing strategic vector positions in the first quadrant, warranting an aggressive expansion strategy (SO). Analysis shows >0.5, indicating Douyin platform should implement expansion strategy with strong intensity.

4. Conclusions and Strategic Recommendations

Given the SWOT analysis of Douyin's algorithm marketing, the platform should leverage its technological advantages, fully utilize official media' s high-quality content resources, and improve platform reputation and credibility on the basis of expanding user scale and stickiness. As the short video industry market continues growing, both market demand and government policy support pose new requirements for future development. Based on SWOT analysis conclusions, four development directions are proposed for Douyin platform' s algorithm marketing application:

4.1 Leverage Technological Advantages to Improve Content Supervision Mechanisms

Adhering to a "user-oriented" approach, provide high-quality information services supported by algorithm technology. Content gatekeeping should become more intelligent. Simple keyword filtering may cause loss of quality content. While strengthening algorithm deep learning, manual gatekeeping remains indispensable.

4.2 Deepen Media Convergence to Promote "Four-All Media" Construction

Technology convergence is a key component of media convergence. With its mature algorithm technology and massive user base, Douyin platform has become an important communication channel for guiding mainstream values. Mainstream media entry represents a new attempt at media convergence and redefines Douyin platform' s attributes as a public good. Douyin platform should leverage this trend to elevate its positioning and build a high-credibility news aggregation platform.

4.3 Emphasize Technological Innovation to Promote Deep Learning-Based Algorithm Optimization

While algorithm technology benefits short video marketing, various drawbacks gradually emerge. Simple algorithm models can no longer adapt to the current complex online communication environment. Facing large-scale user-generated content, how to achieve precise marketing while avoiding negative effects like aesthetic fatigue caused by information repetition? Intelligent "content profiling" becomes particularly important.

4.4 Achieve Crossover Communication and Deepen Multi-Scenario Integration

Multi-scenario integration has become a new trend in short video development, with short videos becoming mainstream information channels. As a new "language" in information dissemination, short videos permeate multiple user scenar-

ios including social interaction, tourism, and education. Short video communication based on algorithm marketing uses technology to achieve precise crossover reach and create multi-scenario user life information circles, representing a new business model that will differentiate Douyin from similar entertainment short video platforms in the future.

References

[1] CNNIC Releases the 46th Statistical Report on China' s Internet Development [J]. Internet World, 2020(10).
[2] Song Jianwu. Why Intelligent Push Easily Falls into a "Downward Spiral of Content" —Cognitive Misunderstandings of Intelligent Push Technology [J]. People' s Tribune, 2018(17): 117-119.
[3] Fan Ruike, Zhang Maojie. Research on Effective Dissemination of Socialist Core Values from the Perspective of Algorithmic Recommendation [J]. Socialism Studies, 2020(5): 94-101.
[4] Jia Jun. Algorithm-Recommended News: Technical Dilemmas and Paradigm Changes [J]. Journal of Southwest Minzu University (Humanities and Social Sciences), 2019(5): 152-156.
[5] Li Zeng, Liu Yu, Li Chengcheng. Research on News Recommendation Algorithm Based on User Behavior [J]. Computer Engineering and Science, 2020(3): 529-534.
[6] Huang Shengmin, Liu Shan. Deconstruction and Reconstruction of Marketing System Under the "Big Data" Background [J]. Modern Communication (Journal of Communication University of China), 2012(11): 13-18.
[7] Xu Mengsheng, Tan Tian. "Uses and Gratifications" in Intelligent Communication [J]. Youth Journalist, 2019(33): 15-17.
[8] "2020 Douyin Data Report" [EB/OL]. Xinhua Net, 2021-01-05. http://www.xinhuanet.com/tech/2021-01/05/c_{1126948875}.htm.
[9] "2020 Short Video Industry Special Research Report - 2020 Short Video Industry Report"[EB/OL]. Baidu Wenku, 2020-03-03. https://wenku.baidu.com/view/3c6ea7d67f21af45b307e871

Author Biographies:
Zhang Rongrong (1994-), female, from Bozhou, Anhui, Master's degree, research direction: media economics.
Zhang Guiyan (2001-), female, from Bozhou, Anhui, undergraduate student, research direction: journalism and communication.

(Responsible Editor: Zhang Xiaojing)

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