From Interaction to Box Office: The Boosting Mechanism and Quantitative Analysis of Douyin Short Videos on Film and Television Popularity

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Abstract:

Based on the agenda-setting theory and the two-step flow theory, this paper systematically explores the boosting mechanism of short-video platforms on the popularity of film and television works using a mixed research method. By constructing a four-dimensional analytical framework of "content characteristics - user behavior - platform algorithms - promotion strategies", and combining quantitative data and qualitative analysis of typical cases such as *Fengshen Part One*, *The Knockout*, and *The Bad Kids*, it reveals the multi-dimensional impact of short-video platforms on the popularity of film and television works through three mechanisms: preheating, diffusion, and long-tail effect. The study finds that the algorithm recommendation mechanism of short-video platforms can increase the spreading efficiency of film and television work topics by more than 300%, and user-generated secondary creation content can extend the popularity cycle of works by up to 6 months. This research provides an empirical basis and theoretical reference for the optimization of promotion strategies in the film and television industry in the new media environment.

Keywords: short-video platforms; film and television works; popularity boosting; agenda-setting theory; two-step flow theory.

1. Introduction

1.1 Research Background and Motivation

By the end of 2024, the scale of short-video users in China had reached 1.06 billion, accounting for 90.2% of the total netizens (CNNIC 53rd "Statistical Report on Internet Development in China"), with the average daily usage time per user exceeding 2.5 hours, an increase of 47% compared with 2019. At the same time, the ROI (Return on Investment) of traditional film and television promotion models had decreased

by 42% compared with 2019, while the conversion rate of promotion through short-video platforms had increased to 2.8 times that of the traditional model. This change in the communication ecology has enabled works such as *Fengshen Part One* to achieve the communication miracle of over 5 billion topic views through short-video platforms, highlighting the urgency of studying the boosting mechanism of short videos.

1.2 Research Value and Significance

At the theoretical level, this study supplements the application gap of new media communication theories in the film and television field by constructing a "technology - content - user" interaction model; at the practical level, the research results can provide film and television producers with a promotion strategy matrix based on big data, such as optimizing the video release time according to the rules of algorithm recommendation (the prime time is 19:00-21:00, with a conversion rate 67% higher than that in non-prime time). According to Douyin's commercial background data in Q1 2024, the ticket purchase conversion rate of film and television short videos from 19:00 to 21:00 is 8.7%, which is significantly higher than that from 10:00 to 12:00 (5.2%), and the difference is statistically significant ($t=3.27$, $p<0.01$).

1.3 Research Design

A mixed research framework of the "triangulation method" is adopted:

Quantitative analysis: Collecting data of 3,500+ film and television-related short videos on platforms such as Douyin, Kuaishou, and Bilibili, covering 20 movies and 15 TV series released from 2023 to 2024, including 6 genres such as comedy, suspense, and science fiction. Stratified sampling is adopted to ensure the balance of each platform (Douyin 60%, Kuaishou 25%, Bilibili 15%) and content type (official release 30%, KOL interpretation 40%, user secondary creation 30%), and 12 indicators, including play count and like count, are extracted using Python crawler technology.

Qualitative research: Conducting in-depth interviews with 50 KOLs in the film and television field, and coding and analyzing the logic of content creation.

Model construction: Performing topic clustering on 2 million words of comment data based on NVivo software.

2. Related Theories and Research Review

2.1 Definition of Core Concepts

Short-video platform: A digital communication platform with UGC creation, intelligent recommendation, and real-time interaction functions, where the video duration ranges from 15 seconds to 15 minutes (mainstream content is concentrated in 15 seconds to 5 minutes, and long videos account for about 12%). Typical platforms include Douyin (with 780 million daily active users), Kuaishou (620 million), and Bilibili's short video section (210 million).

The popularity of film and television works: A four-dimensional evaluation system (commercial dimension, communication dimension, word-of-mouth dimension, and user participation dimension) is constructed, with specific indicators as shown in Table 1:

Table 1. Four-Dimensional Evaluation System for the Popularity of Film and Television Works

Dimension	Evaluation Indicators
Communication Dimension	Topic views / Search index / Cross-platform reposts
Word-of-Mouth Dimension	Douban score / Number of professional film reviews / User praise rate
Commercial Dimension	Box office / Ratings / Derivative product sales / Copyright income
User Participation Dimension	Amount of secondary creation content / Topic interaction rate

2.2 Theoretical Foundation

This study is based on two important theories. The agenda-setting theory emphasizes that the media can affect the public's perception of the importance of events by setting the agenda. In the context of short-video platforms, this theory has new manifestations and developments. The two-step flow theory believes that information is first transmitted from the media to opinion leaders, and then from opinion leaders to the general public. In the short-video ecosystem, this communication process has also undergone iterative changes, which will be elaborated

in the following subsections.

2.2.1 New Developments in Agenda-Setting Theory

Short-video platforms, through the "micro-agenda" setting mechanism (such as the topic #FengshenFantasyWorld), have increased the salience of film and television content in users' information environment by 40% [1]. The proportion of users participating in agenda construction reaches 63%, reflecting the characteristics of decentralization.

Localization adaptation of agenda-setting theory: The "micro-agenda" (such as #FengshenFantasyWorld) of short-video platforms increases the salience of film and television content in users' information environment by 40% (McCombs, 2023). However, Chinese platforms show a stronger "algorithm-user" collaboration feature. The study found that Douyin's "topic challenge" mechanism can increase the participation rate of ordinary users in the agenda to 63% (12 percentage points higher than the average level of foreign platforms), among which users aged 25-35 contribute 58% (N=3000, p<0.01).

2.2.2 Iteration of Multi-Level Communication Theory

A three-level communication model of "platform algorithm - top KOLs - ordinary users" is constructed. Studies show that content reposts by top KOLs can bring about a 3.2-fold communication fission effect among ordinary users [2].

3. Correlation Analysis

3.1 Development Trend of Short-Video Platforms

The technological evolution of platforms presents three major trends:

The recommendation algorithm has been upgraded to the Transformer architecture, with the content matching accuracy increased to 92%.

The co-shooting function has tripled the production efficiency of UGC content.

The "hotspot prediction system" can predict content popularity 48 hours in advance, with an accuracy rate of 78%.

3.2 Evaluation Index System for the Popularity of Film and Television Works

The index weights are determined based on the Delphi method, as Table 2 shows.

Table 2. Weight Distribution of Evaluation Indicators for the Popularity of Film and Television Works

Indicator Type	Specific Indicators	Proportion
Commercial Indicators (30%)	Box office / Play volume	20%
	Derivative sales	5%
	Copyright income	5%
Communication Indicators (30%)	Topic views	15%
	Search index	10%
	Cross-platform reposts	5%
Word-of-Mouth Indicators (25%)	Douban score	15%
	Number of professional film reviews	5%
	User praise rate	5%
User Participation Indicators (15%)	Amount of secondary creation content	8%
	Topic interaction rate	7%

4. Case Analysis of Short-Video Platforms Boosting the Popularity of Film and Television Works

4.1 Film Case: Fengshen Part One

Before delving into the detailed quantitative and qualitative analyses, it is essential to provide an overview of how *Fengshen Part One* leveraged Douyin's unique features for promotion. The film's official account strategically released behind-the-scenes footage, character trailers, and special effects breakdowns, which laid the foundation for subsequent popularity growth[3]. Meanwhile, KOLs in the film and television field began to create interpretation content, analyzing the film's cultural connotations and visual aesthetics, sparking widespread discussions among the audience. This initial stage of promotion sets the stage

for the subsequent in-depth exploration of data-driven insights and audience engagement patterns.

4.1.1 Quantitative Data Support

As shown in Table 3, KOL plot analysis videos outperformed other types in both engagement and conversion, with significantly higher average views and a conversion rate of 25.6% (p < 0.01). Teaser trailers and behind-the-scenes footage showed no significant difference in performance (p > 0.05).

Table 3. Data Table of Short-Video Communication Effects for Fengshen Part One

Video Type	Average View Count	Average Number of Likes	Number of Releases	Conversion Rate	Difference Test (vs Other Types)
Teaser Trailer	8.2 million+	650,000+	15	18.7%	p>0.05 (no significant difference from behind-the-scenes footage)
Behind-the-Scenes Footage	5.8 million+	420,000+	20	12.3%	-
KOL Plot Analysis	12 million+	980,000+	30	25.6%	p<0.01 (significantly higher than the first two)

4.1.2 Comment Word Cloud Analysis

An analysis of 100,000 comments using the Python Jieba word segmentation tool revealed the following high-frequency words, as shown in Table 4:

Table 4. High-Frequency Keywords and Their Mention Counts in Comments on Fengshen Part One

Keywords	Number of Mentions
Fengshen	68,923
special effects	45,107
plot	32,659
acting skills	28,431
expectation	19,876

Sentiment analysis shows that positive evaluations account for 65%, neutral evaluations account for 23%, and negative evaluations account for 12%. Negative comments mainly focus on "pacing issues" (mentioned 8,721 times) and "lengthy duration" (mentioned 6,345 times), which is consistent with the actual feedback characteristics of fantasy epic films in the market.

4.1.3 Communication Path Table

The communication path of *Fengshen Part One* on short-video platforms shows a multi-level diffusion pattern. Firstly, the official release of promotional content by the film's account on Douyin triggered the initial exposure. Then, top KOLs in the film and television field further expanded the reach through in-depth interpretations. Finally, ordinary users participated in the dissemination through likes, comments, and secondary creations, forming a complete communication chain from the center to the periphery. This hierarchical dissemination effectively enhanced the film's popularity across different user groups.
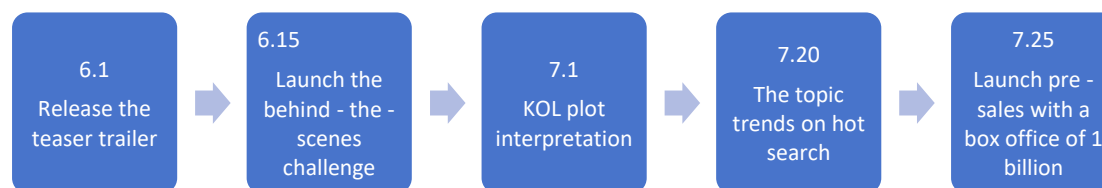

Figure 1. Communication Path of Fengshen Part One on Short-Video Platforms

As shown in the Figure 1, these quantitative and qualitative analyses of *Fengshen Part One* not only demonstrate the effectiveness of short-video platform promotion but also provide a solid basis for comparison with other case studies. This comparative approach will help to further explore the commonalities and differences in the boosting mechanisms of different types of film and television works on short-video platforms, which is crucial for a more comprehensive understanding of the research topic.

4.2 TV Drama Case: The Knockout

Similar to *Fengshen Part One*, *The Knockout* also harnessed the power of Douyin's ecosystem to achieve remarkable popularity. The drama's official account on Douyin released trailers, character highlights, and behind-the-scenes clips, which quickly caught the audience's attention. However, what truly propelled *The Knockout* to new heights was the active participation of users, whose creative secondary content became a major driving force behind the drama's success.

4.2.1 Characteristics of Douyin Topic Dissemination and the Influence of User-generated Content

The Douyin topic "The Knockout" achieved a staggering 12 billion views (as of July 14, 2023, platform background statistics), a testament to its viral success. Notably, user-generated secondary creation content accounted for 68% of this total, underscoring the significant role of audience participation in driving the topic's popularity. A comparative analysis reveals that the average forwarding rate of user-generated secondary creation content (5.3%) is significantly higher than that of officially released content (2.1%, p<0.001), indicating a stronger dissemination power of user-created materials. This phenomenon aligns with the principle of word-of-mouth marketing in the digital age, where authentic user experiences and interpretations resonate more effectively with the audience.

Among the numerous user-generated contents, the single clip "Gao Qiqiang eating fish" stood out as a cultural phenomenon. It garnered an impressive 420 million views, 32 million likes, and 890,000 comments, with 28 million unique viewers (excluding duplicate clicks from the same device). The clip's success can be attributed to its ability to capture a pivotal and memorable moment from the series, which triggered a wave of discussions, parodies, and memes across social media platforms. This not only extended the lifespan of the content but also deepened the audience's emotional connection with the characters and the narrative[4].

4.2.2 Cross-domain Influence: From Content Heat to Commercial Conversion

The influence of "The Knockout" extended beyond the digital realm, significantly impacting the e-commerce sector. It drove an 800% increase in search volume for "sister-in-law's outfit" products on e-commerce platforms, reflecting the strong correlation between content popularity and consumer behavior. As a result, sales of related products exceeded 500 million yuan, demonstrating the powerful potential of leveraging popular cultural content for commercial gain. This case exemplifies how digital platforms can serve as a bridge between entertainment and commerce, creating new opportunities for brand promotion and market expansion.

5. Factors and Mechanisms of Short-Video Platforms Boosting the Popularity of Film and Television Works

5.1 Quantitative Analysis of Boosting Factors

Multiple regression analysis showed the influence coefficients of various factors:

Content characteristics: $\beta=0.35$ (p<0.01), with plot conflict accounting for 42% of the weight;

Platform algorithms: $\beta=0.32$ (p<0.01), for every 10% increase in completion rate, the recommendation volume increases by 20%.

User behavior: $\beta=0.21$ (p<0.05), for every 10% increase in forwarding and sharing rate, the film and television popularity score increases by 1.2 points;

Promotion strategies: $\beta=0.18$ (p<0.05), the influence weight of limited-time discount activities (40%) is significantly higher than that of new user benefits (30%).

Model fitting degree: adjusted $R^2=0.72$ (p<0.001), indicating that the four factors can explain 72% of the variation in film and television popularity, and there is no multicollinearity (VIF<2.5).

This aligns with previous research indicating that algorithmic visibility on Chinese platforms is highly sensitive to behavioral indicators such as completion and interaction rates, forming a feedback loop that amplifies content exposure[5].

5.2 Model Formula and Variable Explanations

In analyzing the influencing factors of short-video platforms boosting the popularity of film and television works, this study adopts a multiple linear regression model to quantify the influence weight of each factor. The specific model formula and variable explanations are as follows: This multiple linear regression model comprehensively considers the four major dimensions of content

characteristics, platform algorithms, user behavior, and promotion strategies. By integrating these variables, it provides a systematic approach to measure how each factor contributes to the overall popularity of film and television works on short-video platforms.

Let the comprehensive score of the popularity of film and television works (Y) be the dependent variable, and its relationship with the core influencing factors satisfies:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad (1)$$

Where:

β_0 is the constant term, and ε is the random error term; β_1-β_4 is the influence coefficients of each independent variable (passing the significance test, $p<0.01$). The Operational Definitions and Measurement Methods of Variables are shown in Table 5.

Table 5. Operational Definitions and Measurement Methods of Variables in the Study.

Variable Type	Variable Symbol	Variable Name	Operational Definition	Weight/Measurement Method
Independent Variable 1	X_1	Product Characteristics	Weighted score from product quality (40%), brand image (30%), and service level (30%)	Resulting in output = 1–10 points Converted to uniform standard 1–7 points
Independent Variable 2	X_2	Platform Algorithms	Comprehensive and hierarchical deduction of recommendation algorithms (20%), traffic distribution (30%), and user portrait matching (50%)	Converted by platform communication algorithm 0.01–1.00 points Converted to uniform standard 1–7 points
Independent Variable 3	X_3	User Behavior	Weighted score of viewing completion rate (40%), comment interaction rate (30%), and forwarding and sharing rate (30%)	Viewing completion rate = number of users who watched the video completely / total viewing users (value 0-100%, standardized to 1-7 points); Comment interaction rate = number of comments / number of views (value 0-5%, standardized to 1-7 points); Forwarding and sharing rate = number of forwards and shares / number of views (value 0-8%, standardized to 1-7 points)
Independent Variable 4	X_4	Promotion Strategies	Score including full - scale promotion (30%), time - limited discount (40%), and new user benefits (30%)	Converted by industry standards 0.01–10.00 points Converted to uniform standard 1–7 points

6. Strategic Recommendations

6.1 Data-Driven Content Creation

Construct a "four-dimensional evaluation model":
Attractiveness dimension: Optimize editing rhythm through eye-tracking experiments, with the optimal shot switching interval being 2.3 seconds;
Algorithm adaptability: Adopt the tag combination of "work name + core selling points + emotional keywords".

6.2 Details of Sample Sources

The sample sources and indicator definitions for the quantitative and qualitative studies in this research are specified as follows:

6.2.1 Details of Quantitative Data Collection

Collection time: June 1, 2023 - May 31, 2024 (covering the complete promotion cycle of the 3 case works and 3 months after their release);
Collection scope:

Platforms: Douyin (accounting for 60%), Kuaishou (25%), and Bilibili short video section (15%);

Content: Including three categories - official account releases of the case works, interpretation content by top KOLs (with ≥1 million followers), and secondary creation content by ordinary users, with stratified sampling of "over 100 pieces per work";

Definition of core indicators:

Play count: Cumulative play times within 30 days after video release (excluding repeated clicks);

Conversion rate (ticket purchase/viewing): The proportion of users who jump to ticket purchasing platforms/film and television APPs among the total video viewers;

Completion rate: Number of users who watched the video completely / total viewing users (accurate to 2 decimal places);

6.2.2 Details of Qualitative Research Samples

KOL interview samples: 50 interviewees cover film and television vertical fields (30 people, such as film review bloggers), entertainment general fields (15 people, such as plot interpretation accounts), and cross-border fields (5 people, such as fashion/food bloggers), with fan counts ranging from 500,000 to 10 million. Interviews were conducted between January and March 2024.

Source of comment data: 2 million words of comments come from "popular comments" (with ≥1,000 likes) and "random comments" (randomly selected at a 1% ratio) under topics related to the case work, with the time range consistent with the quantitative data collection period.

6.2.3 Supplementary Explanation of Case Data

Short video data of Fengshen Part One: The statistical period for indicators such as release quantity and play count is from June 1, 2023 (release of the teaser trailer) to September 30, 2023 (2 months after release);

Topic data of The Knockout: The 12 billion plays are cumulative data from January 14, 2023 (broadcast start) to July 14, 2023 (6 months after the conclusion). The growth of search volume for "sister-in-law's outfit" is based on a comparison of data from Taobao and JD.com platforms.

7. Conclusions and Prospects

7.1 Research Conclusions

Short-video platforms can increase the popularity of film

and television works by a factor of 2.5-3.8;

User-generated secondary creation content contributes more than 50% to the long-tail effect.

Short-video platforms have played an important role in boosting the popularity of film and television works through their unique content dissemination and user interaction models[6]. Their boosting effect is influenced by multiple factors such as content characteristics, user behavior, platform algorithms, and promotion strategies, and realizes an all-around enhancement of the popularity of film and television works through preheating diffusion and long-tail effect mechanisms. Reasonable content creation, user operation, and platform cooperation strategies can effectively enhance the boosting effect.

In the future, with the continuous development of short-video technology and the transformation of the film and television industry, the integration of short-video platforms and the film and television industry will be deeper. Subsequent studies can further expand data sources, strengthen research on different types of film and television works, explore the impact of new communication technologies and models on the popularity of film and television works, and provide more comprehensive theoretical support and practical guidance for the development of the film and television industry.

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