An Analysis of the Bidirectional Shaping Mechanism Between Short-Video Algorithms and Film Narrative Driven by the Attention Economy

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Abstract: This study examines the bidirectional shaping mechanism between short-video algorithms and film narratives within the attention economy. It investigates how algorithmic logic influences cinematic storytelling and how films, in turn, contribute to the aesthetic enhancement of short-video content. Drawing on Communication Accommodation Theory and Berry's Acculturation Theory, along with case analyses and industry data, this research demonstrates that algorithms push films toward high-stimulus, fast-paced narrative patterns—characterized by increased shot density and structural fragmentation—to capture and retain viewer attention. Conversely, films counter this influence by supplying narratively deep and artistically refined content that elevates short-video aesthetics and encourages critical audience engagement. This dynamic reflects a process of mutual adaptation rather than one-sided dominance. The study concludes that such interaction signifies a broader restructuring of cultural production logic, facilitating cross-media convergence while simultaneously posing risks to cultural diversity due to the prioritization of high-traffic content. Balancing this relationship will require policy support, algorithmic transparency, and strengthened industry self-regulation to preserve artistic integrity and cultural ecosystem diversity.

Keywords: Short-video algorithm; Film narrative; Bidirectional shaping; Cultural production logic; Attention economy

1. Introduction

The contemporary media landscape is characterized by complex interactions between traditional and digital forms, with the relationship between short video platforms and the film industry representing a particularly significant site of negotiation. The rapid proliferation of short video content, governed by algorithmic systems prioritizing immediate engagement, has fundamentally altered attention economies and consumption patterns worldwide. Concurrently, the film industry, with its established traditions of narrative depth and aesthetic immersion, faces both unprecedented challenges and opportunities within this new digital ecosystem.

This research investigates the hypothesis that the interaction between these two media forms constitutes a process of "bidirectional domestication"—a mutual adaptation wherein short video algorithms domestically shape film narratives toward faster pacing and higher stimulation, while films, leveraging their cultural capital, reverse domesticate the short video landscape toward greater aesthetic depth and quality content. This dynamic represents nothing less than a reconstruction of cultural production logic, with profound implications for artistic expression, industry structures, and cultural diversity.

The theoretical significance of this study lies in its integration of Communication Accommodation Theory (CAT) and Cultural Adaptation Theory to explain media convergence phenomena. While previous research has examined technological impacts on cinema or platform economics separately, this study provides a synthesized framework for understanding their reciprocal relationship. Practically, this research offers valuable insights for content creators, industry stakeholders, and policymakers navigating the evolving media landscape.

This paper is structured according to conventional academic formatting, presenting materials and methods, comprehensive results, detailed discussion, and substantive conclusions. Through systematic analysis of industry reports, academic literature, and empirical data, this study aims to provide a nuanced understanding of how bidirectional domestication operates, its impacts, and its implications for the future of cinematic art in the digital age.

2. Materials and methods

2.1. Research design

This study employs a mixed-methods approach combining qualitative theoretical analysis with quantitative data examination. The research design incorporates document analysis of industry reports, academic literature review, and case study examination to develop a comprehensive understanding of the bidirectional domestication phenomenon. This triangulation method ensures robust findings through methodological complementarity.

2.2. Data sources

Primary data were extracted from multiple authoritative sources:

The China Film Association's "Nearly 500 Popular Film Images Analysis Report" (2025) provided quantitative data on shot duration, frequency, and narrative patterns across a significant sample of films from 2010–2025.

The "2023 Short Video Attention Report" by Second Hand System offered crucial metrics regarding attention span changes and consumption patterns.

The National Film Administration's "Film Industry Report 2024" supplied industry-wide data on production trends, distribution patterns, and economic impacts.

Douban platform data (2024) provided audience evaluation metrics and criticism patterns for comparative analysis.

2.3. Theoretical framework

The analysis is grounded in two primary theoretical frameworks:

Communication Accommodation Theory (CAT) provides a mechanism for understanding convergence and divergence strategies in media interaction, illustrating how short videos accelerate narrative rhythm through highly stimulating content (convergence), while movies counter with aesthetic upgrading through artistic depth (divergence) [1].

In John Berry's acculturation theory, strategies such as "integration" and "separation" can be further analogized to the response modes within the film industry: commercial films actively incorporate the logic of short videos to broaden their audience (integration), while art films adhere to their own style to preserve artistic independence (separation) [2]. Such differentiated responses transcend the binary opposition of "technology eroding art" and instead foster a symbiotic relationship between media.

At the narrative level, traditional films rely on long shots to create immersion, while contemporary films tend to use short shots to assemble information, which is essentially a response to the "high information density" characteristics of short videos [3].

Supplementary theoretical perspectives include:

(1) David Bordwell's film narratology concepts for analyzing changes in cinematic language.

(2) Stuart Hall's encoding-decoding model for understanding audience interpretation.

(3) Dallas Smythe's audience commodity theory for contextualizing attention economies.

2.4. Analytical approach

Content analysis was conducted on the extracted data with a specific focus on:

Quantitative metrics: Shot duration frequency, attention span data, box office figures, viewership statistics.

Qualitative patterns: Narrative structures, aesthetic approaches, critical reception trends.

Case studies: Deep analysis of specific films (e.g., "Fast & Furious 10," "Silent Village," "The Last Night on Earth") demonstrating particular adaptation patterns.

Ethical considerations were maintained through the exclusive use of publicly available data and proper citation of all sources. Limitations include potential regional specificity of data and the rapidly evolving nature of the phenomena under study.

3. Results

3.1. Attention economy metrics

The data reveals dramatic changes in audience attention patterns directly attributable to short video consumption. The average user attention span decreased from 8 seconds in 2018 to 3 seconds in 2023 [4], representing a 62.5% reduction over five years. This shift has created substantial pressure on film narratives to deliver core content more rapidly.

Commercial films demonstrated direct responsiveness to these changes. Analysis of "Fast & Furious 10" revealed a shot switching frequency of 1.2 times per second in its opening five minutes, nearly double the rate of comparable films from the early 2010s. Conversely, films maintaining traditional pacing faced significant challenges: "Silent Village," utilizing extended long takes exceeding 30 seconds, achieved only 1 million yuan in first-week box office revenue, with over 60% of Douban comments criticizing its slow pace.

Statistical analysis of Douban data (2024) showed a strong correlation between pacing and reception: 72% of films rated below 6/10 received criticism for "slow pacing," while all top-rated commercial films were characterized by "immediate conflict introduction" [5].

3.2. Narrative structure transformation

The China Film Association's analysis of nearly 500 popular films revealed significant technical evolution:

The average number of shots increased by 40% in 2020–2025 compared to 2010–2015.

The average shot duration decreased by 30% over the same period [6]. This change points to the narrative gene of "high information density" in short videos [7].

Films increasingly incorporated "highlight moments" specifically designed for platform sharing.

Case studies demonstrated adaptive narrative strategies:

"Cloud Atlas" employed segmented narrative blocks averaging under 2 minutes each, mirroring short video multi-segment patterning.

"The Wandering Earth 2" generated specific high-impact sequences (space elevator explosion, lunar nuclear detonation) that accumulated over 8 billion views on Douyin while maintaining feature narrative integrity.

3.3. Production process evolution

Data indicates fundamental shifts in creative processes:

65% of film promotion budgets were allocated to short video platforms in 2024.

Platforms increasingly influence production through data-sharing arrangements.

Netflix's algorithmically-derived creative metrics (pre-conflict positioning, emotional peaks, visual symbols) have been integrated into development processes.

The "cross-media compatibility" model has emerged, where productions are consciously designed for "one creation, multiple distribution" across theatrical and platform environments.

3.4. Counter-domestication patterns

Despite adaptation pressures, significant resistance patterns emerged:

Art films like "Sons and Daughters of the Jianghu" maintained aesthetic integrity while achieving high Douban scores (7.6/10) through community support.

Analysis of the content of artistic films ("The Last Night on Earth" 70-minute long take analysis) garnered over 50 million views, demonstrating an appetite for sophisticated content.

Audience criticism mechanisms effectively penalized algorithmically-optimized but artistically-deficient productions (one fantasy film's rating dropped from 6.5 to 4.2 following fan community criticism).

3.5. Industrial restructuring

Substantial industry transformation is evident:

Art cinema numbers decreased by 20% between 2019–2024 [8].

Action and comedy films dominated production (60% of output) while documentaries and experimental films diminished (10% share).

Platform-producer revenue-sharing ratios reached 6:4 for derivative advertising income.

Short video platforms directly influence theatrical scheduling through viewership metrics.

4. Discussion
4.1. Theoretical integration

The findings substantially support the application of Communication Accommodation Theory to media convergence phenomena. The observed patterns of cinematic narrative acceleration represent clear convergence strategies toward short video logic, while the maintenance of artistic integrity in certain films demonstrates divergence strategies preserving medium-specific values. This dynamic aligns with CAT's prediction that

communication systems adjust their behavior to enhance interaction effectiveness.

Berry's Cultural Adaptation Theory similarly provides explanatory power for the differential industrial response [9]. The commercial film sector's embrace of short video characteristics exemplifies an integration strategy, while art cinema's adherence to traditional forms demonstrates a separation strategy. This theoretical framework successfully transcends simplistic "technology versus art" dichotomies by recognizing the strategic nature of adaptation decisions.

The research findings further validate Smythe's audience commodity theory within contemporary digital capitalism [10]. Attention metrics directly influence production decisions, and algorithmic systems effectively transform viewer attention into quantifiable, tradable commodities. However, the counter-domestication patterns observed complicate this framework by demonstrating how cultural capital can create alternative value systems partially independent of immediate attention metrics.

4.2. Power dynamics and agency

The bidirectional domestication model reveals complex power negotiations within media ecosystems.

While algorithmic systems exert substantial influence through attention economies, the research demonstrates that agency persists at multiple levels:

Producers exercise strategic choice in adaptation approach (integration vs. separation).

Creators leverage cultural capital to resist homogenization.

Audiences utilize critical capacity to reward/punish artistic decisions.

This multi-layered agency suggests that technological determinism provides insufficient explanation for media evolution. Rather, the findings support a structuration perspective wherein technological systems establish constraints and opportunities while human agency operates within and against these structures.

4.3. Cultural diversity implications

The documented 20% decrease in art cinemas and dominance of action/comedy genres (60% of production) raise significant concerns about cultural diversity. Algorithmic preference for highly shareable content creates substantial pressure toward homogenization, potentially marginalizing nuanced or challenging content.

However, the substantial viewership (50+ million) for sophisticated analysis content suggests alternative distribution pathways for complex material. This indicates that while algorithmic systems prioritize certain content types, they don't eliminate demand for diverse material—rather, they reshape how such content must be packaged and distributed.

4.4. Future evolution trajectories

The research suggests several probable development pathways:

Continued evolution toward "cross-media native" production designed from inception for multiple distribution formats.

Emerging counter-movements leveraging algorithmic systems to promote diverse content (as demonstrated by Bilibili's 30% exposure increase for niche content through algorithm adjustment).

Potential regulatory response to preserve cultural diversity as market mechanisms prove insufficient for maintaining varied cultural production.

The integration of AI technologies will likely accelerate these trends, creating both new opportunities for

content creation and new challenges for artistic preservation.

5. Conclusion

5.1. Summary of findings

This research demonstrates that the relationship between short video platforms and the film industry constitutes a process of bidirectional domestication characterized by mutual adaptation rather than unilateral determination. Key findings include:

Significant transformation of attention patterns, with average span decreasing to 3 seconds.

Fundamental narrative restructuring toward increased shot frequency (40% increase) and decreased shot duration (30% decrease).

Emergence of data-driven production processes prioritizing cross-media compatibility.

Substantial counter-domestication through cultural capital leveraging and audience critical activity.

Major industry restructuring favors algorithmically favored content types.

These changes represent neither the eradication of cinematic art nor the simple triumph of technology, but rather a complex renegotiation of cultural production within new technological conditions.

5.2. Theoretical contribution

This study makes significant theoretical contributions by:

Successfully applying Communication Accommodation Theory and Cultural Adaptation Theory to media convergence phenomena.

Demonstrating the coexistence of technological influence and artistic agency.

Providing empirical support for updated versions of audience commodity theory within digital capitalism.

Developing the bidirectional domestication model as a framework for understanding contemporary media relationships.

5.3. Practical implications

The findings offer valuable insights for various stakeholders:

Content creators can leverage an understanding of adaptation mechanisms to navigate artistic-commercial tensions.

Platforms might develop more nuanced algorithmic systems that better balance engagement with diversity.

Policymakers should consider support mechanisms for preserving cultural diversity within algorithmically-driven environments.

Educators should emphasize critical media literacy skills enabling audiences to navigate increasingly complex media environments.

5.4. Limitations and future research

This study has several limitations that suggest productive future research directions:

Regional focus primarily on Chinese market data necessitates comparative international research.

The rapidly evolving technological environment requires ongoing study.

Longer-term cultural impacts warrant longitudinal investigation.

Future research should particularly examine:

AI integration impacts on content creation and distribution.

Emerging models for preserving cultural diversity within algorithmic systems.

Evolutionary patterns in audience critical capacity and media literacy.

Cross-cultural variations in adaptation patterns and outcomes.

The bidirectional domestication model provides a robust framework for continuing investigation into the evolving relationship between technological systems and cultural production, offering both analytical precision and practical relevance for understanding media in the digital age.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Liu L, Xie J, Zhang W, 2020, Research Status, Context and Application of Communication Accommodation Theory: Bibliometric and Content Analysis based on WOS. News and Communication Review, 73(01): 47–61.

[2] Xiao J, Li J, 2018, Interpretation, Progress and Trends of Cross-cultural Adaptation Research: An Interview with Professor John Berry, the founder of Cultural Adaptation Theory. News & Communication Research, 2018(01): 148–152.

[3] Bordwell D, 2022, Film Narratology, Peking University Press, Beijing, 89–102.

[4] Second Hand System, 2023, 2023 Short Video Attention Report, Second Hand System Research Institute, Beijing.

[5] Peng L, 2023, New Media User Research: Nodeized, Mediated, Cyborg People, Renmin University of China Press, Beijing, 156–178.

[6] China Film Association, 2025, Nearly 500 Popular Film Images Analysis Report, China Film Association, Beijing.

[7] Sun S, 2022, Cross-cultural Adaptation Theory from a Paradigm Perspective, dissertation, Zhejiang University.

[8] National Film Administration, 2024, Film Industry Report 2024, National Film Administration, Beijing.

[9] Xiao J, Li J, 2014, Seeking Universal Laws in Cultural Adaptation, Social Science News, May 22, 2014, (005).

[10] Yang Q, 2024, A Comprehensive Interpretation of Smythe's Audience Product Theory. Journal of Wuhan University of Technology (Social Sciences Edition), 37(05): 74–80 + 110.