

Research on the Consumption Behavior Mechanism of Live Streaming E-commerce Platforms

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ABSTRACT

The digital economy is experiencing continuous growth, accompanied by a progressive shift in consumer shopping behaviors toward live-streaming e-commerce platforms. To better understand this phenomenon, a comprehensive monitoring model is constructed based on four key dimensions: live-streaming content, psychological effects, consumption dynamics, and habit formation. Grounded in the Logistic regression framework, this study systematically examines critical factors influencing consumer behavior, including the professional competence of streamers, strategies for cultivating an engaging live-streaming atmosphere, methods of product presentation, and the underlying drivers of immediate purchasing decisions, order completion rates, and repeat purchase behaviors. Additionally, the research identifies distinct behavioral characteristics across consumer segments and classifies users accordingly. Based on these insights, tailored live-streaming content is recommended for different user groups, enabling e-commerce merchants to formulate more targeted and effective operational strategies.

KEYWORDS

Live streaming e-commerce; Consumer behavior; Mechanism of consumer influence; Classification of user groups

1 Introduction

According to the "China Live Streaming E-commerce Industry Research Report (2024)", the transaction volume of live streaming e-commerce in China exceeded five trillion yuan in 2023, with the number of users surpassing 670 million, accounting for over 60% of the country's online population. By leveraging the features of "real-time product display and immediate user engagement," live streaming e-commerce has reshaped consumer habits and effectively stimulated purchasing intentions. Compared to traditional e-commerce platforms such as Mogujie and Taobao, the live streaming model significantly shortens the decision-making process through real-time interaction, time-limited promotions, and lottery-based incentives. Within live streaming environments, consumer behavior is more susceptible to social influence. Influencer-led product endorsements often trigger impulsive and herd-driven purchasing behaviors, which may subsequently result in post-purchase disputes or refund requests. Understanding the mechanisms through which live streaming e-commerce influences consumer behavior is therefore essential for promoting the sustainable development of the industry and improving overall user experience.

1.1 Research categories on user consumption behavior data in live streaming e-commerce

The factors influencing consumer behavior can be classified into three core data categories: user attribute data, live streaming interaction data, and user behavioral data.

1.1.1 User behavior data analysis

After the conclusion of a live stream, merchants can access backend metrics such as user dwell time in the live room, interaction frequency, product add-to-cart rate, order conversion rate, distribution of spending amounts, and repurchase frequency. Although the operations team does not have direct access to these detailed metrics, they can leverage various data visualization tools—such as tree diagrams, pie charts, and line graphs—to monitor and analyze the purchasing preferences of live stream audiences in real time.

1.1.2 Live streaming data analysis

In live streaming e-commerce, key data that can be directly accessed include the influencer's follower base coverage, promotional strategies, live stream duration, product categories and pricing ranges, discount schemes, and the volume of interactive bullet comments. Within this context, buyers typically prioritize the size of a store's follower base and its real-time popularity before assessing the price competitiveness of displayed products. This behavior reflects a herd mentality in consumer decision-making processes. In practice, consumers often make purchasing decisions without conducting prior demand evaluations, placing greater emphasis on price affordability than on product suitability. Such tendencies contribute to the widespread perception that "popular products are inherently superior." Implementing stratified promotional strategies tailored to distinct consumer segments can enable more precise market targeting. In beauty-focused live streaming sessions, visually appealing hosts and articulate presenters are commonly selected to deliver product introductions, aligning with modern consumers' subconscious preference for aesthetic appeal.

1.1.3 User attribute data analysis

Currently, the value of data is being extensively explored and leveraged across various domains. Many users express concerns that their mobile devices may be "eavesdropping" on private conversations—a perception often reinforced by the phenomenon in which prolonged browsing of a specific product page results in the repeated appearance of related advertisements. E-commerce platforms, which host large and diverse user bases, are capable of utilizing big data technologies to accurately identify key user attributes such as age, gender, geographic location, consumption behavior, and interaction levels. By integrating preference-based product recommendations across different stages of live streaming, these platforms can effectively boost live stream traffic and enhance user engagement.

1.2 Research significance

1.2.1 Theoretical significance

This study develops a comprehensive analytical framework to examine consumer behavior within live-streaming sales environments. By classifying live-stream audiences into distinct viewer segments, it facilitates an in-depth analysis of the behavioral characteristics and content preferences specific to each group, thereby contributing to the theoretical development of digital marketing and consumer psychology.

1.2.2 Practical significance

The research offers actionable insights for merchants to utilize platform data in identifying user needs and applying predictive analytics grounded in consumer behavior patterns. This enables the delivery of personalized live-stream content, strengthens user engagement, and increases conversion rates. Furthermore, optimizing the live-stream operation system can effectively minimize the occurrence of negative reviews and product returns, thereby enhancing customer satisfaction and improving operational efficiency.

1.3 Research Methods and Framework

1.3.1 Data collection

Data will be collected from external systems, including users' viewing duration, interaction behaviors, consumption records, repeat purchase probability, and profiling tags. In addition, data regarding key characteristics of influencers, core attributes of products, and spatial configurations of live streaming environments will also be acquired.

1.3.2 Data model analysis

Composite regression techniques, such as Logistic regression, will be utilized to analyze the factors influencing consumption levels. High-value customer segments will be identified through automated data mining methods, after which causal relationships in consumer behavior will be examined. Drawing from these insights, a predictive algorithm for user consumption behavior will be constructed.

1.3.3 Model validation and evaluation

Multiple models will be combined to conduct cross-validation, thereby enhancing the framework's robustness in handling extreme or outlier samples. This approach ensures enhanced generalization performance and model reliability across diverse scenarios.

2 Theoretical basis and research hypotheses

2.1 Theoretical foundation

The central premise of the Technology Acceptance Model (TAM) is that user adoption behavior is primarily influenced by two interrelated constructs: perceived usefulness and perceived ease of use. Specifically, the model posits that individuals are more likely to adopt a technology when they perceive it as both beneficial and user-friendly.

Within the context of live-streaming shopping, perceived usefulness can be demonstrated by the idea that "live-streaming shopping enables users to obtain a more comprehensive understanding of product features." Perceived ease of use is reflected in the assertion that "live-streaming shopping is more convenient to operate on mobile devices." Collectively, these perceptions increase the likelihood that users will adopt live-streaming e-commerce as their preferred shopping channel.

In contrast to traditional online retail, the live-streaming context incorporates elements such as "limited-time offers" and "limited stock availability," which substantially expedite the decision-making process. These features facilitate the shift from passive viewing to active purchasing behavior, underscoring the distinctive behavioral dynamics present in live-stream e-commerce environments.

The psychological tendency formed by users during live-streaming shopping activities is referred to as behavioral atti-

tude. Due to the visual separation between users and the physical attributes of products in this environment, consumers rely on cues such as the host's demonstration, product placement, and scene design to evaluate the goods. For example, in a lipstick try-on live-stream, the host must utilize various lighting conditions and contextual settings to accurately showcase the product's true color and effects. This process contributes to the formation of a positive perception among users that "live-streaming effectively conveys product features," thereby enhancing their purchase motivation.

A key underlying mechanism involves users' awareness of the expectations of influential individuals or groups within the live-streaming shopping environment. When hosts encourage viewers to post comments such as "The effect is amazing—I'll buy again" or "If I miss this deal, I don't know when it will come back," users perceive social validation of the product, which in turn triggers herd behavior and promotes impulse purchases. Users' perception of "important others' expectations" is significantly influenced by the host's credibility. For example, in the case of Dong Yuhui's recommendations, users often demonstrate a willingness to follow his advice due to their trust in his expertise. Similarly, when friends actively recommend a live-stream to others, it directly contributes to the formation of a subjective norm—creating a psychological tendency of "if recommended, I should give it a try."

This concept also captures users' subjective expectations concerning the ease or difficulty of completing a purchase. To address this, e-commerce platforms have introduced innovative features such as "one-click price adjustment and order placement," which cultivate a perception of operational convenience and ultimately simplify the purchasing process.

2.2 Research hypotheses

(1) The professional performance of live-streaming hosts is positively correlated with users' purchase intentions, particularly among individuals who exhibit rational decision-making tendencies.

(2) Building on the analysis of bullet chat interaction in live-streaming e-commerce consumption decisions by Lu Qingyu and Liu Jie (2025), a positive relationship has been identified between the frequency of interactive comments and users' spending levels. This association is attributed to the occurrence of "collective emotional contagion" and "behavioral conformity" within live-streaming environments.

(3) Impulsive consumers are more responsive to substantial discounts during the purchasing process; however, the psychological impact of these discounts typically diminishes over time. This diminishing marginal effect can be captured through the mall discount framework proposed in 2020.

(4) A 2021 study revealed that both the professionalism and sincerity of live-streaming hosts exert significant influences on viewers' purchase decisions. Moreover, empirical evidence demonstrates a positive association between the extent of user consumption and their level of trust in the host.

3 Research design

3.1 Data collection

The sample population comprised users from third-party platforms who had prior experience with live-streaming shopping. The collected data included viewing duration, interaction indicators, purchase history, repurchase frequency, and user demographic profiles. Furthermore, information on live-streamer characteristics, product attributes, and the spatial configuration of the live-streaming environment was systematically classified. Real-time chat messages, coupon redemption records, and consumption ratios on the live-streaming platform were also extracted for analysis.

A total of 350 live-streaming sessions were initially recorded, of which 326 satisfied the inclusion criteria, resulting in an effective data utilization rate of 93.1%. Regarding gender distribution, the number of male and female participants was approximately balanced. The majority (72.7%) of respondents were within the 18–35 age range, representing the core demographic of young consumers. Additionally, participants' monthly spending primarily fell between 1,000 and 3,000 RMB, aligning with the profile of the core consumer group in the e-commerce sector (iResearch, 2022).

3.2 Core variables

3.2.1 Dependent variables

Consumption Behavior: A binary variable indicating whether the user placed an order during the live-streaming session (1 = order placed, 0 = no order placed).

Consumption Amount: The total monetary value of all purchases made by a user during a single live-streaming session.

Repurchase Rate: The proportion of users who repurchased products within the same category within one month following the initial purchase.

3.2.2 Independent variables

Anchor Characteristics: Measured by the host's professional rating (a five-point scale evaluated by the platform and operators) and the total number of followers.

Interaction Atmosphere: Defined as the frequency of real-time chat interactions (i.e., bullet comments) per unit of time during the live-streaming session.

Product Attributes: Refers to the type or category of product being promoted during the live-streaming session.

User Behavior: Defined by indicators such as the average number of monthly purchases prior to the session and the cumulative viewing duration in minutes.

Perceived Usefulness: The extent to which users perceive live-stream shopping as an efficient and convenient method for obtaining detailed product information.

Anchor Trustworthiness: The degree to which users believe that the host selects products with high practicality and reliable quality.

3.3 Methodology and analytical approach

Reliability and validity assessments will be conducted to ensure that the measurement instruments meet rigorous psychometric standards.

Descriptive statistical analysis and correlation testing will serve as the foundational basis for subsequent inferential statistical procedures.

A logistic regression model will be employed to identify and assess the key factors influencing consumer purchasing behavior in live-streaming environments.

4 Empirical analysis

4.1 Descriptive statistics

The average product discount is 27.5% of the original price, with the host's professional rating averaging 3.8 points on a five-point scale. The average real-time chat interaction rate is 42.3 messages per minute. Viewers typically spend approximately 9.2 minutes watching the live stream, after which 18.7% proceed to place an order. The average spending per user amounts to 235.6 RMB.

4.2 Regression analysis results

The logistic regression analysis of factors influencing purchase decisions reveals that the intensity of real-time chat interactions (regression coefficient = 0.28) is statistically significant at the 0.01 level. Both the discount magnitude ($\beta = 0.21$, $p < 0.05$) and the host's professional competence ($\beta = 0.32$, $p < 0.01$) have positive effects on purchasing behavior, with the latter demonstrating the strongest influence. Moreover, the marginal effect of viewing duration begins to decline after 8 minutes, suggesting that further increases in watching time do not substantially enhance the likelihood of purchase. This finding provides support for the hypothesis of a threshold effect.

A multiple regression model was employed to examine the determinants of consumption amount. The results indicate that the real-time chat interaction rate ($\beta = 0.23$), follower count ($\beta = 0.15$), and users' historical purchase frequency ($\beta = 0.41$) are all positively associated with spending levels. Among these variables, follower count and historical purchase frequency are statistically significant ($p < 0.01$), whereas the chat interaction rate approaches marginal significance ($p = 0.01$). These findings suggest a positive relationship between user consumption levels and their loyalty in the context of live-streaming shopping.

Factors Influencing Repurchase Rate:

Empirical results indicate an inverted U-shaped relationship between viewing duration and repurchase rate, with the highest repurchase probability occurring at a viewing duration of 12 minutes. Moreover, the live-streamer's post-sale interaction exhibits a statistically significant effect at the 12% significance level.

4.3 User segmentation results

The K-means clustering algorithm was employed to classify users into three distinct segments:

Impulsive Type (38%): This segment consists of users who typically watch live streams for less than 5 minutes. These users exhibit a high responsiveness to substantial discounts. Specifically, a 10% increase in discount magnitude is associated with an approximate 22% increase in the likelihood of placing an order, indicating a strong sensitivity to price.

Social Type (33%): Characterized by high levels of interaction, users in this segment actively engage with other viewers and participate in chat discussions. This behavior indicates that social dynamics and peer interaction significantly influence their viewing and purchasing experiences.

Rational Type (29%): This group comprises users who watch live streams for more than 15 minutes. These users demonstrate a heightened awareness of the host's professional competence. Empirical results show that for every one-point increase in the host's professional rating, the conversion rate increases by 18 percentage points, underscoring the importance of perceived expertise in purchasing decision-making.

5 Conclusion and suggestions

5.1 Research conclusions

(1) The entertainment experience derived from live-streaming interactions, the level of trust in the host during purchase decisions, the platform's perceived reliability in safeguarding user rights, and the perceived usefulness of live-stream shopping all serve as positive influencing factors.

(2) Host credibility emerges as the most influential factor, highlighting the central role of the host as a "trust bridge" in the "person promoting goods" model.

5.2 Practical Suggestions

5.2.1 Strengthen the trust system for live streamers

Platforms should establish a qualification review and grading system for live streamer operation teams. They should also conduct regular professional training on product knowledge and ethical guidelines, carry out unannounced inspections of merchants (modeled after the inspection practices of Douyin's Douyu Hui team), and set a minimum admission score of 4.0 for merchants, with non-compliant sellers being removed. Violation cases should be publicly disclosed, and quality control in product selection should be enhanced. Furthermore, exaggerated promotional claims should be avoided to prevent increased return rates caused by discrepancies between promotional content and actual products.

5.2.2 Enhance user experience through real-time interactive features

Platforms can integrate popular real-time interaction formats such as live quizzes and random viewer connections. The "real-scenario demonstration + quantitative comparison" approach (inspired by early practices of New Oriental's live streaming model, where consumer insights were gained indirectly) can be used to validate product claims. For example, a beauty blogger referenced New Oriental's streaming style by conducting a full-day performance test of a specific foundation to provide quantitative evidence of its effectiveness.

5.2.3 Reinforce consumer protection and transaction security

As suggested by Zhong Kai and colleagues, platforms should first ensure that merchants strictly implement consumer protection policies such as "tenfold compensation for counterfeit goods" and "seven-day no-reason return and exchange." Subsequently, payment security technologies should be upgraded to reduce transaction risks for buyers and strengthen the platform's overall security assurance capabilities.

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