

Analysis of Driving Factors for Consumers' Impulsive Purchasing Behavior in Live Streaming E-commerce Scenarios

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Abstract This study explores the driving factors and underlying psychological mechanisms of consumers' impulsive purchasing behavior in the live streaming e-commerce scenario, a disruptive new retail format in China's digital economy with high conversion efficiency yet accompanied by high return rates and consumer regret. Based on the Stimulus-Organism-Response (SOR) theoretical framework, an integrated research model is constructed to link three core external situational stimuli (streamer characteristics, live stream atmosphere, promotional cues) with consumers' internal psychological states (emotional: perceived pleasure, arousal; cognitive: perceived trust, perceived value) and subsequent impulsive purchasing behavior. Consumer impulsive purchasing traits are introduced as a moderating variable to examine individual difference effects. A quantitative research method is adopted, with 523 valid questionnaires collected from experienced live-stream shopping consumers, and data analyzed via structural equation modeling (SEM), Bootstrap mediation test, and hierarchical regression analysis.

Findings indicate that streamer credibility and live stream interactivity exert a significant positive impact on consumers' perceived trust and pleasure; scarcity promotional cues directly drive impulsive purchase intentions; perceived pleasure, arousal, and trust play a key mediating role in the stimulus-behavior transmission; and impulsive purchasing traits significantly moderate the stimulus-organism conversion process. Theoretically, this study expands the SOR framework's application in live streaming e-commerce and uncovers the deep psychological mechanism of impulsive buying in this specific context. Practically, it provides empirical evidence and targeted management insights for streamers, MCN institutions, brands, and platforms, and offers constructive suggestions for regulators to promote the industry's healthy and sustainable development.

Keywords: Live-stream E-commerce; Impulsive Buying Behavior; SOR Theory; Consumer Psychological Mechanism; Streamer Characteristics; Promotional Cues.

1. INTRODUCTION

1.1 Research Background

The iterative evolution of digital technology and profound shifts in consumer behavior have spawned live streaming e-commerce, an advanced form of social and content e-commerce that transforms the traditional "people find goods" model into "goods find people" via real-time video, two-way interaction, and immersive scene construction. According to i research (2023), China's live streaming e-commerce market size exceeded 4.9 trillion yuan in 2023 (a 35.2% year-on-year increase), with a user base of 530 million covering nearly half of the online shopping population.

A core feature of this format is its ability to

compress consumer decision-making cycles and efficiently trigger impulsive purchasing behavior—unplanned, emotion-driven immediate buying decisions (Rook, 1987). However, the high conversion rate is accompanied by critical industry pain points: category return rates up to 30%, consumer regret from unmet expectations, short-term brand image damage, and irrational consumption, which restrict the industry's sustainable development (Chen et al., 2022). Systematically exploring the driving factors and mechanisms of impulsive buying in live streaming e-commerce is thus of urgent practical and academic value.

1.2 Research Question and Theoretical Gap

While existing literature has accumulated

rich research on impulsive buying, significant theoretical gaps exist in explaining the complex, dynamic social context of live streaming e-commerce:

Limitations of traditional impulsive buying models: The classic SOR model focuses on physical retail environmental stimuli (e.g., lighting, music), which cannot capture the virtual-social hybrid stimuli (interpersonal interaction, social presence, dynamic information flow) of live streaming e-commerce.

Insufficient systematic research on streamer characteristics: Scattered findings on streamer credibility and professionalism lack integration into a unified framework, and the role of para-social interaction (audience's imagined intimate relationship with streamers) in impulsive buying is under-explored.

Unopened "black box" of psychological mechanisms: The mediating roles of emotional and cognitive states between external stimuli and impulsive behavior, and their interactive effects, lack detailed empirical testing.

Unclear moderating effect of individual differences: The regulatory role of consumers' stable impulsive purchasing traits in stimulus response remains unclarified.

1.3 Research Objectives and Significance

1.3.1 Learning Objective

Systematically sort out domestic and foreign research on consumer impulsive buying behavior, master the SOR theoretical framework's application in retail and e-commerce, and understand the development characteristics, pain points, and consumer behavior rules of the live streaming e-commerce industry.

1.3.2 Analysis Objective

Deeply analyze the key external stimuli of impulsive buying in live streaming e-commerce, clarify the dual mediating role of consumers' emotional and cognitive states, and examine the moderating effect of impulsive purchasing traits on the stimulus-organism conversion process.

1.3.3 Evaluation Objective

Empirically verify the rationality and effectiveness of the constructed driving mechanism model, identify the core driving factors of impulsive buying, and evaluate the practical impact of current industry marketing strategies to provide a scientific basis for optimization.

2. MATERIALS AND METHODS

2.1 LITERATURE REVIEW

Impulsive Buying Behavior Existing studies define impulsive buying as spontaneous, immediate, and emotion-driven purchasing behavior (Rook, 1987). Beatty & Ferrell (1998) further emphasize the role of situational stimuli and individual traits. Prior research shows that emotional arousal and reduced cognitive control are key antecedents.

Online Retail and Live-stream Context Eroglu et al. (2001) extended traditional retail atmospherics into online environments, highlighting virtual cues such as interactivity and visual presentation. In live-stream commerce, real-time interaction and social presence significantly influence consumer behavior (Wongkitrungrueng & Assarut, 2020).

SOR Theory Applications SOR theory has been widely applied to explain consumer responses to environmental stimuli (Mehrabian & Russell, 1974). However, most studies focus on static environments. The dynamic and socially interactive nature of live streaming remains underexplored.

Research Gap Current literature lacks an integrated framework combining streamer characteristics, live-stream atmosphere, and promotional cues with both emotional and cognitive mediators. Additionally, limited empirical work examines moderating effects of impulsive traits.

2.2 Theoretical Framework: Stimulus-Organism-Response (SOR)

Proposed by Mehrabian and Russell (1974), the SOR theory posits that external environmental stimuli (S) influence individuals' internal psychological states (O), which in turn drive approach-avoidance behavioral responses (R). In this study:

- **Stimuli (S):** Three core dimensions—streamer characteristics (credibility, professionalism, attractiveness), live stream atmosphere (real-time interactivity, para-social interaction), and promotional cues (scarcity, time-limited availability).
- **Organism (O):** Dual psychological states—emotional (perceived pleasure, arousal) and cognitive (perceived trust, perceived value).
- **Response (R):** Impulsive purchase intention and actual impulsive purchasing behavior.
- **Moderating Variable:** Consumer impulsive purchasing traits (stable tendency for unplanned, immediate buying).

2.3 Research Design and Data Collection

2.3.1 Research Method

A quantitative research approach is adopted to test the research hypotheses, with structural equation modeling (SEM) for model fit and path analysis, Bootstrap mediation test for mediating effect verification, and hierarchical regression analysis for moderating effect testing.

2.3.2 Questionnaire Design

The questionnaire is divided into three parts:

Basic Information: Gender, age, education, monthly income, live-stream shopping frequency, viewing duration, and main purchased product categories.

Live-Streaming Shopping Experience Scale: 7-point Likert scale measuring streamer characteristics, live stream atmosphere, promotional cues, emotional/cognitive states, and impulsive buying intention/behavior (based on validated scales from existing literature).

Personal Consumption Style Scale: 7-point Likert scale measuring consumers' impulsive purchasing traits.

2.3.3 Sample and Data Collection

Questionnaires are distributed to consumers with rich live-stream shopping experience via online platforms (WeChat, Xiaohongshu, Douyin). A total of 580 questionnaires are collected, with 523 valid questionnaires (effective response rate: 90.2%) after excluding invalid samples (incomplete answers, extreme values).

2.4 Market and Industry Analysis Tools

- **STP Analysis:** Segments the live streaming e-commerce market into high-impulse users, socially engaged users, and value-seeking users; targets high-frequency shopping users with high impulsive and social engagement tendencies; positions the research as a "behavioral navigator" and "strategic think tank" for the industry.
- **SWOT Analysis:** Evaluates the live streaming e-commerce industry's strengths (immersive interaction, high resource integration efficiency), weaknesses (high return rates, uneven streamer/product quality), opportunities (policy support, technological progress), and threats (intensified competition, strict regulation).
- **PESTEL Analysis:** Analyzes political (regulatory norms, rural revitalization support), economic (rising disposable income, digital economy growth), social (mobile internet popularization, social consumption needs), technological (5G, AI, AR/VR), environmental (green logistics, low-carbon packaging), and legal (consumer protection, data security) factors shaping the industry.

3. RESULTS AND DISCUSSION

3.1 Key Findings of Empirical Research

3.1.1 Impact of External Stimuli on Psychological States

Streamer characteristics: Credibility and professionalism have a significant positive impact on consumers' perceived trust and pleasure; attractiveness and para-social interaction enhance emotional resonance (perceived pleasure).

Live stream atmosphere: Real-time interactivity (comment response, interactive tools) significantly improves perceived trust and arousal; social presence (bullet comments, real-time purchase data) amplifies the herd effect and emotional arousal.

Promotional cues: Scarcity (limited quantity) and time-limited (countdown, flash sales) cues directly drive perceived value and arousal; scarcity cues have a direct positive impact on impulsive purchase intentions.

3.1.2 Mediating Role of Emotional and Cognitive States

Perceived pleasure, arousal, trust, and value play a **key dual mediating role** in the transmission from external stimuli to impulsive purchasing behavior:

- **Cognitive path (perceived trust/value):** Serves as the **foundation** of impulsive buying, reducing consumers' decision-making risk and enhancing purchase willingness.
- **Emotional path (perceived pleasure/arousal):** Explains the **uncontrollable nature** of impulsive buying, as high pleasure and arousal make consumers rely more on emotional judgment than rational analysis.

3.1.3 Moderating Role of Impulsive Purchasing Traits

Consumers' impulsive purchasing traits significantly **moderate the stimulus-organism conversion process**:

- **High-impulse traits:** External stimuli (e.g., scarcity promotions, streamer interaction) trigger more intense emotional arousal and cognitive changes, leading to a higher likelihood of impulsive buying.
- **Low-impulse traits:** The same stimuli have a weak impact on psychological states, and consumers maintain rational decision-making.

3.1.4 Moderating Role of Product Type

The psychological mechanism of impulsive buying varies by product type:

- **Hedonistic products (beauty, trendy accessories):** The emotional path (pleasure, arousal) plays a dominant role.
- **Utilitarian products (daily necessities, household goods):** The cognitive path (trust,

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