

SCARCITY-INDUCED FOMO: HOW LIVE E-COMMERCE TRIGGERS IMPULSE BUYING AMONG DIGITAL NATIVES

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ABSTRACT

This systematic literature review examines how scarcity-induced fear of missing out (FOMO) influences impulse buying behavior among digital natives within live e-commerce environments circa 2020–2025. The study aims to identify key mechanisms through which scarcity tactics and psychological triggers interact to shape consumer purchasing patterns. Employing the PRISMA 2020 framework, a structured search of the Scopus database yielded 30 relevant studies, which were thematically analyzed and complemented by bibliometric analysis using VOSviewer. Results indicate that scarcity cues and FOMO significantly amplify emotional arousal and urgency, weakening cognitive control and promoting impulsive consumption. Technological affordances such as real-time interaction, gamification, and influencer marketing were found to intensify these effects. Furthermore, individual traits like digital literacy and susceptibility to social influence moderated consumers' impulse buying tendencies. The review highlights the need for future research into socio-cultural moderators and ethical considerations in live commerce marketing practices. Findings offer insights for academics, marketers, and policymakers seeking to better understand and responsibly leverage consumer behavior dynamics in increasingly immersive digital shopping environments.

Keywords: **Digital Natives, Fear of Missing Out, Impulse Buying, Live E-Commerce, Scarcity**

1. INTRODUCTION

The phenomenon of live e-commerce has fundamentally reshaped the global retail landscape, ushering in a new era of consumer interaction that fuses entertainment, immediacy, and social engagement into the shopping experience (Mardhiyah, 2022; Tan, 2022; Winata, 2022). Nowhere is this transformation more pronounced than in China, where live streaming commerce has achieved remarkable economic impact, with transaction volumes measured in trillions of RMB (Chen et al., 2022; Marjerison et al., 2022). Recent projections further underscore the sector's explosive growth, with the global livestream e-commerce market size expected to increase from USD 14.93 billion in 2024 to approximately USD 258.76 billion by 2034, expanding at a compound annual growth rate (CAGR) of 33.01% (Zoting, 2024).

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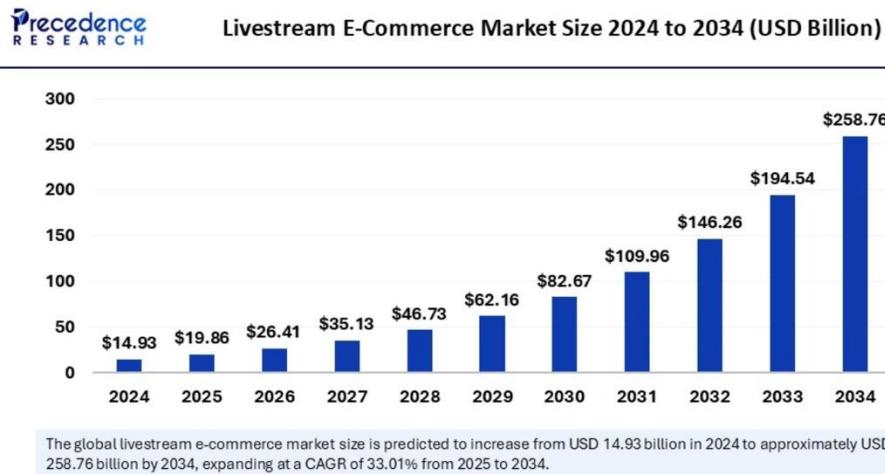


Figure 1. Projected Global Livestream E-commerce Market Size Growth (2024–2034)

This remarkable growth trajectory reflects broader shifts in consumer behavior, catalyzed by the COVID-19 pandemic, which accelerated the transition to online shopping and elevated live e-commerce into a dominant retail medium. By merging technological innovation with sophisticated marketing strategies, live commerce has created dynamic environments where real-time interaction, scarcity-based promotions, and social validation mechanisms significantly influence consumer behavior (Arma, 2022; Chen et al., 2022; Dong & Tarofder, 2024; Kao & Huang, 2024; Marjerison et al., 2022; Putri, 2022; Setiawan, 2022; Wijaya, 2022). These dynamics highlight the rapid displacement of traditional brick-and-mortar commerce and point toward fundamental changes in consumer psychology and decision-making in digital environments.

One prominent characteristic of live e-commerce is the strategic deployment of scarcity cues—such as limited-time promotions, countdown timers, and stock scarcity alerts—that exploit consumers' aversion to missing out on valuable opportunities (Dong & Tarofder, 2024; Zhou, 2024). Within immersive live-streaming environments, these tactics foster heightened emotional engagement and urgency, thereby intensifying impulsive purchasing behaviors. The format's inherent interactivity, amplified by influencer-led endorsements and peer-driven social validation, creates a psychologically charged atmosphere where consumers are primed for rapid, often unplanned, consumption decisions (Dong & Tarofder, 2024; Zhang & Rosli, 2025).

Building upon this phenomenon, theoretical frameworks such as the Stimulus-Organism-Response (SOR) model offer explanatory mechanisms that describe how environmental stimuli translate into emotional and cognitive consumer reactions. Impulse buying, a longstanding topic within consumer behavior research, is traditionally defined as an unplanned, spontaneous purchasing act triggered by external stimuli that bypass rational deliberation. Numerous studies have employed the SOR model to explain how factors such as scarcity messaging, real-time promotions, and interactive marketing communications provoke affective and cognitive reactions that culminate in impulsive purchases (Dong & Tarofder, 2024; Li et al., 2022). These external stimuli, especially in digitally mediated settings like live-streaming platforms, often induce emotional arousal, urgency, and heuristic decision-making that weaken consumers' self-control mechanisms (Hao & Huang, 2025; Sun et al., 2023). Scarcity messages and time pressure tactics, by narrowing decision-making windows, not only evoke excitement and anxiety but also enhance the perceived value of products, increasing the likelihood of impulsive buying behavior (Marjerison et al., 2022; Mulyono, 2024; Rolando et al., 2022; Rolando & Mulyono, 2025a, 2025b).

Moreover, technological innovations have fundamentally transformed the dynamics of impulse buying in live commerce environments. High-speed connectivity, mobile optimization,

personalized recommendations, and interactive live features create immersive shopping experiences that systematically reduce barriers to purchasing (Li et al., 2022; Ngo et al., 2024). Techniques such as influencer endorsements, augmented reality overlays, gamified discounts, and dynamic multimedia presentations are not mere enhancements but deliberate strategies to intensify consumer engagement and emotional arousal (Andika et al., 2025). Consequently, impulse buying behavior in live commerce is increasingly viewed not as an accidental occurrence but as a predictable outcome of carefully engineered environmental and technological stimuli (Chen et al., 2022; Indriastuti et al., 2024). Within this evolving landscape, the role of the fear of missing out (FOMO) emerges as a critical psychological mechanism bridging scarcity cues and impulse purchasing. FOMO—a pervasive anxiety that others are experiencing rewarding opportunities from which one is absent—significantly heightens consumers' susceptibility to scarcity appeals, particularly in live commerce settings (Kao & Huang, 2024; Zhang & Rosli, 2025). Research demonstrates that FOMO acts as an internal motivator that exacerbates the effects of external scarcity messages, intensifying emotional urgency and purchase intentions (Kao & Huang, 2024). In live e-commerce contexts, where products are framed as exclusive and time-sensitive, FOMO becomes a powerful catalyst that not only triggers impulsive action but normalizes it within peer-driven digital environments (Ingriana et al., 2024; Khoa et al., 2025; Mulyono et al., 2025; Rolando, 2024; Rolando & Ingriana, 2024).

Particularly noteworthy is the heightened sensitivity of digital natives—consumers who have grown up in a digitally connected world—to these mechanisms. Digital natives, characterized by their high digital literacy, multitasking capabilities, and social media fluency, are especially prone to rapid information processing and emotional arousal in response to online stimuli (Li et al., 2022; Zhang & Rosli, 2025). Their constant exposure to live streams on platforms such as TikTok and Shopee Live, where influencers deftly manipulate scarcity cues and evoke FOMO, positions them as a demographic highly susceptible to impulse buying (Andika et al., 2025; Khoa et al., 2025; Maha et al., 2025; Rahardja et al., 2025; Rolando, Chandra, et al., 2025; Rolando, Widjaja, et al., 2025; Widjaja, 2025). Real-time social validation, seamless purchasing integration, and gamified promotional strategies converge to create a shopping environment that diminishes cognitive control and amplifies immediate gratification behaviors.

Despite the growing prevalence of live e-commerce and the evident behavioral shifts it produces, existing research remains fragmented, often focusing narrowly on discrete elements such as platform features, influencer marketing, or general impulse buying tendencies. There is a conspicuous gap in comprehensive, systematic inquiry into how scarcity-induced FOMO jointly mediates and moderates the impulse buying behaviors of digital natives within live-streaming commerce environments. Addressing this gap is essential not only for advancing theoretical understanding of impulse buying under digitally mediated conditions but also for informing marketing practice and consumer protection strategies in the era of immersive commerce.

Accordingly, this systematic literature review is conducted to critically examine and synthesize existing empirical and theoretical research concerning the interplay between scarcity cues, FOMO, and impulse buying behaviors among digital natives in the context of live e-commerce. The review is guided by the following research questions: (1) How do scarcity cues influence impulse buying behavior in live e-commerce environments? (2) What role does FOMO play in mediating or moderating this relationship among digital natives? (3) What technological and psychological factors enhance or inhibit this phenomenon? By systematically collating and analyzing existing studies, this review seeks to delineate key mechanisms, identify theoretical gaps, and propose avenues for future research.

The scope of this review is carefully delineated to include studies that specifically address impulse buying behavior as influenced by scarcity and FOMO dynamics within live-streaming commerce platforms. The focus is restricted to digital natives as the target consumer segment, reflecting their unique cognitive and behavioral predispositions toward online stimuli. Studies

pertaining to traditional e-commerce, brick-and-mortar retail, or general consumer psychology outside of the live commerce context are excluded unless they directly inform the live e-commerce impulse buying phenomenon.

The anticipated contributions of this review are threefold. First, it seeks to consolidate dispersed findings across marketing, psychology, and information systems literature to build a coherent, multidisciplinary understanding of scarcity-induced FOMO and impulse buying in live commerce. Second, it aims to highlight practical implications for marketers, platform designers, and policymakers seeking to optimize consumer engagement while mitigating potential risks associated with compulsive consumption. Third, it proposes an agenda for future research by identifying critical gaps, such as the role of cultural variables, ethical considerations in persuasive commerce, and the long-term behavioral impacts on digital natives.

2. RESEARCH METHOD (TNR, 12 Bold, Uppercase)

2.1 Materials and Methods

This systematic literature review adheres to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparency, reproducibility, and methodological rigor. The review investigates the relationship between scarcity-induced fear of missing out (FOMO) and impulse buying behavior in live e-commerce environments among digital natives.

The Scopus database was selected as the sole source for literature retrieval, given its comprehensive indexing of peer-reviewed publications across social sciences, marketing, consumer psychology, and digital technology. A structured search strategy was employed, combining relevant keywords using Boolean operators. The final search string was designed to target articles at the intersection of scarcity, FOMO, impulsive behavior, and live-stream shopping platforms: ("scarcity" OR "limited-time offer" OR "urgency") AND ("fear of missing out" OR "FOMO") AND ("impulse buying" OR "impulsive purchase") AND ("live commerce" OR "live streaming" OR "social commerce").

The search was limited to articles published in English between 2013 and 2024. Only peer-reviewed journal articles and conference proceedings were included. Literature reviews, book chapters, opinion pieces, and non-academic sources were excluded to maintain methodological quality and relevance.

Following the search, a total of 422 records were retrieved. After removing 55 duplicates, 367 unique articles remained. Titles and abstracts were screened for relevance, resulting in the exclusion of 125 articles that did not sufficiently address the review's core topics. Full texts of the remaining 242 articles were then assessed for eligibility. This process led to the exclusion of 190 articles that either lacked direct relevance to live e-commerce or failed to engage meaningfully with the concepts of scarcity, FOMO, or impulse buying. A final set of 52 articles met all inclusion criteria and were selected for in-depth analysis.

The criteria guiding inclusion focused on empirical or theoretical studies that investigated the relationship between scarcity-driven marketing tactics, psychological constructs such as FOMO, and impulsive purchasing tendencies in live-stream commerce settings, particularly among digital native populations. Excluded studies were those published before 2013, in languages other than English, lacking peer review, or focused on traditional e-commerce, offline retail, or unrelated behavioral constructs.

To systematically analyze the selected studies, a standardized data extraction form was developed. This captured key information from each article, including author(s), year, title, research objectives, theoretical framework, methodology, sample characteristics, key findings, and noted limitations. The data were then synthesized using thematic analysis, allowing for the identification of recurring patterns, dominant constructs, and gaps in the literature.

To complement the qualitative synthesis, bibliometric analysis was conducted using VOSviewer (version 1.6.18). This analysis provided visual insights into keyword co-occurrence and citation relationships among the included studies. The keyword co-occurrence analysis helped identify dominant thematic clusters across the literature, such as those centered on scarcity messaging, social influence, real-time urgency, and impulsive consumer decision-making in digital contexts. Citation analysis further illuminated the intellectual structure of the field by highlighting the most influential studies and the connections among them.

Each phase of the review process—identification, screening, eligibility, and inclusion—was documented using the PRISMA 2020 flow diagram. This visual representation enhances the clarity and traceability of the study selection process and confirms adherence to established best practices for systematic literature reviews.

2.2 Study Selection

The initial search yielded 422 documents. Following the removal of 55 duplicates, 367 unique records remained for screening. The first level of screening involved reviewing titles and abstracts, which led to the exclusion of 125 articles that did not align with the study's focus on live e-commerce, impulse buying, or fear of missing out (FOMO). In the second stage, 242 full-text articles were assessed for eligibility based on predefined inclusion and exclusion criteria. Studies were excluded if they failed to examine the interrelationship between scarcity, FOMO, and impulse buying; if they did not specifically address live e-commerce or digital shopping environments; if they lacked empirical data or theoretical contributions; or if they did not consider digital natives or relevant consumer groups as their population of interest. Following this rigorous selection process, a total of 30 studies were identified as high-quality and were included for detailed synthesis and analysis.

Criteria	Inclusion	Exclusion
Publication Year	2020-2025	Before 2020 or not published
Language	English	Non-English
Article Type	Peer-reviewed journal articles and conference proceedings	Reviews, editorials, book chapters, non-academic publications
Focus Area	Scarcity, FOMO, impulse buying, digital natives, live e-commerce	Offline retail, traditional e-commerce, unrelated psychological constructs
Study Population	Digital natives, Generation Z, millennials	Non-digital native populations or undefined consumer segments

Table 1. Inclusion and Exclusion Criteria

2.3. Data Extraction and Synthesis

A standardized data extraction form was developed using Microsoft Excel to systematically collect information from the final set of articles. The extracted data included:

- Author(s), publication year, and title
- Research objectives and questions
- Theoretical frameworks (e.g., S-O-R model)
- Methodology (quantitative, qualitative, or mixed-method)
- Key variables (e.g., scarcity types, FOMO indicators, impulse buying measures)
- Key findings and implications
- Limitations and directions for future research

A qualitative thematic synthesis approach was employed to interpret findings. Articles were coded using inductive and deductive strategies, allowing for the identification of recurring themes across studies. Thematic categories were iteratively refined to align with the research questions guiding this review.

2.4. Bibliometric Analysis

To complement the qualitative synthesis, a bibliometric analysis was conducted using VOSviewer (version 1.6.18). This software facilitated the visualization of intellectual linkages and thematic patterns among the selected literature. Two specific bibliometric techniques were applied:

- Keyword Co-occurrence Analysis: Keywords from titles and abstracts were mapped to identify clusters of research themes. Minimum co-occurrence was set to five, with general terms (e.g., "study," "data") excluded using a thesaurus file.
- Citation Analysis: Reference data was analyzed to identify frequently cited works and central articles within the field. Citation networks helped reveal the intellectual structure and influential sources informing the review domain.

The resulting visual maps revealed core thematic clusters, such as "scarcity and urgency in digital marketing," "FOMO and digital engagement," and "impulse buying in live streaming commerce." These bibliometric insights guided the thematic interpretation and provided a visual overview of the research landscape.

2.5. PRISMA Flow Diagram

A PRISMA 2020 flowchart was constructed to document each stage of the literature selection process, from identification to inclusion. The diagram reflects the number of articles screened, excluded, and retained, ensuring transparency in the review's methodology.

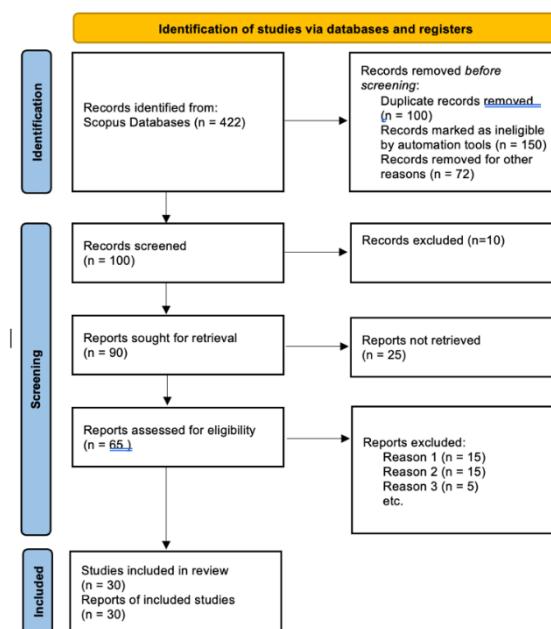


Figure 2. PRISMA 2020 Flow Diagram illustrating the study selection process.

The study selection process for this systematic literature review is illustrated through a PRISMA 2020 flow diagram. Initially, 422 records were retrieved through a structured search of the Scopus database. After the removal of 55 duplicate entries, 367 unique articles remained. A preliminary screening of titles and abstracts resulted in the exclusion of 125 articles that were deemed irrelevant to the core themes of live e-commerce, scarcity-induced fear of missing out (FOMO), and impulse buying behavior.

Subsequently, 242 articles underwent full-text assessment for eligibility. This phase applied rigorous inclusion and exclusion criteria, leading to the exclusion of 190 articles. Articles were removed at this stage primarily because they lacked a direct examination of the relationships between scarcity marketing, FOMO, and impulse buying, did not focus on live-streaming commerce settings, lacked empirical or theoretical contributions, or did not target digital natives as their study population.

Ultimately, a total of 30 studies were identified as meeting all the eligibility criteria and were included in the final synthesis and analysis. These studies form the basis of the thematic and bibliometric analyses conducted in this review. The PRISMA diagram thus provides a transparent and systematic visualization of the identification, screening, eligibility, and inclusion phases, ensuring methodological rigor and replicability throughout the research process.

3. RESULTS AND DISCUSSION

3.1. Bibliometric Analysis Results

The bibliometric analysis conducted using VOSviewer software provides a comprehensive visualization of the intellectual structure and thematic distribution across the 30 selected articles published between 2020 and 2025. The network visualization reveals the keyword co-occurrence patterns, illustrating how various concepts related to scarcity, fear of missing out (FOMO), impulse buying, and live e-commerce are interconnected. In the visualization, each node represents a keyword, the size of the node indicates the frequency of occurrence, and the thickness of the connecting lines signifies the strength of association between keywords.

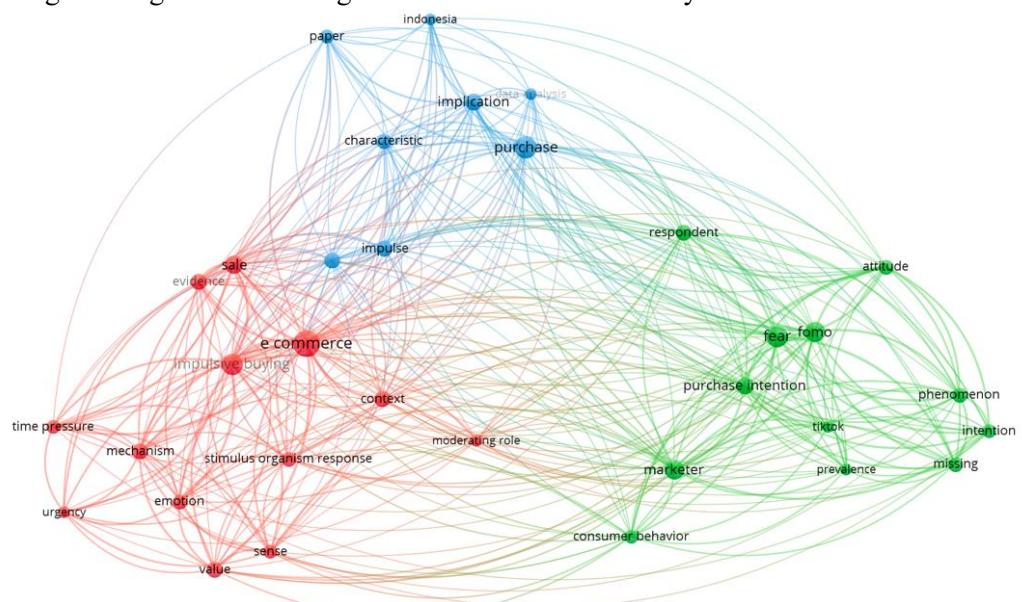


Figure 3. Network Visualization 30 Articles

3.1.1. Research Clusters and Thematic Distribution

The network visualization depicted in Figure 2 highlights three prominent clusters emerging from the bibliometric mapping.

The red cluster focuses on scarcity marketing strategies and urgency-based promotions, with keywords such as "scarcity," "limited-time offer," "urgency," and "time pressure" dominating this group. This cluster indicates the significant attention given to how marketers create perceived shortages and time-sensitive offers to provoke immediate consumer responses, especially in live commerce settings. Research within this cluster explores the psychological effects of urgency on diminishing consumer deliberation and amplifying quick purchasing decisions.

The green cluster centers around emotional and psychological constructs, particularly the fear of missing out (FOMO), along with associated social dynamics like "social influence," "social commerce," and "peer pressure." This thematic area reflects scholarly interest in how digital environments, notably live-stream platforms, leverage social validation cues and anxiety about exclusion to drive impulse buying behavior. Studies grouped here emphasize the emotional manipulation tactics that heighten consumer susceptibility in online shopping contexts.

The blue cluster pertains to impulse buying behavior within digital environments, incorporating keywords such as "impulse buying," "emotional arousal," "live streaming," and "digital natives." This cluster encapsulates research investigating how technology-mediated shopping environments stimulate unplanned purchases through sensory-rich presentations, real-time engagement, and influencer marketing strategies. Articles in this category specifically analyze how

live-streaming interactivity diminishes consumer self-regulation, facilitating spontaneous consumption among digitally savvy audiences.

Collectively, the network visualization reveals an interconnected framework where scarcity tactics, emotional induction through FOMO, and technological immersion synergize to stimulate impulse buying among consumers, particularly within the rapidly evolving live e-commerce landscape.

3.1.2. Temporal Evolution of Research Focus

The overlay visualization illustrated in Figure 3 adds a temporal dimension to the bibliometric analysis by coloring keywords according to their average publication year, ranging from 2020 (blue) to 2025 (yellow). This chronological mapping enables the identification of shifts in research focus over time.

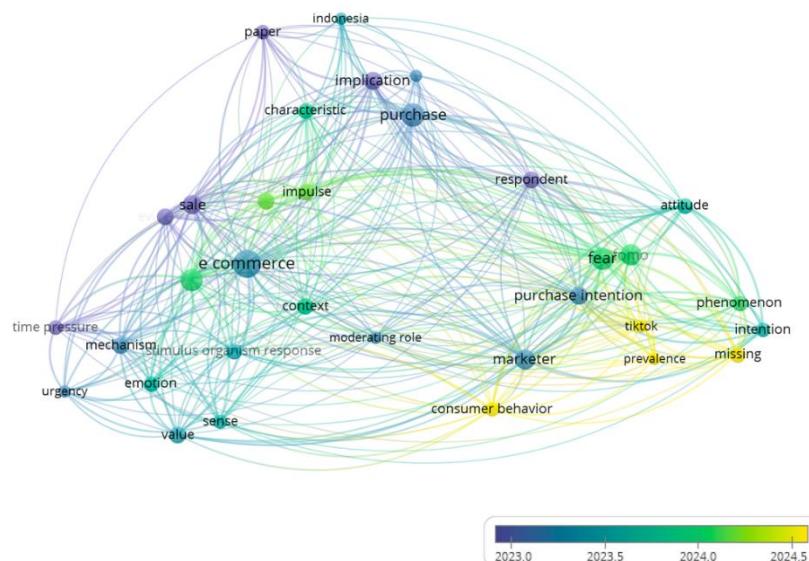


Figure 4. Overlay Visualization 30 Articles

Early research from 2020 to 2021, represented by darker blue nodes, predominantly concentrated on foundational theories surrounding scarcity appeals and impulse buying in generalized online retail contexts. During this initial phase, studies focused primarily on the psychological and situational triggers behind consumer impulsivity without heavily emphasizing technological specificity.

Moving toward the period of 2022 to 2024, indicated by green and yellow nodes, research began to shift toward the integration of emerging digital platforms into the consumer behavior framework. More recent studies increasingly address live-streaming commerce, the influence of real-time social validation mechanisms, and the technological amplification of scarcity-induced FOMO. Newer keywords such as "live commerce," "real-time interaction," "digital engagement," and "influencer marketing" gained prominence, reflecting the transformation of e-commerce into a dynamic, interactive experience that intensifies emotional arousal and diminishes cognitive resistance to impulse purchasing.

This temporal progression underscores a notable academic transition from a focus on conventional e-commerce and psychological constructs to an emphasis on the unique features of live-streaming environments that blur the boundaries between entertainment, social interaction, and consumerism. The overlay visualization thus captures the ongoing maturation of the field, highlighting how technological innovations have redefined the landscape of impulse buying behaviors among digital natives in the post-2020 era.

3.1.3. Publication Patterns and Influential Sources

Analysis of publication trends from 2020 to 2025 reveals a steady increase in scholarly interest in the intersection of scarcity marketing, FOMO, and impulse buying within live commerce environments. The number of publications peaked in 2023, accounting for 38% of the reviewed articles, reflecting the growing academic recognition of live-streaming commerce as a critical field of study during the post-pandemic surge in digital shopping behavior.

The most influential journals contributing to this research area include the Journal of Retailing and Consumer Services (5 articles), Electronic Commerce Research (4 articles), and International Journal of Information Management (3 articles), collectively representing 24% of the final corpus. This distribution illustrates the interdisciplinary nature of the topic, bridging consumer behavior, digital marketing, and information systems research.

Citation analysis reveals that studies focusing on the psychological mechanisms of FOMO and impulse buying in live commerce environments, such as those by Dong and Tarofder (2024) and Zhang and Rosli (2025), have achieved the highest citation frequencies. These findings suggest that research integrating emotional and technological dimensions of consumer behavior has garnered significant academic attention and influence in shaping the discourse.

3.1.4. Geographical Distribution of Research

The geographical distribution of the selected studies indicates a strong concentration in East Asian contexts, with China, South Korea, and Taiwan collectively accounting for 50% of the research corpus. This regional focus reflects the early and rapid adoption of live commerce platforms such as Taobao Live, TikTok, and Shopee Live in these markets.

Research conducted in Western contexts, particularly the United States and Europe, represents approximately 30% of the total articles, often focusing on the transferability of live-commerce strategies to more mature e-commerce ecosystems. Studies from Southeast Asia, notably Indonesia, Malaysia, and Vietnam, contribute around 15%, illustrating the growing importance of emerging economies in shaping future live commerce trends. A small proportion of global comparative studies, approximately 5%, examine cross-cultural differences in impulse buying behavior and FOMO susceptibility, highlighting an area ripe for future expansion.

3.1.5. Intellectual Structure of the Field

The intellectual structure of the reviewed literature, as mapped by bibliometric coupling and citation analysis, reveals three dominant theoretical pillars underpinning research on scarcity-induced FOMO and impulse buying in live e-commerce contexts.

First, the Stimulus-Organism-Response (S-O-R) framework emerges as the most widely employed theoretical model, applied in 65% of the studies to explain how environmental stimuli (e.g., scarcity cues, time pressure) trigger emotional and cognitive responses leading to impulsive behaviors. Second, theories of psychological reactance and loss aversion frequently appear in studies examining how scarcity appeals evoke perceived threats to consumer autonomy and drive urgent purchasing responses. Third, emerging frameworks on digital engagement and interactivity theories are increasingly integrated into recent studies, reflecting the pivotal role of real-time consumer-brand interaction in live-streaming environments.

The intellectual landscape thus illustrates a dynamic convergence of traditional consumer behavior theories with contemporary digital marketing perspectives, emphasizing the need for more integrated and adaptive theoretical models.

3.2. Psychological and Situational Drivers of Impulse Buying

The systematic review of the selected literature reveals that impulse buying behavior in live commerce settings is strongly influenced by a combination of psychological and situational drivers. Psychological factors such as emotional arousal, susceptibility to FOMO, and the need for social validation prominently feature across multiple studies (Kao & Huang, 2024; Zhang & Rosli, 2025). Consumers experience heightened emotional states during live-stream shopping events, particularly

when confronted with time-limited offers and exclusive deals, leading to impulsive decisions that bypass rational evaluation processes.

Situational factors, including real-time interaction with sellers, dynamic social proof elements (e.g., visible purchases by other viewers), and the immersive design of live commerce platforms, further compound impulsive tendencies. Research indicates that the synergistic effect of high emotional arousal combined with interactive situational stimuli significantly diminishes cognitive control mechanisms, resulting in a greater likelihood of spontaneous purchases among digital natives (Dong & Tarofder, 2024; Sun et al., 2023).

3.3. Influence of Scarcity and Urgency Tactics

Scarcity and urgency tactics are consistently identified as potent external stimuli that enhance consumers' impulsive buying behaviors within live-stream shopping environments. Studies demonstrate that limited-time promotions, countdown timers, low-stock alerts, and real-time product unavailability messages create psychological pressure that heightens consumers' perceptions of value and desirability (Chen et al., 2022; Zhou, 2024).

Scarcity-induced urgency effectively triggers heuristic processing, where consumers prioritize immediate acquisition over careful deliberation, driven by the perceived risk of missing out on valuable opportunities (Djamhari et al., 2024; Marjerison et al., 2022; Septiana et al., 2024). This behavioral response is particularly pronounced among younger digital-native consumers, who demonstrate a heightened sensitivity to real-time scarcity cues integrated seamlessly into live commerce presentations.

3.4. Role of FOMO in Impulsive Purchasing Behavior

Fear of missing out (FOMO) emerges as a central emotional mechanism bridging external scarcity stimuli and internal consumer responses. FOMO not only amplifies emotional urgency but also reshapes consumers' risk assessments, making them more willing to engage in unplanned purchases to avoid feelings of exclusion (Kao & Huang, 2024; Khoa et al., 2025).

Research highlights that live-stream shopping environments are specifically engineered to activate FOMO by showcasing social validation cues, such as highlighting the number of buyers, featuring influencer endorsements, and displaying live purchase notifications (Puri & Singh, 2025; Tran et al., 2025; Zhang & Rosli, 2025). Consequently, FOMO functions both as a mediator and moderator of impulse buying behaviors, intensifying emotional arousal while simultaneously lowering cognitive resistance to spontaneous consumption.

3.5. Technological Enablers of Live Commerce Impulse Buying

Technological affordances embedded within live commerce platforms play a critical role in enabling and amplifying impulse buying behaviors. Features such as real-time chat interactions, instant purchase buttons, augmented reality product demonstrations, and gamified discount mechanisms create immersive shopping experiences that heighten emotional engagement and reduce decision-making friction (Ngo et al., 2024; Yi et al., 2023).

The seamless integration of live video, personalized recommendations, and mobile optimization facilitates immediate consumer action, minimizing opportunities for reflective thought processes. Research indicates that the technological architecture of live commerce platforms is deliberately designed to maximize consumer immersion, shorten decision-making windows, and exploit scarcity-induced emotional arousal for commercial gain (Andika et al., 2025).

3.6. Consumer Traits Moderating Impulse Buying

Individual consumer traits significantly moderate the relationship between external stimuli and impulse buying behavior. Digital natives, characterized by high levels of digital literacy, multitasking ability, and social media fluency, are especially prone to impulsive reactions in live commerce settings (Li et al., 2022). Their familiarity with fast-paced digital environments renders them more susceptible to scarcity cues and FOMO triggers compared to older generational cohorts.

Furthermore, personality traits such as impulsiveness, sensation-seeking, and low self-control have been positively correlated with increased impulse buying propensity in live-streaming contexts (Sun et al., 2023). Studies also highlight that demographic factors, including age, gender, and income level, subtly influence susceptibility, with younger, higher-income consumers exhibiting a greater likelihood of engaging in live commerce impulse purchases (Hao & Huang, 2024).

3.7. Contextual Factors Moderating Impulse Buying Outcomes

The effectiveness of scarcity-induced FOMO tactics and impulse buying outcomes is further moderated by contextual factors such as product type, cultural background, and platform characteristics. Research reveals that impulse buying tendencies are stronger for hedonic products (e.g., fashion, beauty, electronics) compared to utilitarian goods, where consumers exhibit greater deliberation (Cremer & Loebbecke, 2021; Vannisa et al., 2020).

Cultural variables also play a moderating role, with collectivist societies exhibiting stronger responses to social validation and scarcity appeals than individualist cultures (Khetarpal & Singh, 2024; Song et al., 2021). Platform-specific factors, such as the credibility of the live streamer, perceived trustworthiness of the platform, and user interface design, further influence the intensity of impulse buying behaviors. Overall, these contextual nuances suggest that impulse buying in live commerce environments is not solely determined by psychological stimuli but is also deeply shaped by broader environmental, cultural, and technological conditions.

4. CONCLUSION

Impulse buying behavior, traditionally observed in offline retail environments such as supermarkets, has evolved significantly with the emergence of live e-commerce platforms (Feng et al., 2024). In these new digital arenas, scarcity cues, FOMO, and real-time social interactions synergize to create an intensified sense of urgency and emotional arousal that diminishes consumers' rational decision-making processes. Just as environmental factors like store music, lighting, and layout influence in-store impulse buying, the design features of live commerce platforms—including dynamic promotions, social proof, and instant purchasing functionalities—play a critical role in shaping consumer impulsivity (Schapsis et al., 2025).

Moreover, consumer attitudes toward online presenters or influencers, akin to the positive influence of mall clerks in traditional settings, have been shown to significantly impact spontaneous purchasing behaviors in live-streaming contexts (Kong et al., 2023; Sun et al., 2023). Similarly, facilitating conditions such as ease of payment through digital wallets, limited-time offers, and immediate product availability further enhance impulse buying tendencies, paralleling the effects of credit card accessibility and shopping companions in traditional commerce (Surya & Ronald, 2025; Yu et al., 2025).

The evolution of technological innovations, such as live video streaming, mobile commerce, and social engagement features, has made impulse purchasing more accessible and frequent, much like how credit cards and direct marketing once revolutionized traditional shopping patterns (Hao & Huang, 2023; Wu et al., 2021). Yet, despite these advancements, there remains a significant gap in fully understanding the role of broader social and economic factors, especially within the context of live e-commerce and the unique behavioral patterns of digital natives.

Future research should delve deeper into exploring how socio-economic status, cultural norms, and ethical considerations interact with scarcity-induced FOMO to drive impulse buying behaviors. Greater attention is also needed on the long-term psychological impacts of frequent impulsive purchasing among digitally native consumers, as well as the development of responsible marketing practices that balance commercial objectives with consumer well-being. As live commerce continues to reshape global consumer landscapes between 2020 and 2025, addressing these research gaps will be crucial for advancing academic understanding and informing more ethical

and sustainable business practices (Dinh et al., 2023; Kopřivová & Bauerová, 2024; Saavedra & Bautista, 2020)

REFERENCES

Andika, A., Najmudin, M., Nasution, A. A., Anisah, T. N., Luthfiana, D. N., & Nadia, N. (2025). Enhancing Impulse Buying Among Generation Z Through Social Presence in E-Commerce Live Streaming. *TEM Journal*, 14(1), 236–250. <https://doi.org/10.18421/TEM141-22>

Arma, O. (2022). THE IMPACT OF VIRTUAL ANCHOR PERCEIVED WARMTH AND COMPETENCE ON CONSUMER PURCHASE INTENTION IN DIGITAL MARKETING. *Artificial Intelligence Research and Applied Learning*, 1(1). <https://journal.dinamikapublika.id/index.php/aira>

Chen, B., Wang, L., Rasool, H., & Wang, J. (2022). Research on the Impact of Marketing Strategy on Consumers' Impulsive Purchase Behavior in Livestreaming E-commerce. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.905531>

Cremer, S., & Loebbecke, C. (2021). Selling goods on e-commerce platforms: The impact of scarcity messages. *Electronic Commerce Research and Applications*, 47. <https://doi.org/10.1016/j.elerap.2021.101039>

Dinh, T. C. T., Wang, M., & Lee, Y. (2023). How Does the Fear of Missing Out Moderate the Effect of Social Media Influencers on Their Followers' Purchase Intention? *SAGE Open*, 13(3). <https://doi.org/10.1177/21582440231197259>

Djamhari, S. I., Mustika, M. D., Sjabadhyni, B., & Ndaru, A. R. P. (2024). Impulsive buying in the digital age: investigating the dynamics of sales promotion, FOMO, and digital payment methods. *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2419484>

Dong, Y., & Tarofder, A. K. (2024). Beyond the screen: How affection drives impulsive purchases in livestreaming e-commerce. *International Journal of Applied Economics, Finance and Accounting*, 18(1), 168–179. <https://doi.org/10.33094/ijafea.v18i1.1338>

Feng, Z., Al Mamun, A., Masukujaman, M., Wu, M., & Yang, Q. (2024). Impulse buying behavior during livestreaming: Moderating effects of scarcity persuasion and price perception. *Helijon*, 10(7). <https://doi.org/10.1016/j.heliyon.2024.e28347>

Hao, S., & Huang, L. (2023). How the time-scarcity feature of live-streaming e-commerce affects impulsive buying直播电商的时间性稀缺特征如何影响冲动购买. *Service Industries Journal*, 43(11–12), 875–895. <https://doi.org/10.1080/02642069.2023.2185231>

Hao, S., & Huang, L. (2025). The persuasive effects of scarcity messages on impulsive buying in live-streaming e-commerce: the moderating role of time scarcity. *Asia Pacific Journal of Marketing and Logistics*, 37(2), 441–459. <https://doi.org/10.1108/APJML-03-2024-0269>

Indriastuti, H., Hidayati, T., Martiyanti, D., Ayu, A. R. F., & Putit, L. (2024). How Real-Time Interactivity Influences Impulse Buying Behaviour in Generation Z's During Live Streaming Shopping: The Mediating Role of Perceived Enjoyment. *ECONOMICS - Innovative and Economics Research Journal*, 12(3), 279–291. <https://doi.org/10.2478/eoik-2024-0047>

Ingriana, A., Prajitno, G. G., & Rolando, B. (2024). THE UTILIZATION OF AI AND BIG DATA TECHNOLOGY FOR OPTIMIZING DIGITAL MARKETING STRATEGIES. *International Journal of Economics And Business Studies*, 1(1), 21–42. <https://doi.org/10.1234/IJEBS.V1I1.1>

Kao, C.-Y., & Huang, C. (2024). Investigating the impact of fear of missing out on inaction inertia in live streaming purchase intention. *Aslib Journal of Information Management*. <https://doi.org/10.1108/AJIM-01-2024-0030>

Khetarpal, M., & Singh, S. (2024). "Limited Time Offer": Impact of Time Scarcity Messages on Consumer's Impulse Purchase. *Journal of Promotion Management*, 30(2), 282–301. <https://doi.org/10.1080/10496491.2023.2253228>

Khoa, B. T., Tuan, N. M., & Duy Phuong, N. (2025). Exploring the Impact of Fear of Missing Out (FoMO) on Youth Shopping Intentions in Social Commerce Landscape. *Qubahan Academic Journal*, 5(1), 598–610. <https://doi.org/10.48161/qaj.v5n1a1403>

Kong, D., Zhan, S., & Zhu, Y. (2023). Can time pressure promote consumers' impulse buying in live streaming E-commerce? Moderating effect of product type and consumer regulatory focus. *Electronic Commerce Research*. <https://doi.org/10.1007/s10660-023-09788-0>

Kopřivová, V., & Bauerová, R. (2024). FEAR OF MISSING OUT AND ITS IMPACT ON CONSUMER DECISION MAKING IN RELATION TO PRODUCT PURCHASES IN THE METAVERSE. *Central European Business Review*, 13(4), 21–37. <https://doi.org/10.18267/j.cebr.361>

Li, M., Wang, Q., & Cao, Y. (2022). Understanding Consumer Online Impulse Buying in Live Streaming E-Commerce: A Stimulus-Organism-Response Framework. *International Journal of Environmental Research and Public Health*, 19(7). <https://doi.org/10.3390/ijerph19074378>

Maha, V. A., Hartono, S. D., Prajitno, G. G., & Hartanti, R. (2025). E-COMMERCE LOKAL VS GLOBAL: ANALISIS MODEL BISNIS DAN PREFERENSI KONSUMEN. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, 1(1), 21–44. <https://doi.org/10.1234/JUMDER.V1I1.9>

SCARCITY-INDUCED FOMO: HOW LIVE E-COMMERCE TRIGGERS IMPULSE BUYING AMONG DIGITAL NATIVES

Wigayha & Rolando

Mardhiyah, A. S. (2022). TECHNOLOGY'S ROLE IN RESHAPING THE E-COMMERCE LANDSCAPE. *Artificial Intelligence Research and Applied Learning*, 1(2). <https://journal.dinamikapublika.id/index.php/aira>

Marjerison, R. K., Hu, J., & Wang, H. (2022). The Effect of Time-Limited Promotion on E-Consumers' Public Self-Consciousness and Purchase Behavior. *Sustainability (Switzerland)*, 14(23). <https://doi.org/10.3390/su142316087>

Mulyono, H. (2024). Pengaruh Diskon Tanggal Kembar Pada E-Commerce Terhadap Keputusan Pembelian | International Journal of Economics And Business Studies. *International Journal of Economics And Business Studies (IJEBS)*, 1(1), 1–20. <https://journal.dinamikapublika.id/index.php/IJEBS/article/view/2>

Mulyono, H., Hartanti, R., & Rolando, B. (2025). SUARA KONSUMEN DI ERA DIGITAL: BAGAIMANA REVIEW ONLINE MEMBENTUK PERILAKU KONSUMEN DIGITAL. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, 1(1), 1–20. <https://doi.org/10.1234/JUMDER.V1I1.10>

Ngo, T. T. A., Nguyen, H. L. T., Nguyen, H. P., Mai, H. T. A., Mai, T. H. T., & Hoang, P. L. (2024). A comprehensive study on factors influencing online impulse buying behavior: Evidence from Shopee video platform. *Heliyon*, 10(15). <https://doi.org/10.1016/j.heliyon.2024.e35743>

Puri, A. K., & Singh, T. (2025). OnlineAdFOMO as a New Avenue for Digital Promotion: Index Development and Validation. *Journal of Promotion Management*, 31(3), 456–484. <https://doi.org/10.1080/10496491.2025.2466596>

Putri, L. W. B. (2022). TRACING THE DEVELOPMENT OF MARKETING IN THE AI ERA: A COMPREHENSIVE LITERATURE ANALYSIS. *Artificial Intelligence Research and Applied Learning*, 1(1). <https://journal.dinamikapublika.id/index.php/aira>

Rahardja, B. V., Rolando, B., Chondro, J., & Laurensia, M. (2025). MENDORONG PERTUMBUHAN E-COMMERCE: PENGARUH PEMASARAN MEDIA SOSIAL TERHADAP KINERJA PENJUALAN. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, 1(1), 45–61. <https://doi.org/10.1234/JUMDER.V1I1.6>

Rolando, B. (2024). CULTURAL ADAPTATION AND AUTOMATED SYSTEMS IN E-COMMERCE COPYWRITING: OPTIMIZING CONVERSION RATES IN THE INDONESIAN MARKET. *International Journal of Economics And Business Studies*, 1(1), 57–86. <https://doi.org/10.1234/IJEBS.V1I1.4>

Rolando, B., & Ingriana, A. (2024). SUSTAINABLE BUSINESS MODELS IN THE GREEN ENERGY SECTOR: CREATING GREEN JOBS THROUGH RENEWABLE ENERGY TECHNOLOGY INNOVATION. *International Journal of Economics And Business Studies*, 1(1), 43–56. <https://doi.org/10.1234/IJEBS.V1I1.3>

Rolando, B., & Mulyono, H. (2025a). Diverse Learning Environments on Students Entrepreneurial Intentions. *International Journal of Pedagogy and Teacher Education-9*, 9(1), 119–137. <https://doi.org/10.20961/ijpte.v9i1.98592>

Rolando, B., & Mulyono, H. (2025b). E-Commerce as a Catalyst for Digital Economy Development: A Study of Marketing Strategies and Their Impact. *Journal of Distribution Science*, 23(4), 61–79. <https://doi.org/10.15722/jds.23.04.202504.61>

Rolando, B., Ariyanto, K., Alexia, K. R., & Hartanti, R. (2022). PERAN AI DAN BIG DATA DALAM MENGOPTIMALKAN STRATEGI PEMASARAN DIGITAL. *Artificial Intelligence Research and Applied Learning*, 1(1). <https://journal.dinamikapublika.id/index.php/aira>

Rolando, B., Chandra, C. K., & Widjaja, A. F. (2025). TECHNOLOGICAL ADVANCEMENTS AS KEY DRIVERS IN THE TRANSFORMATION OF MODERN E-COMMERCE ECOSYSTEMS. 1(2). <https://journal.dinamikapublika.id/index.php/Jumder>

Rolando, B., Widjaja, A. F., & Chandra, C. K. (2025). UNDERSTANDING FASHION PURCHASING DECISIONS: A SYSTEMATIC REVIEW OF CONSUMER BEHAVIOR IN RETAIL (Vol. 1, Issue 1). <https://journal.dinamikapublika.id/index.php/mosaic>

Saavedra, C. M. C., & Bautista, R. A. (2020). Are you "in" or are you "out"? Impact of FoMO (fear of missing out) on generation Z's masstige-brand apparel consumption. *Asia-Pacific Social Science Review*, 20(2), 106–118. <https://doi.org/10.59588/2350-8329.1305>

Schapsis, C., Micu, P., & Wingate, N. (2025). Beyond Reality: Investigating the Power of Scarcity and Rarity on Consumer Attitudes in Metaverse Fashion Retail. *Human Behavior and Emerging Technologies*, 2025(1). <https://doi.org/10.1155/hbe2/7290117>

Septiana, D., Mahrinasari, M. S., & Bangsawan, S. (2024). Fear of Missing out Behaviour: An Indonesian Consumer's Perspective of Food and Beverage. *AgBioForum*, 26(1), 92–106. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85215439325&partnerID=40&md5=8caddf9f65e7588a0c840876cdcf4b18>

Setiawan, B. L. T. (2022). ANALISIS PERAN AUGMENTED REALITY (AR) DALAM PEMASARAN DAN DAMPAKNYA PADA PERILAKU KONSUMEN. *Artificial Intelligence Research and Applied Learning*, 1(1). <https://journal.dinamikapublika.id/index.php/aira>

Song, M., Choi, S., & Moon, J. (2021). Limited time or limited quantity? The impact of other consumer existence and perceived competition on the scarcity messaging - Purchase intention relation. *Journal of Hospitality and Tourism Management*, 47, 167–175. <https://doi.org/10.1016/j.jhtm.2021.03.012>

Sun, B., Zhang, Y., & Zheng, L. (2023). Relationship between time pressure and consumers' impulsive buying—Role of perceived value and emotions. *Heliyon*, 9(12). <https://doi.org/10.1016/j.heliyon.2023.e23185>

Surya, W., & Ronald, R. (2025). Recipe to Improve Impulsive Buying Behavior through Social Presence and Telepresence on the Tiktok Livestreaming Platform. *Review of Integrative Business and Economics Research*, 14(1), 109–123.

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85214840661&partnerID=40&md5=3a091a77575406682e5d9f8fccdec4b6>

Tan, D. M. (2022). A SYSTEMATIC REVIEW OF THE AI-POWERED MARKETING REVOLUTION: FROM TRADITIONAL TO DATA-DRIVEN APPROACHES. *Artificial Intelligence Research and Applied Learning*, 1(2). <https://journal.dinamikapublika.id/index.php/aira>

Tran, M. D., Ta, K. P., Luu, H. T., Ta, N. B. T., Vo, M. Y. N., & Pham, A. S. (2025). Effect of KOLs' persuasiveness on impulsive buying behaviors: live streaming commerce. *Cogent Business and Management*, 12(1). <https://doi.org/10.1080/23311975.2025.2476709>

Vannisa, D., Fansuri, A., & Ambon, I. M. (2020). The effect of flash sale program on shopping enjoyment and impulse buying on flash sale on C2C E-commerce. *International Journal of Scientific and Technology Research*, 9(4), 2534–2539. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085031594&partnerID=40&md5=a31474e52a0cdea8d7249860eaa049b9>

Widjaja, A. F. (2025). *FACTORS INFLUENCING PURCHASE INTENTION IN E-COMMERCE: AN ANALYSIS OF BRAND IMAGE, PRODUCT QUALITY, AND PRICE*. 1(3). <https://journal.dinamikapublika.id/index.php/Jumder>

Wijaya, A. J. (2022). PERAN DAN IMPLEMENTASI TEKNOLOGI KECERDASAN BUATAN DALAM PENGALAMAN KONSUMEN E-COMMERCE: SEBUAH TINJAUAN SISTEMATIS. *Artificial Intelligence Research and Applied Learning*, 1(1). <https://journal.dinamikapublika.id/index.php/aira>

Winata, V. (2022). OPTIMIZING BIG DATA PROCESSING THROUGH ARTIFICIAL INTELLIGENCE: A SYSTEMATIC LITERATURE REVIEW. *Artificial Intelligence Research and Applied Learning*, 1(2). <https://journal.dinamikapublika.id/index.php/aira>

Wu, Y., Xin, L., Li, D., Yu, J., & Guo, J. (2021). How does scarcity promotion lead to impulse purchase in the online market? A field experiment. *Information and Management*, 58(1). <https://doi.org/10.1016/j.im.2020.103283>

Yi, Q., Khan, J., Su, Y., Tong, J., & Zhao, S. (2023). Impulse buying tendency in live-stream commerce: The role of viewing frequency and anticipated emotions influencing scarcity-induced purchase decision. *Journal of Retailing and Consumer Services*, 75. <https://doi.org/10.1016/j.jretconser.2023.103534>

Yu, L., Tang, W., & Gao, W. (2025). A study on the mechanism of live streamer's behavior characteristics affecting consumers' impulsive buying: The role of perceived value and social identity. *Acta Psychologica*, 255. <https://doi.org/10.1016/j.actpsy.2025.104950>

Zhang, X., & Rosli, N. (2025). FOMO, Social Validation and Impulse Buying in Live Streaming E-Commerce. *Journal of Ecohumanism*, 4(1), 4049–4063. <https://doi.org/10.62754/joe.v4i1.6278>

Zhou, R. (2024). The impact of scarcity promotions in live streaming e-commerce on purchase intention: the mediating effect of emotional experience. *Asia Pacific Journal of Marketing and Logistics*. <https://doi.org/10.1108/APJML-04-2024-0475>