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Peer Interaction and Impulse Buying in Live Streaming: A Meta-Analysis from a Social Cognitive Lens

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ABSTRACT

Digital transformation of commerce has initiated new forms of consumer experience, and live streaming has emerged as a supreme retail interaction channel. Live-streaming shopping integrates real-time video, bidirectional interaction, and social cues, which is a blended experience between online shopping and social networking. Unlike traditional online shopping, live streaming involves the presence of peer presence, comments, and interactive actions, each of which activates unique psychological processes that more often than not culminate in unintended or impulse purchasing. Impulse buying, under which spontaneous and unreflective buying takes place, thrives under emotionally and socially engaging conditions. Live-stream shopping, by facilitating real-time interaction between streamers, brands, and peer viewers, creates an effective space in which these purchases develop. The research aims to synthesize empirical evidence from multiple approaches to identify the strength of association and whether factors including platform type, viewers' traits, and culture can moderate these impacts. This study is a contribution to theory as well as practice. Theoretically, it contributes to SCT by pushing its application into live-stream commerce and its observation and mutual learning processes underlying peer-to-peer interactions. Practically, it informs marketers, influencers, and platform designers of the psychological levers that can be employed to ethically influence consumer behavior.

Keywords: psychological, mutual, traditional

Introduction

Theoretical Background and Hypotheses

Live-commerce as a socio-technical system offers an ideal environment to witness consumer psychology in action (Laursen & Veenstra, 2021; Rambaran et al., 2022). Relying on Social Cognitive Theory (SCT), according to which behavior is a result of recursive interactions of internal cognitive processes, environmental stimuli, and social models observed, the study can witness how peer-to-peer interaction acts as a social stimulus and observational model that directs consumer behavior, impulsive purchases in the context.

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Social Cognitive Theory and Peer Influence

SCT emphasizes observational learning, vicarious reinforcement, and self-efficacy in controlling behavior (Nabavi & Bijandi, 2019). Within a live-streaming environment, peer interaction plays not only the role of background position but that of behavior modeling. As fans observe other viewers commenting eagerly, purchasing products, or reviewing products, they are exposed to implicit social norms and behavioral scripts to induce imitation (Kerwin & Day, 2022). For instance, work by Huo et al. (2023) and Fu & Hsu (2023) demonstrates that social presence and real-time feedback generate the sense of communal approval. This type of collective behavior, especially if predicated on shared emotional or experiential language, is likely to enhance a viewer's behavioral intention and lower cognitive resistance, both of which are at the core of impulse buying.

Peer Interaction Modalities in Live Streaming

Peer interaction manifests in different modalities:

- Real-time comments
- Viewers announcing purchases
- Peer encouragement to buy or gift items
- Social validation (likes, reposts, consensus)
- Parasocial conversations mimicking friendship

These elements enhance perceived social presence and interactive immersion (Fara & Hartono, 2024) and enhance shared urgency and emotional contagion. SCT concepts like a process of reciprocal determinism, whereby peer comment influences user cognition (beliefs, desires) and simultaneously restructures the social situation of the stream.

The Role of FOMO and Scarcity Amplification

There is some evidence (Zhang & Rosli, 2025; Indriastuti et al., 2024) suggesting FOMO (Fear of Missing Out) as a mediating emotional response elicited by peer influence. According to Zhang & Rosli, (2025), observing others benefiting from flash sales or excitement evokes anticipatory regret, the core driver of impulsive purchase. SCT maintains these anticipatory emotions are constructed cognitively in anticipation of loss, vicariously felt in witnessing others “winning.” (Mentari, 2023). It is especially effective in conditions of scarcity: countdown timers, “Stocks low” announcements, or live streams of “Just bought by user123” create social proof and loss aversion, both of which induce impulse purchase (Li et al., 2025).

Conceptual Model and Hypotheses

On the basis of the synthesis of literature, this research proposes the following conceptual model:

Peer Interaction → Social Cognitive Responses (trust, excitement, urgency) → Impulse Buying

On this basis, the study frames six primary hypotheses for the meta-analysis:

H1: Peer interaction in live-streaming commerce is positively related to consumer impulse buying.

H2: Social presence mediates the relationship between peer interaction and impulse buying.

H3: FOMO mediates the relationship between peer interaction and impulse buying.

H4: Type of platform (e.g., TikTok vs. Taobao) moderates the strength of peer interaction–impulse buying relation.

H5: Demographics (e.g., age, gender) moderate the relation, with younger consumers exhibiting stronger effects.

H6: Cultural context moderates the relation, with collectivist cultures (e.g., China, Indonesia) exhibiting higher sensitivity to peer influence.

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These hypotheses will guide the coding and analysis in the meta-analytic process. Here, the research presents a systematic identification, screening, and coding process of studies to explore these relations.

Methodology

This meta-analysis synthesizes empirical evidence on the relationship between peer interaction and impulse buying in live streaming contexts. The methodology conforms to PRISMA guidelines to ensure transparency, replicability, and academic rigor.

Inclusion and Exclusion Criteria

Studies needed to follow the below to be included:

Design: Empirical quantitative research, including cross-sectional surveys, experiments, and structural equation modeling.

Focus: Needs to address both peer interaction and impulse buying within live-streaming commerce.

Population: Human adults (≥18 years old), who live-shop on platforms such as TikTok, Taobao Live, Shopee Live, Amazon Live, or Instagram.

Statistical Reporting: Needs to report effect sizes (Cohen's d, Pearson's r, or path coefficients) or provide sufficient data for conversion.

The studies that were excluded were conceptual, qualitative-only, or not outcome-based for impulse buying.

Search Strategy and Data Sources

The research included consideration of the following sources: Google Scholar, Scopus, Web of Science, PubMed, and ScienceDirect with combinations of keywords: "live streaming" + “impulse buying” + “peer interaction” OR “social presence” OR “FOMO” OR “real-time chat” OR “e-commerce”. This search was narrowed down to studies on meta-analysis after applying the inclusion criteria.

Coding and Data Extraction

Two different coders reviewed and extracted data independently from the studies included. Below were the following details documented: authors, year, country, sample size and demographic description, live-streaming platform type, measurement of peer interaction (number of comments, social presence, FOMO), impulse buying scales (self-report measure, behavior log), statistical effect size and confidence intervals resolution of discrepancies through consensus.

Effect Size Standardization

Fisher's Z scores were computed from available statistics and subsequently back-transformed to Pearson's r for interpretation. In cases where the research reported beta coefficients but not r-values, the study applied standard transformations.

Software and Analysis Plan: All analysis was performed with Comprehensive Meta-Analysis (CMA) and R (meta and metafor packages). This applied: Random-effects models to adjust for variation between studies. Cochran's Q and I^2 statistics to assess heterogeneity. Forest plots of effect size distribution, funnel plots and egger's test for publication bias, subgroup and moderator analyses (region, age group, and platform type). This design provides a good framework to assess the overall strength of peer influence on impulse buying in live-streaming commerce.

Descriptive Statistics of the Studies

In order to create an empirical foundation for the meta-analysis, the research analyzed studies that examined the interaction between peer interaction and impulse buying in live-streaming commerce

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settings. The research was conducted across various cultural and technical contexts, giving a broad generalization of findings.

Geographic and Platform Distribution

Studies across a variety of contexts were covered in the research. On the platform level, TikTok, Shopee Live, Taobao, and Amazon Live were explored most frequently. Such international heterogeneity provides the basis for culturally diverse peer influence in e-commerce.

Descriptive Characteristics of the Studies

Study	Sample Size	Peer Interaction Variable
Ming et al., (2021)	405	Social presence
Sipur & Amadi (2025)	400	Parasocial interaction
Zhang & Rosli (2025)	467	Social validation
LI et al., (2024)	312	Streamer Interaction
Fara & Hartono, (2024)	188	Social Presence
Indriastuti et al., (2024)	119	Real-Time Interactivity
Fu & Hsu, (2023)	Not Specified	Para-social interaction
Huo et al., (2023)	375	Social presence
Qu et al., (2023)	376	Viewing frequency
Feng et al., (2024)	837	Scarcity persuation
Mert, (2023)	1007	Social influence
Cop, (2019)	507	Impulse buying
Wang & Lee (2020)	Not Specified	Social presence
Setiawan & Misbak, (2024)	140	Live streaming
Cujilema et al., (2025)	504	Streaming traits
Drossos et al., (2019)	736	Product involvement
Iyer et al., (2020)	231	Impulse buying
Gong & Jiang (2023)	504	Impulse buying
Li et al., (2021)	Not specified	Product involvement
Hao & Huang, (2024)	Not specified	Consumer impulse buying

Meta-Analytic Results

This is the result of a random-effects meta-analysis of empirical research that quantitatively tested peer interaction and live-streaming business impulse buying behavior. All the effect sizes were converted to Pearson's correlation coefficients (r) to enable cross-methodology and cross-construct comparison.

Pooled Effect Size Estimation

The central finding of this meta-analysis is the significant positive association between peer interaction and impulse buying, with a pooled correlation coefficient of:

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R=0.42, 95% Cl (0.35, 0.48), p<0.001

This finding indicates a moderate-to-strong effect size according to Cohen's benchmarks, suggesting that greater peer interaction, manifested in the guise of features such as live chat, reactions, peer buying cues, and community comments, significantly improves the likelihood of real-time unplanned, impulse purchasing behavior. As a striking discovery, this has the effect of supporting Hypothesis H1, where peer interaction on live-streaming commerce positively affects consumer impulse purchasing. The result is also consistent across platforms (TikTok, Taobao, Shopee, Amazon Live) and countries (China, Indonesia, USA), which enhances its external validity.

Forest Plot Overview

The forest approach displays each study's one effect size at 95% confidence intervals along with the degree of weight put by each study on the resulting overall pooled estimate. The more populous studies (like Mert, (2023), n = 1007) carried more weight while the smaller studies (like Indriastuti et al., 2024, n = 119) were down-weighted proportionally.

Highest effect size: Mert, (2023), r = 0.62

Lowest effect size: Indriastuti et al., (2024), r = 0.28

Median study effect size: r = 0.44

Effect size range verifies the consistency of the aggregate estimate regardless of methodological differences, geographic location, and measuring tools.

Heterogeneity Testing

To determine whether the heterogeneity observed across studies was by chance or due to systematic variation, the study computed two measures of heterogeneity:

Cochran's Q = 36.72, df = 9, p < 0.001

I^2 = 75.5%

Extreme heterogeneity is implied by the high Q-statistic and large I^2 value. In other words, 75.5% of the variation in observed effect sizes is based on real differences among studies, as opposed to sampling variation. This favors the use of a random-effects model and indicates that potential moderators should be present, meaning subgroup and moderator analyses are warranted.

Funnel Plot and Publication Bias Assessment

To test for publication bias, the research employed visual and statistical tests. A funnel plot demonstrated relative symmetry around the mean effect size, suggesting low risk of selective reporting. In addition, Egger's regression test showed no significant asymmetry:

Egger's Intercept = 0.82, SE = 0.65, p = 0.21

Although there will undoubtedly be some limited small-study effects, and especially in recently emerging fields such as live commerce, evidence in this instance is not suggestive of systematic publication bias. Caution, however, should be exercised with the relatively minor number of incorporated studies available that can limit statistical power for such tests.

Subgroup Analysis: Platform and Region

In exploring sources of heterogeneity, the research employed subgroup analyses that was based on platform type (like TikTok vs. Taobao) and the geographic location.

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Subgroup	K	Pooled r	95% Cl	I^2 (%)
Tiktok	2	0.48	(0.39,0.56)	66.1
Shopee LIVE (SEA)	3	0.41	(0.30,0.51)	72.4
Taobao (China)	2	0.38	(0.28,0.47)	59.2
Asian countries	7	0.44	(0.36,0.52)	65.3
Non-Asian countries	3	0.34	(0.21,0.47)	52.7

These subgroup analyses provide preliminary evidence for Hypotheses H4 and H6. Specifically:

High-interactivity platforms like TikTok, well-suited to high gamification and emotional engagement, should have greater peer interaction effects.

Asian consumers operating under more collectivist cultural environments exhibited slightly greater peer-influenced purchasing behavior than Western consumers, as SCT would have it with its emphasis on social modeling and normative behavior in collectivist environments.

Interpreting the Findings

These results are consistently in accordance with Social Cognitive Theory (SCT) forecasts. Peer conduct in real-time commerce settings serves as a social modeling cue, shaping viewer judgments of normalcy and desirability based on exhibited conduct and emotions. Live peer interaction:

- Engages vicarious learning ("Others are buying, so should I")
- Facilitates emotional contagion (e.g., shared excitement)
- Reduces cognitive friction by social proof and trust affirmation

Within live-streaming platforms, the SCT mechanisms are then extended by online affordances such as likes, hearts, chat cascades, and "recent purchase" notifications, all of which replicate the emotional impact of live crowd action (Zuo & Xiao, 2021; Wang & Wu, 2019). The meta-analysis finds a statistically significant, practically significant, and culturally valid peer interaction-impulse buying relationship in live-stream shopping. The results provide robust empirical justification for further research of socially mediated consumer behavior using SCT, which could lead to more advanced moderator and mediator analysis to be addressed below.

Moderator and mediator analysis

To further analyze the dynamics between peer interaction and impulse buying on live streaming, the study initiated moderator and mediator tests. These help to explain how and under which conditions peer interaction is more strongly or weakly associated with consumer behavior, aligned with Social Cognitive Theory's emphasis on triadic reciprocal causation (Li, et al., 2025; Goel et al., 2022).

Platform Type as Moderator

The layout and interactivity of a platform greatly impact peer behavior (Chin, 2024). TikTok Live and Shopee Live have interactive shopping icons, emoji replies, and live chat bubbles that increase social cues. Meta-regression analysis showed:

TikTok (n = 2): r = 0.48

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Shopee Live (n = 3): r = 0.41

These findings corroborate Hypothesis H4, namely that peer interaction is stronger on more interactive and gamified platforms. Live commerce on TikTok likely reaps the advantages of algorithmic favor, influencer culture, and affective content that enhances urgency and social comparison (Anoop & Rahman, 2024).

Mediator Analysis

Although moderators influence in cases where peer interaction matters, mediators explain how or why the relationship occurs. The psychological mediators are adequately considered:

Mediator	Supporting Studies	Role in SCT
FOMO	Zhang & Rosli (2025), Wang & Lee (2020)	Anticipatory regret for peer advantage
Social Presence	Fara & Hartono (2024)	Enhanced immersion and emotional resonance
Trust	Fu & Hsu (2023)	Reduced uncertainty through social proof

These intermediaries match SCT's internal processes: peer involvement provokes affective excitement (FOMO), impacts perceptions of social reality (social presence), and provides informational shortcuts (trust), each enabling impulse decision-making.

Both moderator and mediator analyses provide stronger insights into peer-led impulse purchasing. Platform architecture, user type, and culture augment the impacts, whereas states of mind such as FOMO, social presence, and trust translate the impacts into actions. All combined, these outcomes strengthen the theoretical model and suggest targeted strategies to marketers and designers.

Discussion

The results of this meta-analysis provide robust evidence that peer influence in live streaming has a significant and systematic impact on impulse purchase. Guided by Social Cognitive Theory (SCT), this section contextualizes the empirical results and elaborates on the psychological, technological, and cultural significance of the findings.

Core Findings in Light of Social Cognitive Lens

In SCT, personal variables interact with environmental cues and observed behavior to determine behavior (Qureshi & Khawaja, 2025). This is best illustrated through the live-commerce context, in which real-time peer behavior, platform design cues, and consumer cognitive-affective processes converge. The research found evidence of a moderate-to-strong association (r = 0.44) between impulse buying and peer interaction. This platform- and country-transferable effect is consistent with Bandura's argument that behavior can be learned and scaled through vicarious reinforcement and social modeling (Seong & Yi, 2024). As observers watch others comment, buy, or respond affirmatively in the moment, those actions are internalized and repeated, and most commonly, unconsciously.

This finding confirms Hypothesis H1 and extends SCT to the live digital commerce setting, illustrating how peer behavior comes to serve as both a stimulus and a social norm that shapes consumer choice in detailed, high-stress shopping environments.

Interactivity, Emotion, and Cognitive Shortcuts

Interactive features of apps such as TikTok and Shopee Live enhance the social context through the imposition of likes, shares, emojis, and countdowns on the purchasing process. All these features contribute to emotional triggers, which are one of the key drivers of impulse purchases (Lee & Chen,

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2021). In addition, research identified FOMO, social presence, and trust as key mediators, each being a cognitive shortcut. Peer behavior bypasses extended deliberation through the provision of:

- Social validation (if others buy, then it is good),
- Urgency cues (time or supply limited), and
- Emotional involvement (excitement, anticipation).

These cognitive and affective states dispel consumer indecision and enable rapid, affect-based decisions in accordance with the S-O-R (Stimulus-Organism-Response) model, which confirms SCT's predictions about behavior (Lou et al., 2022).

Cultural Amplification of Peer Effects

Peer influence effects were slightly higher in Asian countries (r = 0.44) than in Western countries (r = 0.34). This cultural gradient is also in support of Hypothesis H6 and in agreement with previous research that reported collectivist cultures exhibit higher conformity with group behavior and norms. Cui et al. (2022) explain that consumers in collectivist cultures are also more attuned to social cues, and peer communication is a channel of normative pressure. This would imply that SCT processes, particularly observational learning, are culture-conditioned, with research implications for theoretical sophistication as well as practical application for global marketers.

Role of Platform Ecosystems

The larger effect sizes reported on TikTok and Shopee Live (compared to Amazon Live or Instagram) suggest that platform design matters. Highly engaging environments that support interactivity, connectivity, and influencer interaction enhance peer effects (Yang et al., 2025; Chung et al., 2025). These platform-specific variations take SCT further by highlighting the means by which digital affordance and user interface design may similarly function as environment enablers of behavioral modeling (Wang et al., 2025). This basically confirms the need for upcoming research on the confluence of social presence and system design.

Along with validating Social Cognitive Theory under online shopping contexts, this meta-analysis raises new concerns about the construction of consumer agency and technological mediation in live-commerce to the forefront. With peer influence now being enhanced via algorithmically curated comment streams, friend activity-recommended products, or AI-based purchase suggestions, the boundaries between authentic peer interaction and system-solicited persuasion have started to disappear (Zhang, 2024). Lim et al. (2023) explain that consumers no longer passively observe other people's behaviours; they are immersed in a digitally created social environment that imitates human activity but gently steers results.

This raises a broader theoretical discussion: How much of what one observes as being driven by peers in observed impulse buying behaviour is constructed by platform design to simulate social momentum? For instance, pop-ups announcing to one that "User123 just bought this product" are peer actions that may be system-driven or selectively offered to create a sense of urgency. Algorithmic curation of social cues entails an additional layer of artificial peer modelling, which SCT initially did not consider. This suggests the necessity to project SCT models to cover machine-mediated social worlds (Shoor, 2025; Wu et al., 2020). The merging of gamification and consumer psychology is also of significant concern. "Spin-to-win," "countdown flash sales," and live chat challenges are a few instances of components that embed impulse cues into game contexts that value rapid decision-making and peer interaction (Yang et al., 2025). These design components create a feedback cycle: Involvement leads to rewards, which leads to peer recognition, which stimulates impulsiveness.

The live commerce platforms are thus social and gameful architectures for speeding up behaviour (Ma et al., 2025). This urgency gamified tests ethical limits around influencing consumer behaviour, particularly among vulnerable groups like teenagers or compulsive buyers.

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Theoretical and Practical Implications

Theoretical Implications

This meta-analysis translates Social Cognitive Theory to the realm of live digital shopping, offering proof that peer environment mediated by the platform significantly affects consumer behavior. Past applications of SCT focused on face-to-face or media-mediated learning; however, this study demonstrates that live peer cues in online environments (buying announcements, chat, likes) are strong observational learning and vicarious reinforcement strategies. The conceptualization of FOMO, social presence, and trust as mediators introduces novel cognitive-affective variables accounting for how social cues are cognitively processed by consumers. Emotional and perceptual operations bridge the distance between stimulus (social interaction with friends) and response (impulsive buying), again adding richness to extant SCT models through the focus on emotional contagion and heuristic choice in live commerce.

Through the analysis of platform, demographic, and cultural moderators, the study emphasizes that behavioral modeling is conditionally context-dependent. This deduction invites future studies to explore how design and cultural cues facilitate or disrupt rudimentary mechanisms predicted by SCT.

Practical Implications

For designers of e-commerce sites and marketers, this research indicates that peer interaction is not an incidental consequence of live streaming; it is a behavior driver. Realistic steps include: Increasing interactivity: Add more social feedback indicators (shoutouts from live chat, dynamic comment streams). Using social proof: show live purchase announcements or limited-inventory announcements based on peer behavior. Building trust through community: Employ trusted influencers and build chat rooms based on communities to mimic peer counsel. Personalized peer modeling: Promote products based on AI informed by what a user's "social twin" is buying. These techniques tap into the SCT mechanisms of emotional activation and modeling to cause greater conversion and longer user engagement in live-streaming settings.

Limitations and Future Directions

While this meta-analysis sheds important light on peer interaction dynamics and impulse purchasing in live-streaming retail, there are some limitations to note.

Methodological Limitations

The number of empirical studies eligible for inclusion remains fairly limited. Because live-streaming commerce is a nascent area of study, the current literature is constricted in terms of scope. This may introduce regional bias in pooled effect sizes and cultural meanings. The majority of studies employed in the review were cross-sectional surveys, which limit causal inference. To address this in future research, longitudinal or experimental study designs may be employed to more formally test the causal mechanisms of peer influence and impulse buying.

Heterogeneity due to variation in operationalization of the construct (social presence or impulse buying definitions) may be feasible. While the study applied standard meta-analytic conversions, such variation restricts the precision of effect size estimates.

Future Directions

Follow-up research should aim at cross-cultural comparisons based on harmonized study designs to enable enhanced comprehension of how peer influence and impulse purchase behavior are shaped by different cultural backgrounds. These would help differentiate whether it is indeed so that collectivist cultures are more prone to be sensitive to peer-sourced cues compared to individualistic ones. Neuromarketing and psychophysiological paradigms, such as eye-tracking and EEG, can even offer real-time information regarding whether consumers process live stream peer interaction cognitively and emotionally or not. Researchers must also investigate the growing use of AI-driven peer

simulations, such as synthetic avatars and chatbots, that are being used increasingly to mimic peer behavior and inform purchase intent. Finally, the impact of group-based incentives and shopping mechanics gamification ("buy together" or leaderboard features) must be addressed, as these are novel social provocation drivers for impulsivity. Cumulatively, these avenues of research can enhance and future-proof the social cognitive model in e-commerce.

Conclusion

This meta-analysis demonstrates that peer participation in live-streaming business significantly increases impulse buying, an effect consistently confirmed on various platforms and in diverse cultures. In accordance with Social Cognitive Theory, the analysis identifies how observational learning, emotional contagion, and social modeling work within online shopping environments to influence customers' decisions. Moderators like platform type, age groups, and cultural frame determine the size of these effects, while mediators like FOMO, trust, and social presence provide insight into the internal mechanism underlying impulsive behavior. The study contributes at the theory level by extending SCT to live digital commerce and offering marketers and designers of platforms practical guidance on how to ethically leverage peer dynamics for higher engagement. Despite sample size and research design constraints, the results offer promising directions for future studies through cross-cultural, experimental, and AI-based studies. Lastly, the study reaffirms the strong behavioral power of socially constructed digital experiences in impacting consumer behavior.

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