SCARCITY MARKETING AND IMPULSE BUYING IN LIVE COMMERCE: THE MEDIATING ROLE OF EMOTIONAL AROUSAL AND SOCIAL INFLUENCE

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ABSTRACT

Objective: This study aims to analyze the influence of scarcity marketing and social influence on impulse buying among live commerce consumers in Indonesia, while examining the mediating role of emotional arousal within the Stimulus-Organism-Response (S-O-R) framework.

Research Design & Methods: Utilizing an explanatory quantitative research design, data were collected through an online Likert-scale questionnaire distributed via purposive sampling to 207 active live commerce users (e.g., Shopee Live and TikTok Shop) across Indonesia. The structural equation model was analyzed using Partial Least Squares (PLS-SEM).

Findings: The empirical results indicate that both scarcity marketing and social influence have a positive and significant effect on emotional arousal and impulse buying. Interestingly, social influence exerts a stronger effect on impulse buying and emotional arousal than scarcity marketing in the live commerce environment. Furthermore, mediation analysis confirmed that emotional arousal significantly bridges the impact of both external marketing stimuli and social interactions on impulsive purchasing behavior.

Contribution: This research extends the S-O-R framework by demonstrating how interactive real-time digital cues function as powerful emotional triggers. It enriches digital consumer behavior literature by shifting the focus from individualistic e-commerce to highly collaborative and socially-driven live streaming ecosystems in emerging markets.

Novelty: The novelty of this study lies in the shift in the focus of live commerce research from a purely transactional perspective to in-depth psychological mechanisms. By integrating Cialdini's principles of scarcity and social proof into the S-O-R framework, this study empirically demonstrates that Social Influence (β = 0.480) has a stronger effect than Scarcity Marketing (β = 0.392) in triggering emotional arousal and spontaneous purchases in emerging markets such as Indonesia.

Keywords: Scarcity Marketing, Social Influence, Emotional Arousal, Impulse Buying, Live Commerce.

JEL codes: M31, L81, D12, O33.
Article type: research paper

INTRODUCTION

The development of digital technology has transformed the interaction patterns between sellers and consumers in e-commerce activities. One rapidly growing innovation is live commerce, a live broadcast-based sales method that combines entertainment, social interaction, and real-time transactions. Platforms like TikTok, Shopee, and Tokopedia utilize live streaming features to increase consumer engagement and drive quick purchasing decisions. In Indonesia, the development of live commerce shows very significant growth. A 2024 Cube Asia survey showed that 77% of Indonesian consumers watch live commerce on TikTok and 74% on Shopee Live (Torring, 2025). Furthermore, an IPSOS report also shows that Shopee Live is the live streaming platform most remembered by MSMEs and local brands, with a top-of-mind rating of 77% (CNN Indonesia, 2024).

Marketers often employ scarcity marketing strategies, such as time-limited promotions, limited stock, flash sales, and "out of stock" notifications in live commerce. These strategies are designed to create a perception of scarcity, so consumers feel compelled to make a purchase immediately before the opportunity is lost. Psychologically, scarcity creates a sense of urgency and emotional tension, which can increase impulse buying tendencies. Consumers who initially had no intention of purchasing may be encouraged to make an impulse purchase because they perceive the product to be difficult to obtain later (Zhang et al., 2022). This phenomenon demonstrates that live commerce is no longer simply a promotional medium but has evolved into a digital ecosystem capable of rapidly shaping consumer behavior. In fact, the growth of social commerce and live shopping in Indonesia is among the fastest in Southeast Asia. Indonesia is also said to be the second-largest TikTok market in the world, with millions of sellers utilizing the live shopping feature to increase sales (Mediana, 2026). This situation shows that consumer purchasing decisions are increasingly influenced by interactive experiences, entertainment, and social pressure during live broadcasts.

The phenomenon of scarcity marketing is currently becoming increasingly widespread in live commerce. Many e-commerce platforms are aggressively using countdown timers, live flash sales, and limited stock features to increase impulse purchases. Consumer discussions in digital communities indicate that massive promotions on Shopee Live and TikTok Shop often lead consumers to purchase products simply out of fear of missing out on discounts or promotional opportunities (Huo et al., 2023; Ngo et al., 2024). This demonstrates that scarcity strategies have a powerful ability to influence consumer emotions and behavior during the live shopping process.

Besides scarcity marketing, social influence is also a dominant factor in live commerce. High viewership, real-time positive comments, influencer recommendations, and the display of other consumers' purchases create social pressure that influences individual purchasing decisions (Ming et al., 2021; Xia et al., 2024). In this context, consumers tend to follow the behavior of the majority because they perceive group actions as indicators of product quality or correct decisions. Intense social interaction during live streaming can increase consumer emotional engagement and reduce rational considerations in the purchasing process.

Although live commerce offers significant opportunities for companies to increase sales, the phenomenon of excessive impulse buying also creates various problems. Consumers often make purchases without planning, purchase products they don't actually need, and even experience post-purchase regret (M. Li et al., 2022). This situation suggests that purchasing decisions in live commerce are often driven by fleeting emotions rather than rational evaluation. Companies do achieve short-term transaction increases, but in the long term, excessive impulsive behavior can decrease customer satisfaction and loyalty if consumers feel deceived by marketing pressure. This problem highlights the importance of understanding the psychological mechanisms that explain how scarcity marketing and social influence can influence impulse buying. This study proposes emotional arousal as a mediating variable because emotional stimulation is seen as a key mechanism bridging the influence of marketing strategies on impulse buying behavior (Arianty et al., 2024). In live commerce, scarcity marketing can increase emotional arousal through the emergence of excitement, urgency, anxiety, stimulation, and anticipation (Ngo et al., 2024). When consumers see promotions with a short time limit or limited stock, they experience increased emotional activation that drives quick purchase decisions. Similarly, social influence in live commerce can increase consumer emotional arousal. Positive comments, influencer recommendations, and high community activity during live streaming create an intense social atmosphere and engage consumers emotionally (Qin et al., 2023). As emotional arousal increases, consumers' ability to think rationally tends to decrease, increasing the likelihood of impulse buying. Thus, emotional arousal is an important psychological mechanism explaining the relationship between scarcity marketing, social influence, and impulse buying.

This research is important because there is still a research gap in the digital marketing literature, particularly regarding the integration of scarcity marketing, social influence, and emotional arousal in the context of live commerce. Most previous studies have focused solely on the direct influence of marketing strategies on impulse buying, while psychological mechanisms have not been widely studied (Hongsuchon et al., 2025; Martaleni et al., 2022; B. Sun et al., 2023). Furthermore, research on live commerce is still relatively limited in developing countries, including Indonesia, despite the rapid growth of live shopping platforms in Indonesia in recent years. Therefore, this study aims to analyze the influence of scarcity marketing and social influence on impulse buying, both directly and through emotional arousal as a mediating variable.

This research contributes by expanding the Stimulus-Organism-Response (S-O-R) theoretical framework by Mehrabian & Russell (1974) through the integration of scarcity marketing and social influence as external stimuli, emotional arousal as an internal psychological response (organism), and impulse buying as a consumer behavioral response. This research also enriches the digital consumer behavior literature by showing that emotional arousal is a key psychological mechanism explaining how live commerce marketing strategies influence impulse buying. This research also provides implications for consumers to be more able to control impulse buying behavior during live commerce activities. Consumers need to be more critical of scarcity marketing strategies such as countdown timers, "stock almost out," and social pressure from influencer comments and recommendations that are often designed to trigger emotional arousal. By increasing awareness of these psychological mechanisms, consumers can make more rational purchasing decisions, reduce post-purchase regret, and manage finances more healthily in the digital commerce era.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The development of live commerce has changed consumer behavior patterns in the digital environment through a combination of entertainment, social interaction, and real-time transactions. Live commerce allows companies to create a more interactive shopping experience, thereby increasing consumer emotional engagement and encouraging impulse buying. Research uses Stimulus-Organism-Response (S-O-R) as a theoretical basis, where marketing stimuli such as scarcity marketing and social influence can influence consumers' psychological state before producing a behavioral response in the form of impulsive purchases. Scarcity marketing through limited stock strategies, flash sales, and countdown timers creates a perception of scarcity that increases purchasing urgency. The perception of scarcity increases the subjective value of a product so that consumers are encouraged to make quick purchasing decisions (Barton et al., 2022; Hmurovic et al., 2023). In live commerce, the perception of scarcity will be even stronger because consumers are faced with time pressure and real-time promotions that trigger emotional arousal.

In addition to scarcity marketing, social influence is also a crucial factor in shaping impulse buying behavior in live commerce. Social interactions through real-time comments, influencer recommendations, viewership, and purchase notifications from other users create social proof that influences consumer perceptions and decisions. Social influence theory explains that individuals tend to follow the behavior of the majority when faced with uncertainty. High social activity during live commerce broadcasts can increase consumer excitement, pleasure, and emotional engagement with the products offered. Social interaction in social commerce influences consumer purchasing decisions because consumers tend to use the opinions, recommendations, and behavior of other users as sources of information and validation before purchasing a product (G. Kanimozhi, 2025). When consumers see positive comments, a high number of viewers, real-time reviews, and influencer recommendations during live commerce, the perception arises that the product is popular, trustworthy, and worth purchasing. This creates social proof that increases emotional engagement and consumer confidence in the product, thus encouraging consumers to make spontaneous purchases. The higher the intensity of social interaction received by consumers, the greater the tendency for emotional arousal and impulse buying in live commerce activities. Meanwhile, emotional arousal is an affective response that arises from environmental stimuli and can influence impulsive consumption behavior (Ngo et al., 2024). As emotional arousal increases, consumers' ability to make rational evaluations tends to decrease, making impulse buying more likely.

Although the relationship between digital marketing strategies and impulse buying has been extensively researched, most previous studies have focused on direct influences without comprehensively explaining the underlying psychological mechanisms. Furthermore, research on the integration of scarcity marketing, social influence, and emotional arousal in the context of live commerce is still relatively limited, particularly in developing countries like Indonesia. Therefore, this study develops a more comprehensive model of digital consumer behavior by integrating external stimuli and psychological response mechanisms to explain impulse buying in live commerce consumers.

Scarcity Marketing and Impulse Buying

Scarcity marketing is a marketing strategy that emphasizes product limitations, both in terms of quantity and time, to create a perception of scarcity in the minds of consumers. This strategy is usually implemented through limited stock, flash sales, countdown timers, and time-limited promotions aimed at increasing purchase urgency (Barton et al., 2022; Broeder & Wentink, 2022). From a consumer behavior perspective, scarcity marketing can increase a product's subjective value because consumers perceive products that are difficult to obtain as having higher appeal and value than products that are readily available. This condition gives rise to fear of missing out, psychological pressure, and emotional impulses that cause consumers to make quick decisions without conducting in-depth rational evaluation. Scarcity marketing strategies in live commerce are more effective because consumers receive promotional stimuli in real time, increasing emotional excitement and impulse buying tendencies (Hao & Huang, 2023). When consumers perceive that opportunities to purchase a product are limited and could disappear at any time, they tend to make spontaneous purchases to avoid regret resulting from missing the opportunity. Therefore, the greater the application of scarcity marketing in live commerce, the higher the tendency for consumer impulse buying.

Several previous studies support a positive relationship between scarcity marketing and impulse buying. Previous research found that scarcity messages can increase perceived product value and accelerate consumer purchasing decisions (Wrabel et al., 2022). Furthermore, limited-time scarcity strategies in e-commerce increase purchase urgency and encourage impulse buying behavior (Khetarpal & Singh, 2024). Other findings demonstrate that scarcity cues in live streaming commerce significantly influence consumer impulse buying by increasing emotional distress and the fear of missing out (Feng et al., 2024). Based on this description, the research hypothesis is formulated as follows:
H1: The greater the application of scarcity marketing in live commerce, the stronger the consumer's tendency to make impulse purchases.

Social Influence and Impulse Buying

Social influence is the influence that arises from interactions, opinions, recommendations, and behaviors of other individuals or groups that can influence consumer decisions (Jia et al., 2024). Social influence in live commerce is reflected in real-time comments, viewership, user reviews, influencer recommendations, and notifications of purchases by other consumers during the live broadcast (Liu & Zhang, 2024). The presence of these social interactions creates social proof, a condition where consumers use the behavior of others as a reference in making purchasing decisions. In interactive and dynamic live commerce situations, consumers tend to feel more confident about a product when they see many other users providing positive responses or making purchases simultaneously. This social pressure can increase consumers' emotional involvement and reduce rational considerations in the decision-making process. As a result, consumers are more easily encouraged to make spontaneous purchases without prior planning. The stronger the social influence consumers receive during live commerce, the higher the tendency for impulse buying.

Empirical findings indicate that social interactions in social commerce significantly influence consumer purchase intentions and decisions by increasing trust and user engagement (Karakurt & Bayram, 2021). Other research shows that electronic word-of-mouth and online community interactions can increase impulse buying tendencies on digital platforms (Ming et al., 2021). Furthermore, real-time interactions between streamers and consumers in live commerce increase emotional engagement, which impacts impulse buying (Xia et al., 2024). Previous research shows that social influence not only shapes consumer perceptions of products but also creates social and emotional pressure that accelerates spontaneous purchasing decisions in live commerce environments. Based on these theoretical arguments and empirical support, the research hypothesis is formulated as follows:
H2: The stronger the social influence in live commerce, the higher the consumer's tendency to make impulse purchases.

Emotional Arousal and Impulse Buying

Emotional arousal is a psychological state that describes the level of emotional activation in an individual due to certain stimuli, such as happiness, enthusiasm, stress, excitement, or fear of missing out. Emotional arousal in live commerce arises when consumers receive various intense marketing stimuli, such as flash sales, limited stock, real-time interactions, positive comments, and influencer recommendations during a live broadcast (Gao et al., 2022). This creates a more interactive and emotional shopping experience than conventional online shopping. As emotional arousal increases, consumers' ability to make rational evaluations tends to decline because purchasing decisions are more influenced by emotional impulses than logical considerations. Consumers who experience excitement, urgency, and fear of missing out during live commerce are more easily encouraged to make spontaneous purchases without prior planning (G. Li et al., 2022). Therefore, the higher the emotional arousal consumers feel during live commerce, the greater the tendency for impulse buying.

Various previous studies have shown that environmental stimuli that increase emotional activation can influence spontaneous consumption behavior (Juárez-Varón et al., 2023; Ngo et al., 2024). Other research has found that a shopping environment that triggers excitement and pleasure can increase consumers' tendency to make impulsive purchases (Cao et al., 2024). Furthermore, emotional stimulation in digital environments significantly increases impulse buying behavior on online shopping platforms (Feng et al., 2024). Other research also shows that emotional arousal in online retail environments can encourage consumers to make spontaneous purchases without careful consideration (Ngo et al., 2025). Based on these theoretical arguments and empirical support, the research hypothesis is formulated as follows:
H3: The higher the emotional arousal experienced by consumers in live commerce, the higher the tendency to make impulse purchases.

The Role of Emotional Arousal in Mediating the Influence of Scarcity Marketing on Impulse Buying

Scarcity marketing is a marketing strategy that creates the perception of limited product or offering time to increase consumer purchase urgency. This strategy is implemented through flash sales, countdown timers, limited stock, and "stock almost out" notifications delivered in real time during live broadcasts (Hao & Huang, 2023). This perception of scarcity not only affects consumers cognitively but also evokes emotional responses such as excitement, urgency, anxiety, and fear of missing out. When consumers perceive the opportunity to purchase a product as limited and potentially lost at any time, emotional arousal levels increase, leading to emotional distress in the decision-making process (X. Li et al., 2023). Under conditions of high emotional arousal, consumers' ability to think rationally is reduced because purchasing decisions are more influenced by affective impulses than logical evaluations. Therefore, emotional arousal acts as a psychological factor that mediates scarcity marketing in encouraging impulse buying. The scarcity strategy does not directly cause impulse buying, but first increases consumer emotional activation, which ultimately triggers impulse buying behavior.

Various previous studies support the important role of emotional arousal as a mediating variable in the relationship between marketing stimuli and impulse buying behavior. Lavuri et al. (2023) explain that environmental stimuli can influence consumer behavior through changes in an individual's emotional state. Visual, social, sensory, and value-related cues first alter feelings such as arousal, pleasure, attachment, or concern, and these emotional shifts then drive spontaneous purchases, continued platform use, brand love, or sustainable consumption (Cao et al., 2024). Barton et al. (2022) shows that scarcity cues increase psychological distress and consumer excitement about the product being offered. Furthermore, Broeder & Wentink (2022) demonstrated that limited-time scarcity in live streaming commerce increases consumer emotional arousal, which then drives impulse buying behavior. These findings indicate that emotional arousal is the primary mediating mechanism linking scarcity stimuli to consumer impulse buying behavior in live commerce. Based on these theoretical arguments and empirical support, the research hypothesis is formulated as follows:
H4: Emotional arousal can mediate the effect of scarcity marketing on impulse buying in live commerce consumers.

The Role of Emotional Arousal in Mediating the Influence of Social Influence on Impulse Buying

Social influence is the influence that arises from social interactions, opinions, recommendations, and the behavior of other individuals that influence consumer purchasing decisions. Social influence in live commerce is reflected through real-time comments, viewership, positive reviews, influencer recommendations, and purchase notifications from other users during the live stream (Thuy An Ngo et al., 2023; Yang et al., 2023). These social interactions create social proof, making consumers feel more confident in the quality and popularity of the products offered. When consumers see many people providing positive responses or making purchases simultaneously, they tend to follow the behavior of the majority as a form of social validation. This causes consumers not only to be cognitively influenced but also to experience greater emotional engagement during the live commerce process.

The high intensity of social interaction in live commerce can generate excitement, pleasure, urgency, and emotional engagement, which can further immerse consumers in the shopping experience (Xia et al., 2024). As emotional arousal increases, consumers' ability to rationally evaluate products tends to decline, as purchasing decisions are dominated by emotional responses rather than logical considerations (G. Li et al., 2022). Consequently, consumers are more likely to make spontaneous purchases without prior planning. Thus, emotional arousal is a crucial psychological mechanism explaining how social influence can drive impulse buying in the interactive and dynamic environment of live commerce.

Various previous studies have shown that social interactions in social commerce can increase emotional engagement and influence consumer purchasing decisions (Huang et al., 2023; Wang et al., 2021). Real-time communication between streamers and consumers creates emotional engagement, which increases the likelihood of impulsive buying (G. Li et al., 2022). Furthermore, across live streaming, social commerce, mobile social commerce, VR, and video platforms, social and interactive digital cues do not simply push people to buy. They work mainly by emotionally stimulating users raising arousal, pleasure, immersion, and flow which then mediate the relationship between social interaction and impulse buying. Emotional stimulation is therefore a central, empirically supported bridge between social interaction and impulsive purchases in digital environments (Utomo et al., 2025). These previous research findings suggest that social influence does not directly cause impulse buying but first increases consumers' emotional arousal, which then drives impulsive buying. Based on these theoretical arguments and empirical support, the research hypothesis is formulated as follows:
H5: Emotional arousal mediates the effect of social influence on impulse buying in live commerce consumers.

METHODS

This study uses a quantitative approach with an explanatory research design to analyze the causal relationship between scarcity marketing, social influence, emotional arousal, and impulse buying among live commerce users. The study was conducted on consumers who had made purchases through live commerce platforms such as TikTok Live and Shopee Live in Indonesia. The sampling technique used purposive sampling with the respondent criteria being individuals who had watched and made a purchase transaction through live commerce at least once in the last six months. The number of data collected and meeting the processing criteria was 207 respondents. Data collection was carried out through an online questionnaire using a five-point Likert scale. The number of data collected and meeting the processing criteria was 207 respondents. To account for demographic and regional variations across Indonesia, the online questionnaire was distributed digitally across major social media and messaging networks targeting urban and suburban live commerce users. The sample encompasses respondents from various major regions, including Western Indonesia (Java, Sumatra), Central Indonesia (Kalimantan, Sulawesi), and Eastern Indonesia, capturing a broad and diverse archetype of active digital shoppers in the archipelago.

The Scarcity Marketing (SM) variable is measured using Limited Stock, Countdown Timer, Flash Sale, exclusivity and Limited Deal indicators adopted (Hmurovic et al., 2023; H. Sun & Teichert, 2024; Zhang et al., 2022). The Social Influence (SI) variable is measured using indicators of influence from family/friends, online groups, media content, broader society, average engagement rate, follower reach, and mention prominence adopted from (Chani & Olugbara, 2025; Maleknia et al., 2025; Ryu & Han, 2021). The Emotional Arousal (EA) variable is measured through indicators of Excitement, happy, enthusiastic, proud, inspired, Anxiety, Stimulation, Anticipation, and Pleasure modified from (Jonauskaite & Mohr, 2025; Ketonen et al., 2023; Pekrun et al., 2023). Meanwhile, the Impulse Buying (IB) variable is measured by the Actual unplanned purchase indicator; product chosen in experiment, spontaneity, low deliberation, strong affective involvement, and Buying on Emotion adopted from (M. Li et al., 2022; Mandolfo & Lamberti, 2021; Redine et al., 2023).

The data analysis in this study used Structural Equation Modeling-Partial Least Squares (SEM-PLS). The SEM-PLS method was chosen because it is capable of analyzing simultaneous relationships between latent variables, testing mediation effects, and is suitable for use in research with complex models and relatively moderate sample sizes. The analysis stages include testing the outer model through convergent validity, discriminant validity, and composite reliability tests, as well as testing the inner model through R-square values, path coefficients, and hypothesis testing using bootstrapping.

RESULT

Based on the results of the outer model test in Table 1, all constructs in this study have met the criteria for convergent validity and internal reliability. Convergent validity testing is demonstrated through the outer loading and Average Variance Extracted (AVE) values. The outer loading values for each indicator are above the minimum limit of 0.60, so all indicators are declared capable of representing the latent construct adequately. For the Emotional Arousal variable, the outer loading values range from 0.670 to 0.799, indicating that the indicators used are able to explain the emotional arousal construct well. The Impulse Buying variable has an outer loading value between

0.798 and 0.838, while Scarcity Marketing has the highest outer loading value, which is between 0.777 and 0.889. Meanwhile, the Social Influence variable has an outer loading value ranging from 0.743 to 0.843. Thus, all indicators are declared valid because they meet the recommended threshold value in SEM-PLS.

Furthermore, convergent validity testing is demonstrated through the Average Variance Extracted (AVE) value. All variables have an AVE value above 0.50. This value indicates that each construct is able to explain more than 50% of the variance of its indicators, thus it can be stated to have good convergent validity. Among all variables, Scarcity Marketing has the highest AVE value, indicating that this construct has the strongest ability to explain its constituent indicators compared to other variables in the research model.

The reliability test results also show that all variables have met the criteria for good internal reliability. This is indicated by the Cronbach's Alpha and Composite Reliability values that are above the minimum limit of 0.70. The Emotional Arousal variable has a Cronbach's Alpha value of 0.786 and a Composite Reliability of 0.794. The Impulse Buying variable shows a Cronbach's Alpha value of 0.745 and a Composite Reliability of 0.748. Meanwhile, Scarcity Marketing has the highest level of reliability with a Cronbach's Alpha value of 0.882 and a Composite Reliability of 0.887. The Social Influence variable also shows good reliability with a Cronbach's Alpha and Composite Reliability value of 0.816. Thus, all constructs in this study are declared reliable and consistent in measuring the latent variables studied, making them suitable for further analysis in testing the structural model.

Table 1. Validity and reliability test

Variables	Outer Loading	Average variance extracted	Cronbach's alpha	Composite reliability
Emotional Arousal	0.670 (EA1) 0.799 (EA9)	0.540	0.786	0.794
Impulse Buying	0.798 (IB3) 0.838 (IB4)	0.661	0.745	0.748
Scarcity Marketing	0.777 (SM8) 0.889 (SM6)	0.681	0.882	0.887
Social Influence	0.743 (SI6) 0.843 (SI5)	0.645	0.816	0.816

Source: Data Proceed (2026)

Based on the results of the discriminant validity test using the Heterotrait-Monotrait Ratio (HTMT) method in Table 2, all constructs in this study have met the criteria for good discriminant validity. The test results show that all HTMT values between variables are below the threshold of 0.90. The relationship between Impulse Buying and Emotional Arousal has an HTMT value of 0.447, which indicates that the two constructs have quite clear conceptual differences even though they are interrelated in the research model. The relationship between Scarcity Marketing and Emotional Arousal shows an HTMT value of 0.272, while the relationship between Scarcity Marketing and Impulse Buying has a value of 0.421. These values indicate that the Scarcity Marketing construct has a good level of discrimination against other variables in the research model. In addition, the relationship between Social Influence and Emotional Arousal has an HTMT value of 0.660, while the relationship between Social Influence and Impulse Buying is 0.712. This value indicates a fairly strong relationship between variables, but is still within the permissible limits, thus discriminant validity is still met. The relationship between Social Influence and Scarcity Marketing has an HTMT value of 0.568, which also indicates that the two constructs are different concepts even though they both include marketing stimuli in live commerce. Overall, the HTMT test results prove that all constructs in this study have good discriminant validity, so that the measurement model is able to adequately differentiate each latent variable and is suitable for use in further structural model analysis. Meanwhile, the results of the discriminant validity test using the Fornell-Larcker Criterion method in Table 3, show that all constructs in this study have met the criteria for good discriminant validity. This indicates that the latent variables are better able to explain their own indicators than explaining other constructs.

Table 2. Heterotrait-monotrait ratio (HTMT)

Variables	Heterotrait-monotrait ratio (HTMT)
Impulse Buying <-> Emotional Arousal	0.447
Scarcity Marketing <-> Emotional Arousal	0.272
Scarcity Marketing <-> Impulse Buying	0.421
Social Influence <-> Emotional Arousal	0.660
Social Influence <-> Impulse Buying	0.712
Social Influence <-> Scarcity Marketing	0.568

Source: Data Proceed (2026)

Table 3. Fornell-larcker criterion

Variables	Emotional Arousal	Impulse Buying	Scarcity Marketing	Social Influence

Emotional Arousal	0.735			
Impulse Buying	0.353	0.813		
Scarcity Marketing	0.232	0.342	0.825	
Social Influence	0.532	0.565	0.484	0.803

Source: Data Proceed (2026)

Table 4. Model fit

	Saturated model	Estimated model
SRMR	0.090	0.090
NFI	0.883	0.883

Source: Data Proceed (2026)

Based on the model fit test results in Table 4, the Standardized Root Mean Square Residual (SRMR) value for the saturated model and the estimated model is 0.090, respectively. This value meets the goodness of fit criteria because it is below the maximum limit of 0.10, indicating that the research model has an adequate level of fit between the empirical data and the estimated model. Furthermore, the Normed Fit Index (NFI) value of 0.883 indicates that the model has a good level of fit because it is getting closer to the ideal value of 0.90. In the SEM-PLS approach, an NFI value above 0.883 can be categorized as an acceptable model fit, especially if supported by an SRMR value that meets the criteria. Thus, the results of the model fit test indicate that the research model has good feasibility and is suitable for use in hypothesis testing and analysis of relationships between variables in the next stage.

Table 5. Direct effect

	Original sample	T statistics	P values
Scarcity Marketing -> Impulse Buying	0.392	3.069	0.001
Social Influence -> Impulse Buying	0.480	5.639	0.000
Scarcity Marketing -> Emotional Arousal	0.233	2.541	0.013
Social Influence -> Emotional Arousal	0.548	7.722	0.000
Emotional Arousal -> Impulse Buying	0.276	2.970	0.002
R-square adjusted			
Emotional Arousal	0.578		
Impulse Buying	0.522		

Source: Data Proceed (2026)

Table 5 shows that all the relationships between variables in this study showed a positive and significant influence. The effect of Scarcity Marketing on Impulse Buying has a coefficient of 0.392 with a T-statistic of 3.069 and a P-value of 0.001. These results indicate that the higher the implementation of scarcity marketing strategies such as limited stock, flash sales, and countdown timers in live commerce, the higher the tendency of consumers to make impulse purchases. In addition, Social Influence was also proven to have a positive and significant influence on Impulse Buying with a coefficient of 0.480, a T-statistic of 5.639, and a P-value of 0.000. These findings indicate that social influences such as real-time comments, influencer recommendations, and other users' purchasing activities can encourage consumers to make spontaneous purchases. Between the two variables, Social Influence has a stronger influence on Impulse Buying than Scarcity Marketing.

The results also show that Scarcity Marketing and Social Influence have a positive and significant effect on Emotional Arousal. The effect of Scarcity Marketing on Emotional Arousal has a coefficient of 0.233 with a T-statistic value of 2.541 and P-values of 0.013. These findings indicate that scarcity strategies can increase consumer emotional responses such as excitement, urgency, and fear of missing out during live commerce activities. Meanwhile, Social Influence has a greater influence on Emotional Arousal with a coefficient of 0.548, a T-statistic value of 7.722, and P-values of 0.000. This indicates that social interactions in live commerce, such as positive comments, number of viewers, and influencer recommendations, can create stronger emotional engagement in consumers than product scarcity stimuli.

Furthermore, Emotional Arousal is proven to have a positive and significant effect on Impulse Buying with a coefficient of 0.276, a T-statistic value of 2.970, and a P-value of 0.002. These results indicate that the higher the level of emotional arousal felt by consumers during live commerce, the higher their tendency to make impulsive purchases. In terms of the model's predictive ability, the adjusted R-square value on the Emotional Arousal variable of 0.578 indicates that 57.8% of the variation in Emotional Arousal can be explained by Scarcity Marketing and Social Influence. Meanwhile, the adjusted R-square value on the Impulse Buying variable of 0.522 indicates that 52.2% of the variation in Impulse Buying can be explained by Scarcity Marketing, Social Influence, and Emotional

Arousal. These values indicate that the research model has a fairly good explanatory ability in explaining impulse buying behavior in live commerce consumers.

Table 6. Indirect effect

	Original sample	T statistics	P values
Scarcity Marketing -> Emotional Arousal -> Impulse Buying	0.138	2.032	0.021
Social Influence -> Emotional Arousal -> Impulse Buying	0.242	2.029	0.022

Source: Data Proceed (2026)

Table 6 shows that emotional arousal is proven to mediate the effect of scarcity marketing and social influence on impulse buying in live commerce consumers. The indirect effect of scarcity marketing on impulse buying through emotional arousal has a coefficient value of 0.138 with a T-statistic of 2.032 and a P-value of 0.021. These results indicate that scarcity marketing strategies such as limited stock, flash sales, and countdown timers not only directly influence impulse buying but also increase consumer emotional arousal before encouraging impulsive buying. In other words, the higher the perception of scarcity felt by consumers, the higher the emotional responses such as urgency, excitement, and fear of missing out, which ultimately increase the tendency for impulse buying.

The indirect test results in Table 6 also show that the indirect effect of Social Influence on Impulse Buying through Emotional Arousal has a coefficient value of 0.242 with a T-statistic of 2.029 and a P-value of 0.022. These results indicate that emotional arousal also plays a significant role in bridging the relationship between social influence and impulse buying. Social interactions such as real-time comments, influencer recommendations, the number of viewers, and other users' purchasing activities can increase consumers' emotional engagement during live commerce. When emotional arousal increases, consumers tend to be more easily encouraged to make spontaneous purchases without prior planning.

DISCUSSION

Scarcity Marketing and Impulse Buying

The results of the study show that scarcity marketing has a positive and significant effect on impulse buying, as indicated by a coefficient value of 0.392, a T-statistic of 3.069, and a P-value of 0.001. This finding indicates that the stronger the implementation of scarcity strategies in live commerce, such as limited stock, flash sales, and countdown timers, the higher the tendency of consumers to make impulsive purchases. The condition of scarcity in digital consumer behavior creates a perception of urgency and limited opportunities that encourage consumers to make quick purchasing decisions without going through an in-depth evaluation process. This situation causes consumers to rely more on emotional responses than rational considerations, thereby increasing the likelihood of impulse buying during the live commerce process.

The results of this study support the scarcity principle concept proposed in persuasion and consumer behavior theory, where products or offers that are considered scarce tend to be perceived as having higher value by consumers. In the interactive and real-time live commerce environment, scarcity marketing strategies become increasingly effective because consumers face time pressure and competition with other consumers to obtain certain products (Hao & Huang, 2023). This condition amplifies the fear of missing out, which is the worry of missing out on the opportunity to obtain a limited product or promotion. As a result, consumers are encouraged to make purchases immediately to avoid future regrets. Thus, scarcity marketing functions not only as a promotional strategy, but also as a psychological stimulus that can influence spontaneous consumer decision-making.

The findings of this study also confirm that the characteristics of live commerce, which combine entertainment, social interaction, and time-based promotions, create an environment conducive to impulse buying (Huo et al., 2023). When sellers continuously display information about limited stock or promotional durations during live broadcasts, consumers experience increased psychological pressure to act immediately. This suggests that the effectiveness of scarcity marketing in live commerce stems not only from its economic aspects but also from its ability to build emotional arousal that accelerates purchasing decisions. Therefore, digital businesses need to design appropriate and credible scarcity marketing strategies to increase sales without reducing consumer trust in the platform or sellers.

Social Influence and Impulse Buying

The results of the study indicate that social influence has a positive and significant effect on impulse buying, with a coefficient value of 0.480, a T-statistic of 5.639, and a P-value of 0.000. This finding indicates that the stronger the social influence consumers receive in a live commerce environment, the higher their tendency to make impulsive purchases. This form of social influence is reflected in real-time comments, influencer recommendations, reviews from other users, and purchasing activities displayed live during the broadcast. In this context, consumers are influenced not only by product characteristics but also by the social dynamics that emerge in digital interactions. The presence of these social elements creates a psychological impulse that can accelerate purchasing decisions without careful planning.

The results of this study align with Social Influence Theory and the concept of normative social influence, which explain that individual behavior tends to be influenced by the views, actions, and expectations of surrounding social groups (Xiao et al., 2023). Interactions between users occur simultaneously and in real time in live commerce, creating a social proof effect, which is the tendency for individuals to perceive an action as correct when it is performed by many others (Ming et al., 2021). When consumers see other users purchasing a particular product or responding positively to an offer, they are more likely to follow suit. Furthermore, influencer recommendations also increase the level of trust and perceived product credibility, making it easier for consumers to make impulse purchases (Liu & Zhang, 2024). Thus, social influence in live commerce acts as an external stimulus capable of rapidly shaping consumers' perceptions, emotions, and purchasing decisions. These findings also demonstrate that live commerce is essentially a marketing ecosystem that relies heavily on social interaction and digital community engagement. Unlike conventional e-commerce, which is more individualistic, live commerce offers a shopping experience that resembles face-to-face social interaction, making consumers more easily influenced by the opinions and actions of others. The high level of communication during live broadcasts can create a collective atmosphere that increases consumer excitement and emotional engagement with the products offered. This ultimately increases the likelihood of impulse buying. Therefore, digital businesses need to effectively utilize social influence strategies through the use of credible influencers, managing real-time interactions, and building active digital communities to improve marketing effectiveness and consumer purchasing decisions.

Emotional Arousal and Impulse Buying

The results of the study indicate that emotional arousal has a positive and significant effect on impulse buying with a coefficient value of 0.276, a T-statistic of 2.970, and a P-value of 0.002. This finding indicates that the higher the level of emotional stimulation felt by consumers during the live commerce process, the greater the tendency of consumers to make impulsive purchases. Emotional arousal in live commerce arises through various stimuli such as an interactive broadcast atmosphere, attractive promotions, persuasive communication from the host, and real-time consumer engagement (Gao et al., 2022). These conditions can evoke positive emotions such as enthusiasm, joy, and curiosity which ultimately encourage consumers to make spontaneous purchasing decisions without prior planning.

The results of this study support the Stimulus-Organism-Response (SOR) Theory, which explains that environmental stimuli can influence an individual's internal state, including emotional aspects, which then drive certain behavioral responses (G. Li et al., 2022). Emotional arousal in this study acts as an internal psychological state that bridges the influence of the live commerce environment on impulse buying behavior. When consumers experience heightened emotions while watching live broadcasts, their ability to rationally evaluate the needs and benefits of products tends to decrease. Instead, consumers are more driven to follow momentary emotional impulses to obtain instant gratification. Thus, emotional arousal is a significant factor that strengthens consumers' tendency to make impulsive purchases in dynamic and stimulating digital environments (Feng et al., 2024). These findings also suggest that the success of live commerce depends not only on product quality or price, but also on the platform and seller's ability to create a compelling emotional experience for consumers. Intense interaction between the host and audience, the use of persuasive language, engaging visuals, and an energetic broadcast atmosphere can increase consumer emotional engagement during the shopping process. This heightened emotional engagement makes it easier for consumers to get carried away and make quick purchasing decisions.

The Role of Emotional Arousal in Mediating the Influence of Scarcity Marketing on Impulse Buying

The results of the study show that emotional arousal is proven to be able to mediate the influence of scarcity marketing on impulse buying in live commerce consumers, with an indirect effect coefficient value of 0.138, T-statistics of 2.032, and P-values of 0.021. These findings indicate that scarcity marketing strategies not only directly influence impulse buying, but also work by increasing consumers' emotional state during the live commerce process. The implementation of strategies such as limited stock, flash sales, and countdown timers can create a sense of urgency and psychological pressure that triggers consumer excitement, tension, and enthusiasm (X. Li et al., 2023). This emotional state then encourages consumers to make purchasing decisions quickly and spontaneously without in-depth rational consideration.

The results of this study strengthen the perspective of Stimulus-Organism-Response (SOR) Theory, which explains that external stimuli from the marketing environment will influence an individual's internal state before producing a specific behavioral response (Lavuri et al., 2023). Scarcity marketing acts as a stimulus that triggers emotional arousal as an organism or internal psychological state, which then produces a response in the form of impulse buying. The mediating role of emotional arousal indicates that the effectiveness of scarcity marketing in encouraging impulsive buying does not solely stem from the perception of product scarcity, but rather from the strategy's ability to evoke consumers' emotional responses. When consumers fear missing out on a particular product or promotion, they experience increased emotional intensity that accelerates the purchasing decision-making process (Broeder & Wentink, 2022). Thus, emotional arousal is an important psychological mechanism that explains how scarcity marketing influences consumer behavior in the context of live commerce. These findings also confirm that live commerce is a highly emotional digital environment, where consumer purchasing decisions are often influenced by real-time affective experiences. The interactive, fast-paced, and time-pressured nature of live commerce makes scarcity marketing strategies even more effective in arousing consumer emotional arousal. In such situations, consumers tend to focus more on immediate emotional impulses than on utilitarian evaluations of the products offered.

The Role of Emotional Arousal in Mediating the Influence of Social Influence on Impulse Buying

The results of the study show that emotional arousal is proven to be able to mediate the effect of social influence on impulse buying in live commerce consumers. This is indicated by the indirect influence coefficient value of 0.242, T-statistics of 2.029, and P-values of 0.022. These findings indicate that social influences that arise during live commerce, such as real-time comments, influencer recommendations, reviews from other users, and other consumers' purchasing activities, not only directly affect impulse buying but also work through improving consumers' emotional states (Thuy An Ngo et al., 2023; Yang et al., 2023). Intense social interaction during live broadcasts can create an interesting, enthusiastic, and emotionally engaged atmosphere, so that consumers are more easily encouraged to make spontaneous purchases without prior planning.

The results of this study support the Stimulus-Organism-Response (SOR) Theory framework, which explains that external stimuli will influence an individual's internal state before producing a specific behavioral response (Xia et al., 2024). Social influence in this study acts as an external stimulus that triggers emotional arousal as an internal psychological state, which then results in impulse buying behavior as the final response (G. Li et al., 2022). The mediating role of emotional arousal indicates that social influence in live commerce works not only through cognitive mechanisms, such as increased trust or perceived product popularity, but also through affective mechanisms involving consumer emotions. When consumers see the enthusiasm of other users, positive responses from influencers, or high purchasing activity during the broadcast, they tend to experience increased excitement, curiosity, and an emotional urge to engage in purchasing (G. Li et al., 2022). These emotional states accelerate the decision-making process, making consumers more susceptible to impulse buying. These findings confirm that emotional arousal is an important psychological mechanism explaining how social influence can increase impulse buying in the context of live commerce. The interactive and real-time nature of live commerce creates a more powerful social experience than conventional e-commerce platforms, so that consumers are not merely passive observers but also part of an active digital community (Utomo et al., 2025). This high level of social involvement can increase consumers' emotional engagement with the product and the purchasing process itself.

CONCLUSION

This study aims to analyze the effect of scarcity marketing and social influence on impulse buying among live commerce consumers, and examine the mediating role of emotional arousal in this relationship. The results show that scarcity marketing, social influence, and emotional arousal have a positive and significant effect on impulse buying. These findings indicate that scarcity-based marketing strategies, such as limited stock and flash sales, as well as social influence through real-time comments, influencer recommendations, and other user activity, can increase consumers' tendency to make impulse purchases in a live commerce environment. Furthermore, this study also proves that emotional arousal plays a significant role as a mediating variable in the relationship between scarcity marketing and social influence on impulse buying. This means that marketing stimuli and social interactions in live commerce not only directly influence purchasing behavior but also through enhancing consumers' emotional states during the shopping process.

This research makes an important contribution to the development of consumer behavior and digital marketing literature, particularly in the context of live commerce, which is still relatively developing. This research expands the application of Stimulus-Organism-Response (SOR) Theory by positioning scarcity marketing and social influence as external stimuli, emotional arousal as an organism or internal psychological state, and impulse buying as a consumer behavioral response. The research findings emphasize that emotional arousal is the primary psychological mechanism explaining how digital marketing stimuli can influence consumers' impulsive buying behavior. Thus, this research not only enriches the understanding of the determinants of impulse buying in interactive digital environments but also provides empirical evidence that emotional aspects have a central role in explaining the effectiveness of marketing strategies on live commerce platforms.

The results of this study also provide important implications for digital businesses, live commerce platforms, and marketers in designing more effective marketing strategies. Companies need to optimize scarcity marketing strategies credibly through the use of countdown timers, limited-time promotions, and transparent stock information to create a sense of urgency for consumers. Furthermore, strengthening social influence through the use of trusted influencers, managing real-time interactions, and creating an active digital community can increase consumer emotional engagement during the broadcast. This study also shows that the success of live commerce depends not only on price or product quality, but also on the ability to create engaging and interactive emotional experiences. Therefore, businesses need to integrate emotional and social approaches into their digital marketing strategies to increase impulse buying and strengthen the consumer shopping experience in the digital economy era.

Managerial Implications for Local SMEs

For local SME operators and brand leaders in Indonesia, these findings offer a highly pragmatic roadmap for conducting live commerce sessions. Since Social Influence exerts a more powerful effect on consumer emotional arousal (β=0.548) and impulse buying (β=0.480) compared to scarcity marketing (β= 0.233) and (β= 0.392), SMEs should prioritize authentic community building and real-time social interaction over aggressive, high-pressure promotional tactics. Instead of relying solely on artificial countdown timers or panic-inducing stock warnings, brands should foster real-time engagement, showcase positive consumer peer reviews, and leverage credible local influencers. This balanced approach drives short-term sales conversions while safeguarding long-term customer trust and reducing post-purchase regret.

Limitations and Future Research Directions

Despite its contribution to the digital marketing literature, this study possesses several limitations. First, the sample size of 207 respondents, while statistically robust for PLS-SEM analysis, primarily represents active users in major digital clusters in Indonesia. Future research should broaden the sample size to include rural digital adoption profiles. Second, this study relies on cross-sectional data; future studies could employ longitudinal or experimental designs to further validate the causal psychological shifts over time.

REFERENCES

Arianty, N., Kurniawan Gultom, D., Yusnandar, W., & Arif, M. (2024). Determinants of impulse buying behavior: The mediating role of positive emotions of minimarket retail consumers in Indonesia. Innovative Marketing, 20(1), 277–287. https://doi.org/10.21511/im.20(1).2024.23

Barton, B., Zlatevska, N., & Oppewal, H. (2022). Scarcity tactics in marketing: A meta-analysis of product scarcity effects on consumer purchase intentions. Journal of Retailing, 98(4), 741–758. https://doi.org/10.1016/j.jretai.2022.06.003

Broeder, P., & Wentink, E. (2022). Limited-time scarcity and competitive arousal in E-commerce. The International Review of Retail, Distribution and Consumer Research, 32(5), 549–567. https://doi.org/10.1080/09593969.2022.2098360

Cao, D., Meadows, M., & Ma, X. (2024). Thinking fast and slow: a revised SOR model for an empirical examination of impulse buying at a luxury fashion outlet. European Journal of Marketing, 58(1), 342–368. https://doi.org/10.1108/EJM-01-2022-0046

Chani, T., & Olugbara, O. O. (2025). Measuring Behavioral Influence on Social Media: A Social Impact Theory Approach to Identifying Influential Users. Journalism and Media, 6(4), 205. https://doi.org/10.3390/journalmedia6040205

CNN Indonesia. (2024). IPSOS: Shopee Live Pilihan Utama Brand Lokal & UMKM Jualan Online. CNN Indonesia. https://www.cnnindonesia.com/ekonomi/20240611204057-625-1108687/ipsos-shopee-live-pilihan-utama-brand-lokal-umkm-jualan-online

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

G. Kanimozhi. (2025). Influential Aspects Affecting Purchase Decisions in Social Commerce. Journal of Information Systems Engineering and Management, 10(40s), 106–121. https://doi.org/10.52783/jisem.v10i40s.7255

Gao, H., Chen, X., Gao, H., & Yu, B. (2022). Understanding Chinese Consumers' Livestreaming Impulsive Buying: An Stimulus-Organism-Response Perspective and the Mediating Role of Emotions and Zhong Yong Tendency. Frontiers in Psychology, 13, 881294. https://doi.org/10.3389/fpsyg.2022.881294

Hao, S., & Huang, L. (2023). How the time-scarcity feature of live-streaming e-commerce affects impulsive buying. The Service Industries Journal, 43(11–12), 875–895. https://doi.org/10.1080/02642069.2023.2185231

Hmurovic, J., Lamberton, C., & Goldsmith, K. (2023). Examining the Efficacy of Time Scarcity Marketing Promotions in Online Retail. Journal of Marketing Research, 60(2), 299–328. https://doi.org/10.1177/00222437221118856

Hongsuchon, T., Chen, S.-C., & Khan, A. (2025). Applying the S-O-R model to explore impulsive buying behavior driven by influencers on social commerce websites. PeerJ Computer Science, 11, e3113. https://doi.org/10.7717/peerj-cs.3113

Huang, Z., Zhu, Y., Hao, A., & Deng, J. (2023). How social presence influences consumer purchase intention in live video commerce: the mediating role of immersive experience and the moderating role of positive emotions. Journal of Research in Interactive Marketing, 17(4), 493–509. https://doi.org/10.1108/JRIM-01-2022-0009

Huo, C., Wang, X., Sadiq, M. W., & Pang, M. (2023). Exploring Factors Affecting Consumer's Impulse Buying Behavior in Live-Streaming Shopping: An Interactive Research Based Upon SOR Model. Sage Open, 13(2), 1–15. https://doi.org/10.1177/21582440231172678

Jia, Y., Liu, L., & Lowry, P. B. (2024). How do consumers make behavioural decisions on social commerce platforms? The interaction effect between behaviour visibility and social needs. Information Systems Journal, 34(5), 1703–1736. https://doi.org/10.1111/isj.12508

Jonauskaite, D., & Mohr, C. (2025). Do we feel colours? A systematic review of 128 years of psychological research linking colours and emotions. Psychonomic Bulletin & Review, 32(4), 1457–1486. https://doi.org/10.3758/s13423-024-02615-z

Juárez-Varón, D., Mengual-Recuerda, A., Capatina, A., & Núñez Cansado, M. (2023). Footwear consumer behavior: The influence of stimuli on emotions and decision making. Journal of Business Research, 164, 114016. https://doi.org/10.1016/j.jbusres.2023.114016

Karakurt, N., & Bayram, P. (2021). Analysis of factors influencing consumer's purchase intention in social commerce: The mediator role of trust. International Journal of Data and Network Science, 351–360. https://doi.org/10.5267/j.ijdns.2021.5.008

Ketonen, E. E., Salonen, V., Lonka, K., & Salmela-Aro, K. (2023). Can you feel the excitement? Physiological correlates of students' self-reported emotions. British Journal of Educational Psychology, 93(S1), 113–129. https://doi.org/10.1111/bjep.12534

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

Lavuri, R., Roubaud, D., & Grebinevych, O. (2023). Sustainable consumption behaviour: Mediating role of pro-environment self-identity, attitude, and moderation role of environmental protection emotion. Journal of Environmental Management, 347, 119106. https://doi.org/10.1016/j.jenvman.2023.119106

Li, G., Jiang, Y., & Chang, L. (2022). The Influence Mechanism of Interaction Quality in Live Streaming Shopping on Consumers' Impulsive Purchase Intention. Frontiers in Psychology, 13, 918196. https://doi.org/10.3389/fpsyg.2022.918196

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), 4378. https://doi.org/10.3390/ijerph19074378

Li, X., Guo, M., & Huang, D. (2023). The role of scarcity promotion and cause-related events in impulse purchase in the agricultural product live stream. Scientific Reports, 13(1), 3800. https://doi.org/10.1038/s41598-023-30696-8

Liu, X., & Zhang, L. (2024). Impacts of different interactive elements on consumers' purchase intention in live streaming e-commerce. PLOS ONE, 19(12), e0315731. https://doi.org/10.1371/journal.pone.0315731

Maleknia, R., Hălălișan, A.-F., & Maleknia, K. (2025). Who Shapes What We Should Do in Urban Green Spaces? An Investigation of Subjective Norms in Pro-Environmental Behavior in Tehran. Forests, 16(8), 1273. https://doi.org/10.3390/f16081273

Mandolfo, M., & Lamberti, L. (2021). Past, Present, and Future of Impulse Buying Research Methods: A Systematic Literature Review. Frontiers in Psychology, 12, 687404. https://doi.org/10.3389/fpsyg.2021.687404

Martaleni, M., Hendrasto, F., Hidayat, N., Alfandy Dzikri, A., & Nyoman Kerti Yasa, N. (2022). Flash sale and online impulse buying: Mediation effect of emotions. Innovative Marketing, 18(2), 49–59. https://doi.org/10.21511/im.18(2).2022.05

Mediana, C. (2026). Indonesia Menjadi Pasar Terbesar Kedua bagi Tiktok Shop. Kompas.Id. https://www.kompas.id/artikel/indonesia-menjadi-pasar-terbesar-kedua-bagi-tiktok-shop

Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. M.I.T. Press.

Ming, J., Jianqiu, Z., Bilal, M., Akram, U., & Fan, M. (2021). How social presence influences impulse buying behavior in live streaming commerce? The role of S-O-R theory. International Journal of Web Information Systems, 17(4), 300–320. https://doi.org/10.1108/IJWIS-02-2021-0012

Ngo, T. T. A., Nguyen, H. L. T., Mai, H. T. A., Nguyen, H. P., Mai, T. H. T., & Hoang, P. L. (2025). Analyzing the role of customers' experiences and emotional responses in shaping Generation Z's impulse buying behavior on Shopee video platform. PLOS One, 20(5), e0322866. https://doi.org/10.1371/journal.pone.0322866

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), e35743. https://doi.org/10.1016/j.heliyon.2024.e35743

Pekrun, R., Marsh, H. W., Elliot, A. J., Stockinger, K., Perry, R. P., Vogl, E., Goetz, T., van Tilburg, W. A. P., Lüdtke, O., & Vispoel, W. P. (2023). A three-dimensional taxonomy of achievement emotions. Journal of Personality and Social Psychology, 124(1), 145–178. https://doi.org/10.1037/pspp0000448

Qin, C., Zeng, X., Liang, S., & Zhang, K. (2023). Do Live Streaming and Online Consumer Reviews Jointly Affect Purchase Intention? Sustainability, 15(8), 6992. https://doi.org/10.3390/su15086992

Redine, A., Deshpande, S., Jebarajakirthy, C., & Surachartkumtonkun, J. (2023). Impulse buying: A systematic literature review and future research directions. International Journal of Consumer Studies, 47(1), 3–41. https://doi.org/10.1111/ijcs.12862

Ryu, E. A., & Han, E. (2021). Social Media Influencer's Reputation: Developing and Validating a Multidimensional Scale. Sustainability, 13(2), 631. https://doi.org/10.3390/su13020631

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

Sun, H., & Teichert, T. (2024). Scarcity in today´s consumer markets: scoping the research landscape by author keywords. Management Review Quarterly, 74(1), 93–120. https://doi.org/10.1007/s11301-022-00295-4

Thuy An Ngo, T., Thanh Bui, C., Khanh Long Chau, H., & Phuc Nguyen Tran, N. (2023). The effects of social media live streaming commerce on Vietnamese Generation Z consumers' purchase intention. Innovative Marketing, 19(4), 269–283. https://doi.org/10.21511/im.19(4).2023.22

Torring, S. (2025). The best is yet to come: TikTok Shop's pivotal 2024, and what's in store for 2025. Cube.Asia. https://cube.asia/tiktok-shop-2024/

Utomo, P., Sundjaja, A. M., Mirzaliev, S., & Huang, H.-L. (2025). Lost in the Stream: Unravelling the Triggers of Impulsive Buying on Live Shopping Platforms. Journal of Creative Communications, 20(3), 421–440. https://doi.org/10.1177/09732586251363710

Wang, M., Sun, L.-L., & Hou, J.-D. (2021). How Emotional Interaction Affects Purchase Intention in Social Commerce: The Role of Perceived Usefulness and Product Type. Psychology Research and Behavior Management, Volume 14, 467–481. https://doi.org/10.2147/PRBM.S301286

Wrabel, A., Kupfer, A., & Zimmermann, S. (2022). Being Informed or Getting the Product? Business & Information Systems Engineering, 64(5), 575–592. https://doi.org/10.1007/s12599-022-00772-w

Xia, Y. X., Chae, S. W., & Xiang, Y. C. (2024). How social and media cues induce live streaming impulse buying? SOR model perspective. Frontiers in Psychology, 15, 1379992. https://doi.org/10.3389/fpsyg.2024.1379992

Xiao, J., Yang, Z., Li, Z., & Chen, Z. (2023). A review of social roles in green consumer behaviour. International Journal of Consumer Studies, 47(6), 2033–2070. https://doi.org/10.1111/ijcs.12865

Yang, Q., Huo, J., Li, H., Xi, Y., & Liu, Y. (2023). Can social interaction-oriented content trigger viewers' purchasing and gift-giving behaviors? Evidence from live-streaming commerce. Internet Research, 33(7), 46–71. https://doi.org/10.1108/INTR-11-2021-0861

Zhang, J., Jiang, N., Turner, J. J., & Pahlevan-Sharif, S. (2022). The Impact of Scarcity on Consumers' Impulse Buying Based on the S-O-R Theory. Frontiers in Psychology, 13, 792419. https://doi.org/10.3389/fpsyg.2022.792419