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How Social Presence and Telepresence Drive Impulse Buying: Evidence from Live Streaming Commerce

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A B S T R A C T

This study aims to examine the effects of social presence and telepresence on flow state and consumer trust, as well as their implications for impulse buying behavior within the context of live streaming commerce, grounded in the Stimulus–Organism–Response (S-O-R) framework. A quantitative approach was employed using purposive sampling, targeting respondents with prior experience engaging in live streaming features on major e-commerce platforms such as Tokopedia, Shopee, and Lazada, while data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The findings reveal that all proposed hypotheses are empirically supported, indicating that social presence comprising platform, viewer, and streamer dimensions —and telepresence exert positive and significant effects on both flow state and consumer trust. Furthermore, flow state emerges as the most dominant predictor of impulse buying behavior, followed by consumer trust, which also demonstrates a significant but comparatively weaker effect. These results suggest that immersive and interactive live streaming environments enhance users' cognitive and emotional engagement, thereby increasing their propensity for impulsive purchasing. Theoretically, this study extends the S-O-R framework by integrating multidimensional constructs of social presence and telepresence, while practically offering strategic insights for e-commerce practitioners to design more engaging and interactive user experiences that drive consumer behavior and improve sales performance.

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INTRODUCTION

The rapid transformation of digital commerce has positioned live streaming e-commerce as a major innovation reshaping consumer behavior across Southeast Asian platforms such as Shopee, Tokopedia, and Lazada. The Stimulus–Organism–Response (S-O-R) framework provides a robust theoretical lens for understanding how environmental stimuli, including technological affordances, real-time interactions, and social cues, influence internal psychological states that subsequently drive consumer responses (Xiao et al., 2026). In digital commerce environments, stimuli such as live streaming capabilities, immediate seller-consumer communication, and community-generated social presence foster perceptions of social presence and telepresence that enhance emotional engagement and user immersion (Liu & Edu, 2025). These multidimensional social cues, encompassing streamer characteristics, viewer participation, and platform affordances, shape consumer psychological responses in ways that traditional e-commerce models cannot fully explain. Within the organism component of the S-O-R framework, flow experience and consumer trust act as key mediating mechanisms between external stimuli and behavioral outcomes. Flow experience reflects a state of deep absorption and engagement that intensifies consumer involvement in live streaming activities (Zhu & Vijayan, 2025; Chung et al., 2025), whereas consumer trust reduces uncertainty and perceived risk through perceptions of authenticity, human connection, and interpersonal warmth (Monisha & Chellamuthu, 2026; Han & Tepsan, 2025). In addition, telepresence, defined as the subjective sensation of being present within a mediated environment, strengthens information credibility and brand reliability by creating immersive experiences (Ming et al., 2021). Together, flow state and consumer trust provide a comprehensive psychological explanation of how technological and social stimuli influence consumer behavior in digital marketplaces.

The response component of the S-O-R framework is reflected in observable consumer behaviors, particularly impulse buying, which is characterized by spontaneous and emotionally driven purchasing decisions rather than deliberate rational evaluations (Xiao et al., 2026). In e-commerce settings, impulse buying is increasingly stimulated by interactive technological features, time-sensitive promotions, and real-time seller-consumer communication (Huo et al., 2023). Empirical evidence shows that flow state directly promotes impulse buying by reducing self-regulatory control and increasing hedonic consumption tendencies (Xin et al., 2025), while consumer trust lowers perceived transaction risk and enhances the likelihood of spontaneous purchases (Monisha & Chellamuthu, 2026). Moreover, the multidimensional nature of live streaming stimuli—including entertainment value, interactivity, promotional intensity, and seller trustworthiness—exerts varying influences on impulsive purchasing behavior (Firmano et al., 2025). The dual mediating roles of flow experience and consumer trust further demonstrate the sophisticated psychological processes through which external stimuli translate into consumer responses in live streaming commerce (Bao & Yang, 2022).

Recent studies reveal that social presence consists of multiple dimensions, namely platform presence, viewer presence, and streamer presence, each of which exerts distinct effects on psychological states and behavioral outcomes (Huang & Mohamad, 2025). Viewer presence, reflected through visible user participation and community interactions, enhances social proof and urgency perceptions that encourage impulsive purchasing (Liu & Kumar, 2025), while streamer characteristics such as expertise, attractiveness, professionalism, and interactivity strengthen trust formation and emotional engagement (Huang et al., 2024). Furthermore, parasocial interactions between viewers and streamers significantly mediate the influence of social presence on purchase intentions through emotional attachment and perceived likability (Truong & Linh, 2025). These findings demonstrate that consumer behavior in live streaming commerce results from complex psychological mechanisms that cannot be adequately explained by unidimensional perspectives (Wardani & Soepatini, 2025). Consequently, the integrated S-O-R framework provides an important theoretical foundation for developing marketing strategies that enhance consumer engagement and purchasing behavior by strengthening social presence, telepresence, flow experience, and consumer trust (Kant & Chaturvedi, 2026). Given that factors such as time availability and monetary resources may moderate these relationships, platform operators should design user-centered environments that promote interactivity, entertainment value, transparency, and transaction reliability to foster sustainable consumer engagement and long-term brand loyalty (Monisha & Chellamuthu; Huo et al., 2023).

LITERATURE REVIEW

Social Presence of Live Streaming Platform, Social Presence of Viewer, Telepresence, Social Presence of Streamer on Flow State

The S-O-R framework explains that features in live streaming commerce, such as platform tools, social interaction, and immersive technology, affect consumers' internal psychological state, especially flow state (Xiao et al., 2026). Interactive features like live streaming, real-time communication, and community interaction increase social presence and telepresence, which improve emotional engagement and user immersion (Liu & Edu, 2025). These factors include platform features, viewer participation, streamer characteristics, and immersive technology, which shape consumer experience beyond traditional e-commerce.

At the platform level, social presence comes from features like responsive systems and real-time communication, which create feelings of human connection. These features increase enjoyment, attention, and engagement, helping users reach flow state (Liu & Edu, 2025). Telepresence also makes users feel like they are inside the virtual environment, reducing distance and increasing immersion through visuals and interaction (Ming et al., 2021). Studies show that higher presence and interactivity improve immersion and flow experience (Shi et al., 2026; Liu & Edu, 2025).

Social presence also comes from interactions between viewers and streamers. Viewer participation, such as comments and discussions, creates a shared environment that increases emotional engagement. Streamers, with their

expertise and interaction, build stronger emotional connections with viewers (Huang et al., 2024). These interactions increase psychological involvement and immersive experience.

Flow experience is a state of deep focus and engagement when users are fully involved in live streaming (Zhu & Vijayan, 2025). It is more likely to happen when users actively interact in environments with high social presence and telepresence (Chung et al., 2025). Research shows that social presence and immersive technology improve engagement, attention, and immersion, making them important factors for flow state in live streaming commerce (Liu & Edu, 2025; Huang & Mohamad, 2025). Based on these findings, the following hypotheses are proposed

H1: Social presence of live streaming platforms positively affects flow state.
H2: Social presence of viewers positively affects flow state.
H3: Social presence of streamers positively affects flow state.
H4: Telepresence positively affects flow state.

Social Presence of Live Streaming Platform, Social Presence of Viewer, Telepresence, Social Presence of Streamer on Consumer Trust

Social presence at the platform level increases consumer trust by creating feelings of warmth, transparency, and reliability. Features like real-time service, interactive feedback, and clear communication reduce risk and improve trust in the platform (Korsakul et al., 2026; Chen et al., 2024). Studies show that platform social presence improves trust by increasing information clarity, responsiveness, and quality (Chen et al., 2024; Ding et al., 2025). Although security and privacy are important, social presence is a key factor in building trust (Korsakul et al., 2026; Chen et al., 2024).

Viewer social presence also builds trust through social proof, shared experience, and interaction. Comments, reviews, and discussions help consumers see products and sellers as more credible (Rolando, 2025; Hoang & Dang, 2024). Seeing positive experiences from others reduces risk and increases confidence (Chen et al., 2024). Trust can also transfer from other viewers to streamers and products (Chen et al., 2024; Rolando, 2025). Even though fake reviews may weaken trust, overall evidence shows a positive effect (Widjaja et al., 2026; Xu et al., 2025).

Streamers also play an important role in building trust. Their expertise, honesty, and authenticity influence consumer decisions (Ke et al., 2025; Lin et al., 2026). In the S-O-R framework, streamer presence signals credibility and care, while emotional connection and parasocial interaction strengthen trust (Ding et al., 2025; Ke et al., 2025). Studies show that streamer interaction quality and communication improve trust and affect purchase behavior (Chen et al., 2024; Han & Tepsan, 2025; Ke et al., 2025; Yu et al., 2025). Despite risks like over-commercialization, streamer presence still has a positive impact (Ke et al., 2025; L. Liu et al., 2024).

Telepresence increases consumer trust by creating a more real and immersive shopping experience. When users feel present in the environment, they see product information and transactions as more credible (Yu et al., 2025; Bui et al., 2025; X. Dong et al., 2022). It also helps consumers evaluate products better and trust sellers more. Studies show that telepresence strongly affects trust,

both directly and indirectly (Yu et al., 2025; Ming et al., 2021; Ding et al., 2025; Bui et al., 2025). Although security systems are still important, telepresence is a key technological factor in building trust (X. Dong et al., 2022). Therefore, the following hypothesis is proposed

H5: Social Presence of Live Streaming Platforms Positively Affects Consumer Trust

H6: Social presence of viewers positively affects consumer trust.

H7: Social presence of streamers positively affects consumer trust.

H8: Telepresence positively affects consumer trust.

Flow State on Impulse Buying Behavior

Flow state, which includes deep immersion, focus, enjoyment, and low self-awareness, plays an important role in increasing impulse buying in live-streaming commerce. In the S-O-R framework, flow is a psychological state that reduces rational thinking and increases emotional decision-making, making consumers more likely to buy products without planning (Qurniawati et al., 2026; Ikhsan et al., 2024). Research shows that flow mediates the effect of social presence and promotions on impulse buying, while enjoyment, concentration, and perceived control strengthen this behavior (Qurniawati et al., 2026; Chung et al., 2025; Ebriyani et al., 2024). Flow also mediates the impact of entertainment and interactive features on purchase intention, with narrative transportation making this effect stronger (Ming-Fook et al., 2025). However, this relationship can change depending on self-control, available resources, personal attitudes, and awareness, which may also lead to post-purchase regret (Huo et al., 2023; Kumar & Taneja, 2025). Therefore, it is proposed that.

H9: Flow state positively affects impulse buying behavior.

Consumer Trust on Impulse Buying Behavior

Consumer trust is important in increasing impulse buying because it reduces risk and uncertainty and increases confidence in sellers, products, and transactions (Han & Tepsan, 2025; Chen et al., 2024). In the S-O-R framework, trust is a psychological factor that lowers careful thinking and makes consumers feel safe, so they are more willing to spend money on spontaneous purchases, especially in digital environments (Han & Tepsan, 2025; Chen et al., 2024). Studies show that trust strongly affects purchase intention and behavior, mediates the effect of social presence, and helps turn external factors into impulse buying by reducing risk and increasing confidence (Chen et al., 2024; Li et al., 2025; Hoang & Dang, 2024). Although trust can sometimes lead to more rational decisions and may vary by consumer involvement, overall research shows that higher trust increases impulse buying in live-streaming commerce (X. Dong et al., 2022; Ding et al., 2025). Therefore, it is proposed that.

H10: consumer trust positively affects impulse buying behavior.

METHODOLOGY

This study uses a quantitative research design to examine consumer behavior in live streaming commerce on platforms like Shopee, Tokopedia, and Lazada. The target respondents are people who have experience using live streaming features. Because there is no clear sampling frame, this study uses purposive sampling to select respondents who meet specific criteria. The criteria

are: (1) have used live streaming features in the last six months, (2) have actively engaged by watching, interacting, or purchasing, and (3) are at least 17 years old. This method is commonly used in behavioral research when specific experience is needed (Bhuvaneshwari & K., 2026). The sample size follows SEM guidelines, which suggest 5–10 respondents per indicator (Chinnaraju, 2025). Data analysis uses SEM-PLS, which is suitable for complex models and prediction (Ovami et al., 2025). The analysis includes the outer model and inner model. The outer model checks validity and reliability. Convergent validity is tested using factor loadings (≥ 0.70) and AVE (≥ 0.50) (Hidayati et al., 2025). Discriminant validity is tested using Fornell–Larcker and HTMT, with HTMT < 0.90 (Alhammadi, 2026). Reliability is tested using Composite Reliability and Cronbach's Alpha, both above 0.70 (Sukma et al., 2026). The inner model tests the relationships between variables. R^2 is used to measure explanatory power, with 0.75 (strong), 0.50 (moderate), and 0.25 (weak) (Diah et al., 2025). Hypothesis testing uses bootstrapping, where results are significant if $t > 1.96$ and $p < 0.05$ (Maulida et al., 2026). These methods are widely used and ensure valid and reliable research results (Changalima & Chuwa, 2026).

RESEARCH RESULT

This chapter presents the empirical results and discussion of the study on the effects of social presence and telepresence on flow state and consumer trust, and their impact on impulse buying in live streaming commerce. Using the Stimulus–Organism–Response (S-O-R) framework, the study applies SEM-PLS to analyze both measurement and structural models. Data were collected from users of Shopee, Tokopedia, and Lazada who have experience with live streaming features, representing active participants in interactive digital environments. The analysis was conducted in two stages. First, the measurement model (outer model) was evaluated to ensure validity and reliability of the constructs. Second, the structural model (inner model) was assessed to test the hypothesized relationships and examine the model's explanatory power in predicting endogenous variables.

Tabe 1l: Outer Model Analyse

	SPP	SPV	SPS	T	FS	CT	IBB	CA	CR	AVE
SPP1	**0.703**	0.073	-0.121	0.021	-0.351	-0.206	0.166	0.614	0.796	0.566
SPP2	**0.809**	-0.121	0.216	-0.008	0.113	0.058	-0.008			
SPP3	**0.741**	0.063	-0.121	-0.011	0.209	0.132	-0.148			
SPV1	-0.26	**0.817**	-0.129	0.144	0.133	0.006	-0.035	0.689	0.828	0.617
SPV2	0.18	**0.768**	0.328	-0.15	-0.264	0.009	0.157			
SPV3	0.096	**0.771**	-0.19	-0.003	0.122	-0.016	-0.119			
SPS1	0.258	0.1	**0.796**	-0.105	-0.365	0.319	0.189	0.769	0.867	0.685
SPS2	-0.102	-0.144	**0.873**	-0.06	0.27	-0.004	-0.19			
SPS3	-0.143	0.056	**0.812**	0.167	0.068	-0.308	0.019			
T1	-0.252	0.172	0.389	**0.649**	0.073	0.186	-0.023	0.589	0.786	0.553
T2	0.165	0.019	-0.235	**0.724**	-0.249	-0.129	0.083			
T3	0.052	-0.148	-0.097	**0.844**	0.157	-0.032	-0.054			
FS1	-0.123	0.048	0.135	-0.011	**0.757**	-0.395	0.063	0.725	0.829	0.551
FS2	0.213	0.021	-0.231	0.011	**0.805**	-0.024	0.031			

FS3	-0.208	0.031	0.031	0.164	**0.762**	0.381	-0.229			
FS4	0.126	-0.121	0.094	-0.199	**0.733**	0.044	0.16			
CT1	0.044	-0.125	-0.076	0.164	0.209	**0.814**	-0.078	0.647	0.791	0.508
CT2	-0.01	-0.023	0.198	-0.197	-0.034	**0.839**	-0.105			
CT3	-0.127	0.126	-0.101	0.089	-0.336	**0.741**	0.177			
CT4	0.197	0.08	-0.086	-0.102	0.315	**0.734**	0.062			
IBB1	-0.015	-0.083	0.02	0.007	-0.189	-0.011	**0.81**	0.599	0.787	0.506
IBB2	0.204	-0.062	-0.475	0.111	-0.096	0.441	**0.726**			
IBB3	-0.2	0.384	-0.006	-0.061	0.125	-0.186	**0.793**			

Note Average Variance Extracted (AVE); Cronbach's Alpha (CA); Composite Reliability (CR) ; Social Presence of Live Streaming Platform (SPP); Social Presence of Viewer (SPV); Social Presence of Streamer (SPS); Telepresence(T); Flow State (FS); Customer Trust (CT): Impulse Buying Behavior (IBB).

The convergent validity assessment demonstrates that all constructs meet the recommended validity criteria. Following the removal of indicator IBB4, the AVE of the IBB construct increased to 0.506, exceeding the minimum threshold of 0.50. Most indicators exhibited strong outer loadings above 0.70, while T1 (0.649) remained acceptable for exploratory research. Furthermore, all constructs achieved AVE values greater than 0.50, indicating that each construct explains more than half of the variance in its indicators. Overall, these findings provide robust evidence of convergent validity and confirm that the indicators adequately represent their respective latent constructs.

Discriminant validity was confirmed through the cross-loading assessment, as all indicators loaded more strongly on their intended constructs than on any other construct. Key indicators, including SPP2, SPV1, SPS2, T3, FS2, CT2, and IBB1, exhibited the highest loadings on their respective latent variables. No cross-loading exceeded an indicator's primary loading, indicating clear empirical distinction among the constructs. These findings provide strong evidence of discriminant validity and support the adequacy of the measurement model.

Tabel 2. HTMT

	SPP	**SPV**	**SPS**	**T**	**FS**	**CT**	**IBB**
SPP							
SPV	0.879						
SPS	0.841	0.838					
T	0.839	0.78	0.877				
FS	0.833	0.739	0.82	0.836			
CT	0.825	0.786	0.809	0.75	0.869		
IBB	0.641	0.45	0.699	0.739	0.827	0.612	

The HTMT analysis confirms satisfactory discriminant validity, as all values range from 0.450 to 0.879 and remain below the recommended threshold of 0.90. Although relatively high HTMT values were observed between SPP–SPV (0.879), SPS–T (0.877), and FS–CT (0.869), these constructs remain empirically distinct. Lower HTMT values among other construct pairs further support their conceptual uniqueness. Overall, the results demonstrate that the measurement

model exhibits adequate discriminant validity, supporting the robustness of subsequent structural model analyses.

The results show that all constructs have acceptable reliability, with Composite Reliability values above 0.70, while Cronbach's Alpha values (0.589–0.769) remain acceptable given the exploratory nature of the study. Overall, the measurement model is reliable and suitable for further analysis. The structural model then evaluates the relationships among SPP, SPV, SPS, T, FS, CT, and IBB, and assesses explanatory power using R^2, with Figure X presenting path coefficients (β), p-values, and R^2 for hypothesis testing.

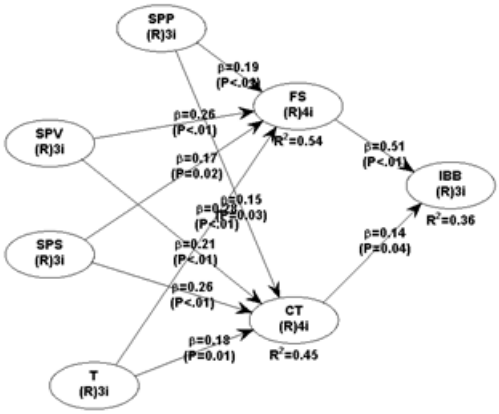

Figure 1. Structural Modelling

Note: Social Presence of Live Streaming Platform (SPP); Social Presence of Viewer (SPV); Social Presence Of Streamer (SPS); Telepresence(T); Flow State (FS); Customer Trust (CT): Impulse Buying Behavior(IBB)

Figure 1 indicates moderate explanatory power across the endogenous constructs. Social presence dimensions and telepresence explain 54% of the variance in Flow State (R^2 = 0.54), with Social Presence of Viewers exerting the strongest influence, followed by Social Presence of the Platform, Social Presence of Streamers, and Telepresence. These factors also account for 45% of the variance in Customer Trust (R^2 = 0.45), with Telepresence emerging as the strongest predictor. Furthermore, Flow State and Customer Trust jointly explain 36% of the variance in Impulse Buying Behavior (R^2 = 0.36), with Flow State demonstrating a substantially stronger effect than Customer Trust. Overall, the findings support the Stimulus–Organism–Response (S-O-R) framework, highlighting the significant role of social and technological stimuli in shaping consumers' psychological states and subsequent impulse buying behavior.

Tabel 3: Inner Model Analyse

Variable	Path Coef	Pvalue	Conclusion
H1: SPP-->FS	0.187	0.009	Suported
H2: SPV-->FS	0.256	<0.001	Suported
H3: SPS-->FS	0.166	0.018	Suported
H4: T-->FS	0.285	<0.001	Suported
H5: SPP-->CT	0.149	0.031	Suported
H6: SPV-->CT	0.214	0.003	Suported

H7: SPS-->CT	0.264	<0.001	Suported
H8: T-->CT	0.179	0.012	Suported
H9: FS-->IBB	0.501	<0.001	Suported
H10: CT-->IBB	0.139	0.041	Suported

Table 3, The structural model results indicate that all hypothesized relationships are empirically supported, confirming the robustness of the proposed S-O-R framework in explaining consumer behavior within live streaming commerce. Social presence across its three dimensions platform (β = 0.187, p = 0.09), viewer (β = 0.256, p < 0.001), and streamer (β = 0.166, p = 0.018) as well as telepresence (β = 0.285, p < 0.001), exert positive effects on flow state, with telepresence emerging as the strongest predictor, highlighting the critical role of immersive technological experiences. Similarly, all dimensions of social presence and telepresence significantly influence consumer trust, with streamer presence showing the most substantial effect (β = 0.264, p < 0.001), followed by viewer (β = 0.214, p = 0.003), telepresence (β = 0.179, p = 0.012), and platform presence (β = 0.149, p = 0.031), indicating that human interaction and perceived authenticity are central in trust formation. Furthermore, flow state demonstrates the most dominant impact on impulse buying behavior (β = 0.501, p < 0.001), while consumer trust also contributes positively, albeit with a comparatively weaker effect (β = 0.139, p = 0.041), suggesting that affective engagement plays a more decisive role than cognitive evaluation in driving impulsive purchasing decisions.

DISCUSSION

Social Presence Platform on Flow State

The theoretical foundation of platform-level social presence is grounded in the Stimulus–Organism–Response (S-O-R) framework, where platform design features act as technological stimuli that enhance users' psychological states, particularly flow experience (Monisha & Chellamuthu, 2026). Interactive elements such as real-time communication, responsive interfaces, and vivid visual designs contribute to cognitive absorption, intrinsic enjoyment, and perceived sociability, thereby fostering deeper immersion and sustained engagement in digital commerce environments (Ikhsan et al., 2024; Yu et al., 2025). Empirical evidence confirms a positive relationship between platform social presence and flow state (β = 0.187, p = 0.09), supporting prior findings that social presence significantly influences both consumer trust and flow experiences (Han & Tepsan, 2025; Ming et al., 2021). However, the relatively modest effect size suggests that platform-level presence alone is insufficient to sustain engagement and should be complemented by broader social interaction mechanisms. Studies in live-streaming e-commerce further demonstrate that multiple dimensions of social presence, including streamer presence, viewer presence, and platform affordances, jointly contribute to consumer trust and motivational engagement, indicating that maximizing flow experience and purchase-related outcomes requires an integrated approach combining

technological social presence cues with active social interaction elements (Nehe et al., 2026).

Social Presence Viewer on Flow State

The hypothesis that social presence of other viewers enhances flow state represents a critical dimension of live streaming commerce, as peer interaction functions as a social stimulus that intensifies emotional engagement, attentional focus, and immersive experiences within the Stimulus–Organism–Response (S-O-R) framework (Wang et al., 2025). Through comments, likes, and real-time discussions, viewers create a socially enriched environment that fosters communal participation, collective attention, and shared experiences, thereby amplifying flow state and consumer engagement (Liu & Edu, 2025). Empirical findings confirm that viewer interaction significantly predicts flow state ($\beta = 0.256$, $p < 0.001$), supporting previous studies that identify social interaction, real-time engagement, and participatory behavior as key drivers of user engagement in live streaming environments (Wang et al., 2025). Furthermore, evidence from sports live streaming demonstrates that live chat and other interactive features positively influence flow experiences, as informational and emotional messages exchanged among viewers strengthen cognitive absorption and immersive engagement. These findings highlight the crucial role of viewer-to-viewer interaction in creating immersive consumption experiences that sustain attention and emotional involvement throughout live streaming sessions.

Social Presence Streamer on Flow State

This hypothesis highlights the role of streamers as central actors in shaping user experiences through direct interaction and communication, creating humanized connections that extend beyond transactional relationships. Within the Stimulus–Organism–Response (S-O-R) framework, streamer presence serves as a humanized stimulus that enhances perceived authenticity, engagement, immersion, and psychological absorption through real-time responsiveness and personalized interactions (Han & Tepsan, 2025). The streamer's communicative capacity fosters parasocial relationships, emotional attachment, and greater cognitive focus, strengthening viewers' psychological commitment to the streaming experience (Kao & Cui, 2025). Empirical results confirm a significant positive relationship between streamer presence and flow state ($\beta = 0.166$, $p = 0.018$), supporting prior research showing that streamer characteristics such as vividness, animacy, and attractiveness significantly enhance flow experiences and trust formation (Yu et al., 2025). Furthermore, studies indicate that streamer professionalism and social presence substantially influence consumer trust and purchasing intentions through enhanced authenticity and engagement perceptions (Han & Tepsan, 2025). Collectively, these findings demonstrate that streamer-initiated interactions function as powerful psychological stimuli that capture viewer attention and promote deeper engagement with streaming content.

Telepresence on Flow State

Telepresence refers to the extent to which users feel physically present in a virtual environment, functioning within the S-O-R model as a powerful technological stimulus that enhances immersion and cognitive absorption through the reduction of psychological distance. High levels of telepresence

significantly reduce the felt separation between the consumer and the virtual shopping environment, increase experiential intensity, and create a sense of spatial presence that approximates physical reality (Barta et al., 2023). This heightened sense of being "present" in the virtual space facilitates deeper cognitive processing, stronger emotional responses, and more intensive engagement with products and their presentation. The technological affordances that generate telepresenceincluding high-definition visual representations, interactive product manipulation, and responsive environmental feedbackcollectively contribute to an altered phenomenological state where the virtual becomes experientially real (J. Chen et al., 2022).

The findings reveal that telepresence has the strongest effect on flow state among the presence dimensions examined ($\beta = 0.285$, $p < 0.001$), establishing it as the most potent technological driver of immersive experience. This result is consistent with prior investigations demonstrating that telepresence significantly enhances immersive experiences and psychological engagement (Wang et al., 2025). Research examining the metaverse and immersive virtual retail environments confirms that high telepresence environments generate superior user engagement, satisfaction, and purchase intentions compared to traditional two-dimensional interfaces (Jafar et al., 2025). The substantial magnitude of the telepresence-flow relationship suggests that investment in technological infrastructure that enhances sensory fidelity and interactive responsiveness yields disproportionate returns in terms of consumer flow state and subsequent behavioral responses.

Social Presence Platform on Consumer Trust

Telepresence refers to the extent to which users feel physically present in a virtual environment and, within the Stimulus–Organism–Response (S-O-R) framework, functions as a powerful technological stimulus that enhances immersion and cognitive absorption by reducing psychological distance between consumers and the virtual shopping environment (Barta et al., 2023). Through technological affordances such as high-definition visual representations, interactive product manipulation, and responsive environmental feedback, telepresence creates a sense of spatial presence that approximates physical reality, leading to deeper cognitive processing, stronger emotional responses, and greater engagement with products and their presentation (J. Chen et al., 2022). Empirical findings reveal that telepresence has the strongest effect on flow state among all presence dimensions examined ($\beta = 0.285$, $p < 0.001$), confirming its role as the most influential technological driver of immersive experiences. This result is consistent with previous studies demonstrating that telepresence significantly enhances psychological engagement and flow experiences (Wang et al., 2025). Research in metaverse and immersive virtual retail environments further shows that high levels of telepresence generate greater user engagement, satisfaction, and purchase intentions than traditional two-dimensional interfaces (Jafar et al., 2025). These findings suggest that investments in technological infrastructure that improve sensory fidelity and interactive responsiveness can substantially enhance consumer flow states and subsequent behavioral outcomes.

Social Presence Viewer on Consumer Trust

This hypothesis is grounded in social proof theory, which suggests that observing the behaviors, choices, and positive evaluations of other consumers reduces uncertainty and enhances perceptions of product quality and transactional reliability. User-generated interactions, including comments, reviews, questions, and shared experiences, provide normative information that signals product acceptability and legitimacy, enabling consumers to form trust based on collective judgments and the wisdom of crowds (usman et al., 2025; Ming et al., 2021). Empirical findings confirm a significant positive effect of viewer social presence on consumer trust ($\beta = 0.214$, $p = 0.003$), indicating that peer interaction serves as an important trust-building mechanism in live streaming commerce. This result is consistent with prior studies showing that social commerce elements such as peer interaction and online reviews significantly influence trust formation (Ikhsan et al., 2024). Furthermore, research on online reviews and user-generated content demonstrates that peer-generated evaluations enhance perceived credibility and reduce perceived risk, thereby strengthening consumer confidence in purchasing decisions (Su, 2024). Collectively, these findings suggest that consumers place substantial weight on peer evaluations when assessing trust, making viewer-generated content a critical mechanism for building confidence in platform-mediated transactions.

Social Presence Streamer on Consumer Trust

This hypothesis highlights the role of streamers as credible intermediaries who build trust through expertise, authentic self-presentation, and consistent communication. By serving as information gatekeepers and credibility validators, streamers reduce information asymmetry through real-time product demonstrations, responsive interactions, and visible commitment to consumer satisfaction, thereby strengthening perceptions of competence and benevolence that are essential for trust formation (Han & Tepsan, 2025; Arefin & Urme, 2024). Empirical findings reveal that streamer presence has the strongest effect on consumer trust among all presence dimensions examined ($\beta = 0.264$, $p < 0.001$), establishing streamer credibility as the most influential trust-building mechanism in live streaming environments. This result is consistent with prior research showing that influencer credibility enhances trust and purchase intention through expertise, attractiveness, and trustworthiness (Sharon et al., 2026). Furthermore, studies demonstrate that streamer social presence and professionalism significantly strengthen consumer trust, which subsequently mediates purchasing intentions (Han & Tepsan, 2025). These findings suggest that human-centric credibility cues provided by streamers exert a stronger influence on consumer trust than technological or peer-based mechanisms in live streaming commerce.

Telepresence on Consumer Trust

This hypothesis proposes that telepresence enhances consumer trust by increasing perceived realism and authenticity, thereby reducing the psychological and social distance between consumers and virtual product presentations. By creating a virtual environment that closely approximates physical reality, telepresence strengthens consumers' confidence in their experiential judgments and the diagnostic value of virtual product evaluations,

enabling more thorough and reliable purchase assessments (Barta et al., 2023; J. Chen et al., 2022). Empirical findings indicate a significant positive effect of telepresence on consumer trust ($\beta = 0.179$, $p = 0.012$), confirming that immersive and high-fidelity environments enhance confidence in consumption-related judgments. This result is consistent with previous studies demonstrating that telepresence improves trust through greater experiential realism and perceived diagnosticity in virtual shopping contexts (Jang et al., 2019). Research on metaverse commerce further shows that heightened telepresence generates stronger consumer trust and confidence than traditional two-dimensional interfaces (Jafar et al., 2025). These findings suggest that investments in immersive technologies that enhance sensory fidelity and interactive realism can effectively strengthen consumer confidence and perceptions of transaction security.

Flow State on Impulse Buying Behavior

Flow state reduces cognitive control and increases hedonic consumption tendencies, creating a psychological condition that encourages impulsive purchasing behavior. When consumers experience flow characterized by deep attentional absorption, heightened engagement, and reduced self-consciousness their critical evaluation of purchase decisions declines while emotional responsiveness to product stimuli increases, making spontaneous purchasing more likely (Monisha & Chellamuthu, 2026). This cognitive-affective state strengthens hedonic motivations and weakens rational cost-benefit considerations, thereby increasing the likelihood of unplanned purchases (Hoang & Dang, 2024). Empirical findings reveal that flow state has the strongest relationship in the overall model ($\beta = 0.501$, $p < 0.001$), establishing it as the most powerful direct predictor of impulse buying behavior. This result is consistent with prior research demonstrating that flow experiences significantly influence online purchasing and spontaneous consumption decisions (Ikhsan et al., 2024). Furthermore, studies in live streaming commerce show that flow substantially mediates the relationship between environmental stimuli and impulse buying, highlighting its central role in shaping consumer behavior (Hoang & Dang, 2024). The substantial effect size suggests that technologies and platform features designed to enhance consumer absorption and engagement can effectively stimulate impulse purchase behavior.

Consumer Trust on Impulse Buying Behavior

This hypothesis suggests that consumer trust reduces perceived transaction risk and facilitates spontaneous purchasing by lowering psychological barriers to impulsive consumption. When consumers perceive high institutional and vendor credibility, concerns regarding product quality, transaction security, and return policies diminish, allowing greater attention to hedonic purchase motivations and increasing comfort with unplanned purchasing decisions (Monisha & Chellamuthu, 2026; Hoang & Dang, 2024). Empirical findings indicate a significant but comparatively weaker effect of trust on impulse buying ($\beta = 0.139$, $p = 0.041$), suggesting that trust serves as a necessary but insufficient condition for impulse purchase behavior. This result is consistent with previous studies showing that although trust positively influences purchase intentions, its impact on impulsive behavior is moderated

by emotional and hedonic factors (Ming et al., 2021). Research on impulse buying further demonstrates that pleasure, excitement, and social influence exert stronger effects on spontaneous purchasing than rational trust considerations (C.-W. Chen et al., 2025). Therefore, while trust establishes the minimum level of confidence required for impulsive purchases, hedonic motivation and emotional engagement remain the primary drivers of spontaneous consumer behavior.

CONCLUSIONS AND RECOMMENDATIONS

This study offers robust empirical evidence on the role of social and technological stimuli in shaping consumer behavior within live streaming commerce through the Stimulus–Organism–Response (S-O-R) framework, revealing that multidimensional social presencecomprising platform, viewer, and streamerand telepresence exert significant positive effects on internal psychological states, namely flow state and consumer trust, which in turn drive impulse buying behavior; notably, flow state emerges as the most influential predictor, underscoring the predominance of affective and immersive experiences over purely cognitive evaluations in triggering spontaneous purchasing. From a theoretical perspective, this study advances the S-O-R literature by integrating multidimensional constructs of social presence and telepresence into a unified model and by concurrently examining both affective (flow) and cognitive (trust) mechanisms, thereby providing a more comprehensive and nuanced understanding of consumer responses in digitally mediated environments. From a practical standpoint, the findings highlight the strategic importance for e-commerce platforms to enhance telepresence through immersive interface design, real-time interactivity, and system responsiveness, while simultaneously strengthening social presence by fostering authentic streamer engagement and facilitating dynamic user interaction to build trust and intensify user involvement, ultimately leading to improved purchasing outcomes. Nevertheless, this study is not without limitations, including the reliance on non-probability purposive sampling which may constrain the generalizability of the findings, the contextual focus on selected platforms which may limit cross-context applicability, and the exclusion of potential moderating variables such as individual differences and situational factors; accordingly, future research is encouraged to employ probability-based sampling techniques, conduct cross-cultural and cross-platform investigations, incorporate relevant moderating and mediating variables, and adopt longitudinal research designs to capture temporal dynamics and enhance causal inference in the evolving landscape of live streaming commerce.

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