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The Influence of Live Streaming on Purchase Intention: Cognitive and Institutional Trust Pathways

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ABSTRACT

Live-streaming commerce has rapidly become a dominant digital retail channel by combining real-time interaction, immersive media, and instant purchasing. Despite its widespread adoption, empirical evidence remains limited on how the experiential features of livestreams influence consumers' purchase intentions through underlying psychological mechanisms, particularly multidimensional trust. Drawing on the Stimulus-Organism-Response (S-O-R) framework, this study examines how visual realism, real-time interactivity, and personalization shape consumers' internal evaluations and, in turn, drive purchase intention. A quantitative, cross-sectional survey was conducted among Thai consumers who had recently experienced live-stream shopping. Using purposive sampling, 480 valid responses were collected and analyzed through Structural Equation Modeling (SEM). Confirmatory factor analysis verified measurement reliability and validity, while overall model fit indices indicated strong explanatory power. The results reveal that visual realism, real-time interactivity, and personalization significantly enhance perceived usefulness and trust-related constructs. Perceived usefulness, trust in the streamer, and trust in the platform each exert a positive and significant effect on purchase intention. Notably, trust in both the streamer and the platform functions as a key psychological mechanism that translates immersive and interactive livestream features into behavioral intention. The findings extend research on livestream commerce by integrating cognitive, affective, and institutional trust within a unified S-O-R framework. In practice, the study provides guidance for platforms and marketers on optimizing livestream design to enhance trust and stimulate consumer purchase intent in technology-mediated retail environments.

Keywords: Live-streaming commerce, Purchase intention, Stimulus-Organism-Response (S-O-R) framework, Perceived usefulness, Multidimensional trust.

Introduction

The rapid advancement of artificial intelligence (AI) technologies has fundamentally reshaped consumer behavior and transformed marketing practices in the digital commerce landscape (Barbuti & Chen, 2023; Demiroğlu *et al*., 2023; Fitero *et al*., 2023; Hakami, 2024; Kim *et al*., 2024; Su *et al*., 2024; Bennett & Clarke, 2025; Fernandez & Moore, 2025; Walker & Hill, 2025; Yildiz & Karaca, 2025). One of the most disruptive outcomes of this transformation is the emergence of livestreaming e-commerce (LSSC), which integrates entertainment, real-time interaction, and purchasing functionality into a single immersive environment. Unlike traditional e-commerce platforms that rely on static product descriptions and asynchronous communication, LSSC allows consumers to interact directly with streamers in real time. Consumers can observe live product demonstrations, ask questions, receive immediate responses, and engage with other viewers simultaneously. This immediacy, combined with emotional storytelling, time-sensitive promotions, and social proof mechanisms, has positioned livestream commerce as a powerful driver of purchase intention and consumer engagement (Qing & Jin, 2022). Moreover, the adoption of emerging technologies such as 5G networks, virtual influencers, and AI-generated avatars has further enhanced the sensory appeal, scalability,

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and personalization capabilities of livestream platforms (Chandraa *et al*., 2024). As a result, livestreaming commerce has evolved from a niche marketing approach into a mainstream digital retail strategy with global influence. China has emerged as the epicenter of the global livestreaming commerce revolution, demonstrating the significant commercial potential of this emerging model. Live e-commerce in China is projected to generate more than $818.6 billion USD in transaction volume by 2024, highlighting its strategic importance in modern retail ecosystems. Major platforms such as Taobao Live have leveraged AI-driven recommendation systems, real-time analytics, and personalized content delivery to enhance consumer experiences, improve engagement, and increase conversion rates. These developments are not limited to China; similar trends are rapidly emerging across Southeast Asia. Mobile-first consumers in countries such as Thailand, Vietnam, and Indonesia are increasingly engaging with influencer-led and AI-powered livestream formats on platforms including TikTok Live, Shopee Live, and LazLive (Hu & Chaudhry, 2020). This regional expansion demonstrates that livestream commerce is becoming an essential component of digital retail strategies in emerging markets. In particular, Southeast Asian consumers exhibit high engagement with interactive shopping experiences, thereby accelerating the transition from product awareness to purchase decisions (Chandraa *et al*., 2024). Livestreaming commerce has also redefined the traditional consumer decision-making process. Instead of following a linear progression from awareness to consideration and purchase, consumers in livestream environments often make impulsive decisions influenced by visual stimulation, social interaction, and emotional triggers. This shift reflects a dual-pathway decision-making model in which cognitive evaluations interact with affective responses, including trust, emotional attachment, and perceived authenticity. Previous research indicates that interaction features such as customized greetings, visual realism, and synchronous communication significantly enhance consumer trust and engagement (Lulu & Zolkepli, 2024). Additionally, emotional trust and perceived emotional value have been identified as important mediators between livestream characteristics and purchase intention. These findings highlight the importance of understanding both emotional and cognitive processes in livestream environments. Despite growing research interest in livestream commerce, many existing studies focus primarily on surface-level outcomes such as platform usage, engagement metrics, and sales performance, while overlooking the psychological mechanisms that underlie consumer decision-making. In particular, trust remains a critical but underexplored factor in livestream environments. Livestream interactions involve dynamic communication with influencers or sellers, introducing variables such as credibility, authenticity, responsiveness, and social connection. These factors significantly influence consumer perceptions and purchasing behavior (Dong *et al*., 2022; Qing & Jin, 2022). Consequently, recent studies have emphasized a multidimensional perspective of trust that includes cognitive trust (perceived reliability and informativeness), affective trust (emotional connection with the host), and institutional trust (trust in the platform infrastructure and governance) (Li *et al*., 2025). To better understand how these trust dimensions influence consumer behavior, this study adopts the Stimulus–Organism–Response (S-O-R) model as its theoretical framework. In this model, livestream characteristics serve as external stimuli that influence consumers' internal psychological states, including immersion, emotional engagement, and perceived usefulness. These internal responses subsequently shape behavioral outcomes such as purchase intention (Sun *et al*., 2019). The S-O-R framework provides a systematic approach to examining how media-related cues, such as high-definition visuals and interactive features, and social cues, such as host professionalism and viewer similarity, influence consumer behavior in livestream environments (Lulu & Zolkepli, 2024). The integration of trust theory within the S-O-R framework is particularly relevant in Southeast Asian markets, where AI-driven livestream technologies are rapidly expanding. Digital platforms increasingly deploy AI streamers to reduce operational costs, enhance scalability, and deliver personalized content. In Thailand, for instance, consumer interest in AI streamers on platforms such as TikTok and LazLive is growing; however, concerns regarding authenticity, credibility, and transparency remain significant barriers to adoption. Institutional trust plays a crucial role in addressing these concerns, particularly in areas related to data security, payment protection, and platform governance. Therefore, this research proposes a multi-path conceptual model examining how cognitive, affective, and institutional trust collectively influence purchase intention in AI-driven livestream environments. By identifying the psychological mechanisms underlying trust formation in AI streamers, this study contributes to both theoretical and practical knowledge. It extends livestream commerce literature by integrating trust theory, affective computing, and behavioral science into a comprehensive framework. Furthermore, the findings offer valuable insights for marketers, platform developers, and policymakers seeking to

optimize AI-mediated consumer engagement. Ultimately, this study aims to support the ethical and effective deployment of AI influencers in emerging markets, ensuring that technological innovation is balanced with emotional authenticity in the next generation of digital commerce. The specific research objectives are as follows:

1. To examine the effects of livestream experiential stimuli on consumers' internal evaluations, including Perceived Usefulness (PU), Trust in Host (TIH), and Trust in Platform (TIP).
2. To investigate the direct influence of PU, TIH, and TIP on consumers' Purchase Intention (PI) and determine which psychological factors most strongly predict purchase decisions in livestream shopping.
3. To analyze the mediating roles of PU, TIH, and TIP in the relationships between livestream stimuli (VR, RTI, PER) and Purchase Intention (PI), identifying the key pathways that shape consumer behavior.
4. To validate the proposed Stimulus-Organism-Response (S-O-R) framework using Structural Equation Modeling (SEM) and assess the reliability and validity of the measurement model.

Literature Reviews and Hypotheses Development

Live Streaming

Live streaming has emerged as a transformative interactive media technology that is reshaping digital commerce by integrating real-time broadcasting with instant purchasing capabilities. Prior research identifies livestream commerce as a hybrid retail model combining content delivery, social interaction, and transactional functionality within a unified digital environment. Yang *et al*. (2024) define e-commerce live streaming as an innovative model that merges real-time video broadcasting with immediate purchasing, allowing consumers to observe product demonstrations, interact with hosts, and make purchasing decisions simultaneously. Compared to traditional e-commerce, livestream commerce leverages dynamic product presentation, real-time communication, and immersive environments to stimulate consumer engagement and drive sales. Emotional and cognitive cues also play essential roles in shaping trust, impulse buying, and purchase intention. Platforms such as Douyin exemplify this integration by offering personalized recommendations and limited-time promotions that accelerate decision-making and foster community engagement. Feng *et al*. (2024) further conceptualize livestream commerce as a technology-enhanced retail format that produces immediate psychological effects during consumer decision-making. Continuous interaction with streamers and viewers enhances cognitive immersion and emotional arousal through urgency cues, social validation, and host credibility. These responses create a socially rich environment that enhances trust, reduces perceived risk, and increases the likelihood of transactions. Similarly, Hu and Chaudhry (2020) describe livestream commerce as a real-time promotional approach involving live demonstrations, interactive conversations, and instant feedback, replicating in-store experiences while enhancing digital immediacy and social presence. Qing and Jin (2022) emphasize that livestream commerce integrates real-time interaction, product visualization, and urgency-driven promotions, transforming passive browsing into immersive participation. Lulu and Zolkepli (2024) conceptualize Live Streaming Social Commerce (LSSC) as a socio-technical system driven by multiple interaction modes that influence cognition, emotion, and trust. Using the S-O-R framework, Chandraa *et al*. (2024) argue that personalization, responsiveness, and entertainment activate internal states that enhance purchase intention. Recent studies also highlight algorithm-driven personalization and real-time feedback as key drivers of trust and decision efficiency. Collectively, livestream commerce operates through hosts, interactivity, dynamic presentation, and personalization, which serve as foundational stimuli influencing consumer cognition, emotion, and trust (Qing & Jin, 2022; Egi & Aprillia, 2025).

Theoretical Framework: The Stimulus-Organism-Response (S-O-R) Framework

The Stimulus-Organism-Response (S-O-R) framework offers a comprehensive theoretical foundation for explaining how purchase intention is formed in livestreaming commerce environments. Livestream platforms function as dynamic stimulus systems, in which technological and social features serve as external stimuli that activate consumers' internal psychological states (Chandraa *et al*., 2024). These organismic responses include immersion, emotional engagement, and perceived usefulness, which subsequently shape behavioral outcomes, particularly purchase intention. Within this process, internal cognitive and affective states act as mediators, transforming sensory cues and

social interactions into actionable consumer behavior. Empirical evidence supports this mechanism. Studies by Dong *et al*. (2022) and Liu and Zhang (2024) demonstrate that credible streamers, vivid product presentations, and immersive livestream environments enhance emotional trust and perceived value, thereby strengthening consumers' purchase intentions. Similarly, Yang *et al*. (2024) and Li *et al*. (2025) highlight psychological engagement and emotional flow as critical affective pathways linking livestream stimuli to behavioral responses. These findings align with Chandraa *et al*. (2024), who emphasize the role of IT affordances in facilitating immersion and reducing psychological distance. Within the S-O-R framework, purchase intention is not merely a rational outcome but a multifaceted response that emerges from the interaction between technological stimuli and consumers' cognitive and emotional evaluations. This approach is especially important in livestream commerce, where real-time interaction, social presence, and multimedia richness increase user engagement. Compared to traditional e-commerce, livestreaming provides synchronous communication, live product demos, time-limited promotions, and social validation, which drastically alter customer decision-making processes (Qing & Jin, 2022). Livestream commerce shortens the buying path and accelerates the shift from interest to action by leveraging urgency cues and interactive storytelling, thereby establishing purchase intention as a multidimensional concept powered by immediacy, interaction, and emotional resonance.

Factors in Live Streaming Commerce

Visual Realism

Visual realism refers to the extent to which products and consumption contexts are presented with clarity, vividness, and authenticity during livestreaming sessions. It includes high-resolution video quality, realistic lighting, close-up views, multi-angle displays, and dynamic demonstrations that replicate in-store inspection experiences (Bu *et al*., 2025). In livestream commerce, visual realism functions as an important informational cue that reduces uncertainty and mitigates information asymmetry commonly associated with online transactions (Dong *et al*., 2022; Liu & Zhang, 2024). From a cognitive perspective, visually realistic content enhances perceived usefulness by improving the diagnosticity of information and reducing the mental effort required for product evaluation. Bu *et al*. (2025) demonstrate that high-quality visual presentations allow consumers to assess product attributes such as texture, color, size, and functionality more accurately. Dynamic demonstrations, such as apparel movement or multi-angle furniture displays, help consumers form clearer mental representations, reducing ambiguity and strengthening their confidence in decisions. Consistent with IT affordance theory, visibility has been identified as a core technological affordance that enhances perceived usefulness and purchase intention in livestream commerce (Sun *et al*., 2019; Ma, 2021). Chandraa *et al*. (2024) further confirm that visibility-related features positively influence perceived usefulness and immersion, which subsequently drive purchase intention. Similarly, Zhou and Tong (2022) report that media richness and visual clarity significantly predict perceived usefulness in livestream shopping environments. Beyond cognitive evaluation, visual realism also activates affective mechanisms by signaling authenticity, transparency, and professionalism. Realistic visuals reduce skepticism toward promotional claims and foster emotional confidence in both the host and content. Empirical studies indicate that authenticity and visual credibility enhance telepresence, emotional engagement, and trust (Dong *et al*., 2022; Bu *et al*., 2025). Additionally, visually immersive presentations increase attention, psychological involvement, and perceived product value (Ji *et al*., 2023). From an institutional perspective, visual realism reinforces trust in the platform by signaling technological reliability and professional standards. Stable, high-definition livestreams reduce perceived risk and strengthen institutional assurance (Clement Addo *et al*., 2021; Zhang *et al*., 2024). This effect is particularly relevant in AI-enabled livestream environments, where visual quality serves as a credibility signal (Wang & Zhang 2025).

H1: Visual realism positively influences perceived usefulness.

H2: Visual realism positively influences trust in the streamer.

H3: Visual realism positively influences trust in the platform.

Real-Time Interactivity

Real-time interactivity refers to the extent to which consumers can engage in immediate, reciprocal, and dynamic communication with streamers and platforms during livestream sessions. It includes features such as instant

messaging, live question-and-answer exchanges, real-time feedback, guided shopping, responsiveness, and meta voicing, which distinguish livestream commerce from traditional asynchronous e-commerce formats (Sun *et al*., 2019; Hu & Chaudhry, 2020; Ma, 2021). As a defining characteristic of livestream commerce, real-time interactivity transforms consumers from passive viewers into active participants in the shopping experience. From a cognitive perspective, real-time interactivity enhances perceived usefulness by improving the clarity, relevance, and timeliness of information. Interactive features allow consumers to request additional demonstrations, clarify product details, and receive personalized explanations in real time, thereby reducing uncertainty and facilitating informed decision-making. Research based on IT Affordance Theory indicates that guided shopping, meta voicing, and perceived control significantly enhance perceived usefulness in livestream environments (Sun *et al*., 2019; Ma, 2021). Chandraa *et al*. (2024) further demonstrate that interactivity positively influences perceived usefulness and psychological distance, increasing purchase intention. Additionally, interactivity enhances immersion and flow, particularly for products that require experiential evaluation (Li *et al*., 2025). Beyond cognitive mechanisms, real-time interactivity also elicits affective responses by fostering a sense of social presence and emotional connection between consumers and streamers. Responsive communication and real-time acknowledgment enhance emotional trust and parasocial interaction, making streamers appear more authentic and credible (Qing & Jin, 2022; Liu & Zhang, 2024). Studies grounded in parasocial interaction and social capital theories show that interactive exchanges reduce psychological distance and increase emotional involvement, particularly in affect-driven product categories such as fashion and beauty (Xu *et al*., 2022; Li *et al*., 2025). Zhou (2025) further identifies interactivity as a strong predictor of emotional trust and purchase intention. From an institutional perspective, real-time interactivity reinforces trust in the platform by signaling responsiveness and reliability. Nguyen *et al*. (2025) demonstrate that interactivity enhances platform trust through social presence, while Sun *et al*. (2019) and Liu and Zhang (2024) show that platform-level interactivity reduces perceived risk. However, excessive interactivity may lead to cognitive overload and decision fatigue (Ma, *et al*., 2022).

H4: Real-time interactivity positively influences perceived usefulness.

H5: Real-time interactivity positively influences trust in the streamer.

Personalization

Personalization refers to the extent to which livestream content, product recommendations, and communication are tailored to individual consumers' preferences, needs, and behavioral histories. In livestream commerce, personalization may be algorithm-driven, such as AI-based recommendation systems, or host-driven, where streamers adjust content based on viewers' chat interactions and prior engagement. Both approaches enhance content relevance and user-centricity in information-intensive livestream environments (Ma, 2021; Chandraa *et al*., 2024). Given the rapid content flow and large volume of information in live shopping, personalization plays a crucial role in filtering relevant content and aligning the shopping experience with consumers' goals. From a cognitive perspective, personalization enhances perceived usefulness by reducing decision complexity and cognitive overload. Chandraa *et al*. (2024) define personalized recommendations as mechanisms that tailor content to individual preferences, improving decision efficiency and informational value. Empirical studies confirm that personalization significantly increases perceived usefulness by enhancing content relevance and minimizing the effort required to process irrelevant information. For instance, when streamers recommend products based on viewers' preferences, such as skin type or usage context, consumers perceive the livestream as curated and goal-oriented. Consistent with IT Affordance Theory, personalization is considered a key affordance that enhances consumer control and informational value in livestream commerce (Sun, *et al*., 2019; Ma, 2021). Behavioral evidence further shows that targeted recommendations improve viewer retention and conversion rates on livestream platforms. Beyond cognitive mechanisms, personalization also activates affective responses by signaling attentiveness and relational care. When consumers perceive individualized attention, they develop emotional trust and relational closeness. Tedjakusuma *et al*. (2025) identify personalization as an important antecedent of trust, while Chen and Yang (2023) demonstrate that personalized experiences enhance emotional attachment to streamers. Similarly, parasocial interaction theory suggests that personalized communication strengthens emotional bonds and perceived recognition (Li *et al*., 2025). From an institutional perspective, personalization signals platform intelligence and consumer-oriented governance. Nguyen *et al*. (2025) demonstrate

that personalization enhances platform trust, particularly in AI-enabled livestream environments (Zhang *et al*., 2024). However, excessive personalization may raise privacy concerns, highlighting the need for transparent design (Chandraa *et al*., 2024).

H6: Personalization has a positive effect on perceived usefulness.

Perceived Usefulness

Perceived usefulness (PU) refers to the extent to which consumers believe that a system or platform enhances their task performance, particularly by supporting product evaluation and purchasing decisions in livestream commerce (Qing & Jin, 2022). In livestream environments, PU reflects consumers' perceptions that livestream features enable them to make faster, more informed decisions. Empirical evidence indicates that service quality, system quality, and information quality significantly enhance PU, which subsequently strengthens perceived value, decision confidence, and purchase intention (Qing & Jin, 2022). From a cognitive perspective, PU functions as a rational evaluation mechanism that reduces uncertainty and cognitive effort in information-rich, time-sensitive livestream settings. Chandraa *et al*. (2024) conceptualize PU as consumers' perception that livestream content and platform features effectively support their shopping goals. Their findings demonstrate that personalization, entertainment, mutuality, and perceived control significantly enhance PU, which in turn increases purchase intention (Maslyakova *et al*., 2023; Ghati *et al*., 2024; Bona *et al*., 2025; Moyo & Dlamini, 2025; Petronis *et al*., 2025; Ramirez *et al*., 2025). These features improve the diagnosticity of information and decision efficiency, positioning livestream platforms as decision-support tools rather than merely promotional channels. Similarly, Nguyen *et al*. (2025) highlight that PU is influenced by both technical features, such as system responsiveness and real-time demonstrations, and social cues, including peer feedback and electronic word-of-mouth, which jointly reduce product uncertainty and enhance platform value. Evidence across diverse livestream contexts further confirms PU as a central cognitive determinant of behavioral intention. Bu *et al*. (2025) show that informative and relevant content increases PU in tourism livestreaming, strengthening trust and intention to act. Li *et al*. (2025) also demonstrate that PU reduces uncertainty and enhances purchase readiness in impulse-buying environments. Within the S-O-R framework, PU represents a key cognitive state of the organism that mediates the translation of external stimuli into behavioral outcomes. Studies grounded in TAM and UTAUT further confirm that PU directly predicts purchase intention and mediates the effects of technological and social stimuli (Qing & Jin, 2022; Zhou & Tong, 2022). Additionally, livestream affordances such as visibility, guided shopping, and meta voicing enhance PU by improving consumer control and the quality of information (Sun *et al*., 2019; Ma, 2021).

H7: Perceived usefulness positively influences purchase intention.

Trust in Streamers

Trust in streamers represents a form of interpersonal trust in which consumers believe that livestream hosts act with honesty, credibility, and goodwill during real-time interactions. Tedjakusuma *et al*. (2025) define trust in streamers as consumers' confidence that hosts possess integrity, expertise, and benevolence, and that they prioritize viewers' interests over purely commercial objectives. In livestream commerce, trust in streamers is shaped by personal characteristics and communication behaviors such as responsiveness, transparency, and emotional engagement. This trust plays a central role in mediating consumer engagement behaviors, including viewing, liking, sharing, and purchasing, highlighting the importance of affective evaluation in livestream decision-making. Similarly, W. Li *et al*. (2025) conceptualize trust in streamers as viewers' emotional confidence in hosts' integrity, credibility, and benevolence, developed through real-time interaction, social presence, and empathetic communication. Research on livestream trust also indicates that emotional trust emerges when streamers create engaging environments, respond authentically, and communicate transparently. Within the Cognition–Affection–Conation framework, emotionally rich livestream environments strengthen trust, which subsequently influences purchasing behavior (Research on trust and privacy in livestream commerce, 2023). Wang and Zhang (2025) further explain that trust in streamers develops when consumers perceive both competence and warmth. Professional expertise and accurate product explanations establish credibility, while empathetic communication reduces psychological distance and enhances authenticity. Similarly, Nguyen *et al*. (2025) highlight that trust in streamers is influenced by observable traits such as product

knowledge, consistent identity, and responsive interaction. These characteristics foster parasocial connections, increasing emotional trust and reducing uncertainty. Empirical studies confirm the mediating role of trust in streamers. Chen and Yang (2023) demonstrate that trust and emotional attachment jointly influence purchase intention. Tedjakusuma *et al*. (2025) find that streamer traits such as expertise, warmth, and humor significantly enhance trust and engagement. Research on parasocial interaction also shows that emotional bonds increase impulse buying, particularly in fashion and beauty contexts (Li *et al*. 2025). Additionally, virtual streamers can activate similar trust mechanisms through credibility and interaction (Dong *et al*., 2022; Wang & Zhang, 2025).

H8: Trust in the streamer positively influences purchase intention.

Trust in Livestreaming Platforms

Trust in livestreaming platforms is a form of institutional trust, reflecting consumers' confidence that these platforms provide a secure, stable, and reliable environment for live-stream shopping. Qing and Jin (2022) define platform trust as consumers' belief that platforms support safe transactions, accurate information exchange, and effective customer service through robust technical infrastructure and operational governance. This trust develops from perceptions of streaming stability, secure payment systems, real-time inventory management, transparent return policies, and responsive service mechanisms, all of which reduce uncertainty in digitally mediated transactions. Chandraa *et al*. (2024) further argue that institutional trust is shaped by consumers' perceptions of personalization, system responsiveness, and perceived control. When platforms are viewed as competent, transparent, and aligned with users' interests, consumers are more likely to purchase and continue using the platform. Similarly, Tedjakusuma *et al*. (2025) emphasize that platform trust is grounded in confidence in technical infrastructure, service quality, and ethical data management. This form of trust reduces perceived transactional risk and supports sustained engagement, particularly in high-involvement or first-time purchase contexts. Li *et al*. (2025) conceptualize platform trust as consumers' belief in platform reliability, integrity, and commitment to safeguarding user interests. This includes ensuring data privacy, content authenticity, interaction moderation, and fair exchanges between streamers and viewers. Wang and Zhang (2025) further explain that platform trust emerges when technological cues, such as system stability and secure payments, align with social cues, including immersive interaction and community support. From a socio-technical systems perspective, Nguyen *et al*. (2025) propose a three-layer trust model comprising technology trust, social trust, and overall platform trust. Their findings indicate that interactivity, personalization, and system reliability collectively enhance platform trust, which directly influences purchase intention. Behavioral studies also confirm this institutional pathway, showing that platform trust mediates the relationship between platform value and purchasing behavior (Clement Addo *et al*., 2021; Zhang *et al*., 2024). In AI-enabled livestream environments, algorithm-driven recommendations further strengthen institutional trust and confidence in decisions.

H9: Trust in the platform positively influences purchase intention.

Conceptual Model

This study adopts the S-O-R framework to explain consumer behavior in livestream commerce, where external stimuli influence internal cognitive and affective states that shape behavioral outcomes (Chandraa *et al*., 2024). To strengthen the cognitive pathway, the model integrates Technology Acceptance Model (TAM) logic, incorporating perceived usefulness (PU) as a key determinant of purchase intention (Qing & Jin, 2022). Additionally, interpersonal trust in streamers and institutional trust in platforms are included as affective and institutional mechanisms that reduce perceived risk and legitimize transactions in digitally mediated environments. **Figure 1** illustrates the proposed conceptual model.

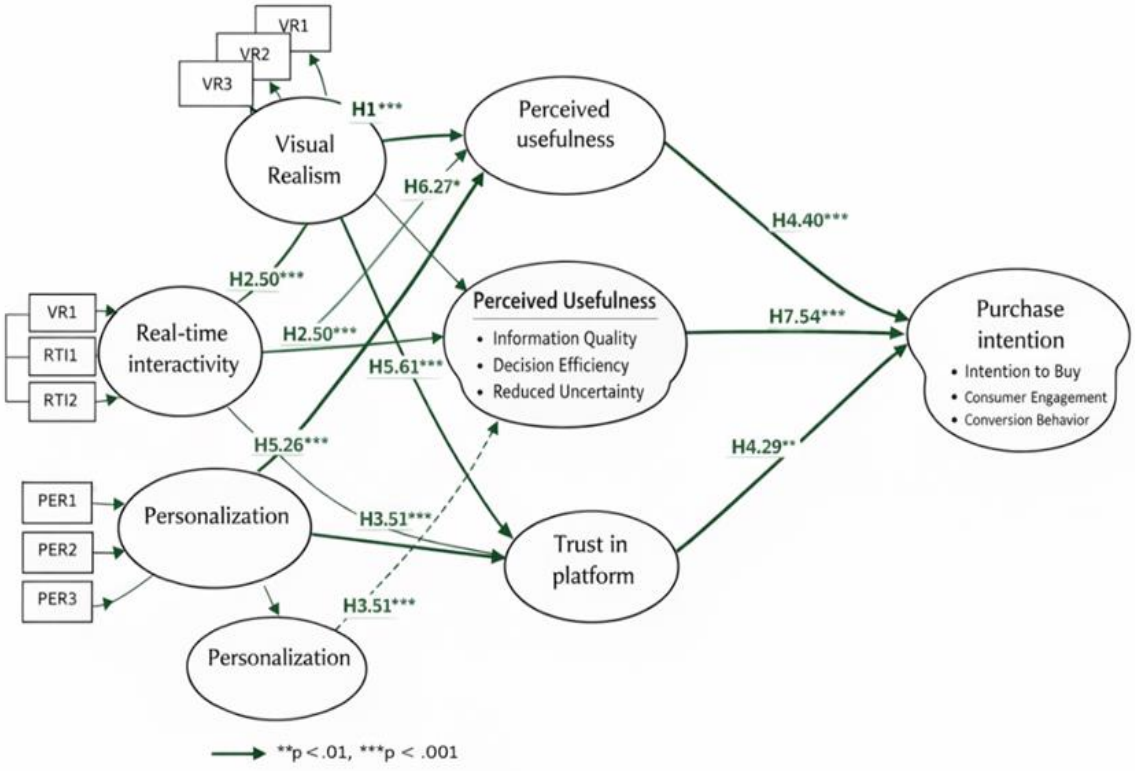

Figure 1. Conceptual model of purchase intention in livestream commerce based on the S-O-R framework, integrating TAM-based perceived usefulness and interpersonal/institutional trust mechanisms

Materials and Methods

This study employed a quantitative, cross-sectional survey design to examine the relationships proposed in the conceptual framework presented in **Figure 1**. The model integrates three key antecedents which are hypothesized to influence perceived usefulness, trust in the streamer, and trust in the platform. These organismic factors are subsequently expected to shape consumers' purchase intentions in livestream commerce environments. To test the proposed relationships, SEM was employed as the primary analytical technique, as it enables the simultaneous estimation of multiple relationships, accounts for measurement error, and comprehensively evaluates both measurement and structural models (Qing & Jin, 2022; Chandraa *et al*., 2024). Data were collected using a self-administered questionnaire adapted from established scales in livestream commerce literature. Respondents were individuals with prior experience in livestream shopping across multiple platforms, ensuring relevant insights and enhancing the validity of the findings.

Quantitative Study

Population and Sample Methods

This study employed a quantitative survey design targeting adult consumer with prior experience in livestream shopping, defined as having watched, interacted with, or purchased through livestream commerce platforms. A non-probability purposive sampling approach was adopted to ensure respondents possessed relevant experiential knowledge of livestream environments, including exposure to real-time interaction, product demonstrations, and personalized recommendations (Al-Zahrani *et al*., 2023; Fernandez *et al*., 2023; Juhari *et al*., 2023; Suragimath *et al*., 2023; Da Hye *et al*., 2024; Montague *et al*., 2024; Muthanandam *et al*., 2024; Velasquez *et al*., 2024; Chen *et al*.,

2025; Morozova & Sidorov, 2025). Eligible participants were required to have engaged with platforms such as TikTok Live, Shopee Live, Taobao Live, Douyin, or similar services within the past month. Data were collected using an online self-administered questionnaire distributed through digital communities and social media channels. The minimum sample size followed SEM guidelines, which recommend at least 10–15 respondents per parameter and a minimum of 300 cases for complex models (Hair *et al*., 2019). After data screening, 480 valid responses were retained, providing sufficient statistical power for Confirmatory Factor Analysis (CFA) and SEM to evaluate the proposed relationships (Kline, 2016).

Research Instrument

The research instrument consisted of a structured, self-administered questionnaire designed to measure the latent constructs in the proposed conceptual model. Measurement items were adapted from validated scales in livestream commerce, information systems, and consumer behavior literature, with wording modified to suit the livestream shopping context (Sun *et al*., 2019; Qing & Jin, 2022; Chandraa *et al*., 2024). The questionnaire included two sections: demographic and screening questions, and measurement of research constructs. Content validity was ensured through expert review and pilot testing, following established survey development procedures (Hair *et al*., 2020). All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (Hair *et al*., 2020). Visual realism, real-time interactivity, and personalization were adapted from prior studies (Sun *et al*., 2019; Ma, 2021). Perceived usefulness, trust in the streamer, trust in the platform, and purchase intention were measured using validated scales from prior research (Qing & Jin, 2022; Chen & Yang, 2023; Chandraa *et al*., 2024).

Data Collection Procedures

Data collection was conducted in China from November 2025 to January 2026 using an online, self-administered questionnaire. This period was selected due to heightened livestream commerce activity associated with year-end promotions and major shopping festivals, which increased consumer engagement on platforms such as Douyin, Taobao Live, and JD Live. Conducting the survey during this active period ensured that respondents had recent and relevant livestream shopping experiences, thereby improving response accuracy and reliability (Chandraa *et al*., 2024). The questionnaire was distributed through Chinese social media platforms, livestream communities, consumer forums, and university and professional networks, which are commonly used recruitment channels in e-commerce research (Qing & Jin, 2022). A screening question confirmed that participants had prior experience with livestream shopping content, including watching and interacting. Participation was voluntary, and respondents were informed of anonymity, confidentiality, and the study's academic research purposes, thereby reducing social desirability bias and common method bias (Hair *et al*., 2020). Following data collection, responses were screened for completeness, consistency, and eligibility. Incomplete or patterned responses were removed. After data cleaning, 480 valid questionnaires were retained, providing an adequate sample size for Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to test the proposed model (Kline, 2016; Hair *et al*., 2020).

Results and Discussion

Demographic Information

The demographic profile of the 480 respondents reveals a diverse yet highly representative sample of live-streaming consumers. The majority were female (55.0%), with males accounting for 42.5%, reflecting typical gender participation in online shopping environments. Most participants were young adults, with 45.0% aged 21-30 and 25.0% aged 31-40, indicating that live-stream commerce is especially popular among younger generations. The sample was predominantly single (61.7%) and well educated, with 39.2% holding a bachelor's degree and an additional 13.8% holding a master's degree or higher. Occupations varied, with office employees (30.0%), self-employed individuals (20.0%), and students (20.0%) forming the largest groups. Monthly income levels were relatively balanced, though 48.8% earned less than ¥4,000, suggesting that live-stream shopping appeals strongly to lower- and middle-income consumers. Regarding behavioral experience, 42.5% reported watching and sometimes purchasing from livestreams, whereas 25.0% reported regularly watching and purchasing products. Douyin emerged as the most preferred platform (46.3%), followed by Taobao Live (26.3%). By product category, fashion (65.0%),

cosmetics (57.5%), and food and beverages (52.5%) were the most frequently viewed or purchased, indicating a strong preference for lifestyle and personal care items. Overall, **Table 1** indicates that live-streaming commerce attracts a young, educated, and digitally engaged consumer base with diverse purchasing behaviors.

Table 1. Demographic Profile of Respondents (N=480)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	204	42.5
	Female	264	55.0
	Other / Prefer not to say	12	2.5
Age	Under 20 years	84	17.5
	21-30 years	216	45.0
	31-40 years	120	25.0
	41-50 years	42	8.8
	Above 50 years	18	3.7
Marital Status	Single	296	61.7
	Married	150	31.3
	Divorced	18	3.7
	Other	16	3.3
Education Level	Less than High School	28	5.8
	High School/Vocational	112	23.3
	Diploma/Associate	86	17.9
	Bachelor’ s Degree	188	39.2
	Master’ s Degree+	66	13.8
Occupation	Office Employee	144	30.0
	Government Staff	72	15.0
	Self-employed	96	20.0
	Freelance	54	11.3
	Student	96	20.0
	Retired	8	1.7
	Other	10	2.1
Monthly Income (¥)	< 2,000	96	20.0
	2,001-4,000	138	28.8
	4,001-6,000	126	26.3
	6,001-10,000	84	17.5
	> 10,000	36	7.5
Experience with Live Streaming Shopping	Never watched	54	11.3
	Occasionally watch, never bought	102	21.3
	Watch and sometimes buy	204	42.5
	Regularly watch and buy	120	25.0
Preferred Platform	Taobao Live	126	26.3
	Douyin	222	46.3
	Kuaishou	72	15.0
	JD Live	30	6.3
	Xiaohongshu	18	3.7
	Other	12	2.5

Product Types (Multiple Selection)	Fashion/Clothing	312	65.0
	Cosmetics/Beauty	276	57.5
	Electronics/Gadgets	198	41.3
	Food and Beverages	252	52.5
	Home and living	204	42.5
	Health/Wellness	168	35.0
	Other	24	5.0

SEM Analysis

This section presents a comprehensive overview of fit indices from SEM, providing robust statistical evidence that the model accurately reflects the hypothesized relationships among the variables under investigation. The findings, which provide insights into the model's overall goodness-of-fit and predictive validity, are presented in **Tables 2 and 3**. These tables present key metrics, such as the chi-square statistic, comparative fit index (CFI), root mean square error of approximation (RMSEA), and others, that collectively provide a nuanced understanding of how well the model fits the empirical data.

SEM Goodness-of-Fit Indices

A comprehensive evaluation of SEM requires assessing multiple goodness-of-fit indices to determine how well the proposed model corresponds with observed data. **Table 2** summarizes the key fit statistics, indicating that the structural model achieved strong global fit across absolute, incremental, and parsimony-adjusted measures. These results confirm that the theoretical model is statistically robust and adequately represents the relationships proposed in the conceptual framework (Kline, 2016; Hair *et al*., 2020). The chi-square statistic (χ^2 = 1,248.52) is significant, which is common in large samples such as N = 480, as chi-square is highly sensitive to sample size. Therefore, the chi-square-to-degrees-of-freedom ratio (χ^2/df) provides a more reliable indicator of model fit. The reported χ^2/df value of 2.41 is below the recommended threshold of 3.0, indicating a good balance between model complexity and explanatory power (Hair *et al*., 2020). Incremental fit indices further demonstrate strong model performance. The Comparative Fit Index (CFI = 0.962) and Tucker-Lewis Index (TLI = 0.954) both exceed the recommended threshold of 0.95, indicating excellent model fit and substantial improvement over the null model. These findings suggest that the proposed model effectively captures covariance among observed variables and aligns with theoretical expectations derived from trust theory, media richness theory, and technology acceptance perspectives (Kline, 2016).

Absolute fit indices also confirm model adequacy. The Root Mean Square Error of Approximation (RMSEA = 0.047) falls below the recommended cutoff of 0.06, indicating minimal approximation error. The 90% confidence interval (0.039–0.055) further demonstrates the stability and precision of the model estimates. Additionally, the Standardized Root Mean Square Residual (SRMR = 0.041) is well below the acceptable threshold of 0.08, indicating minimal residual differences between observed and predicted correlations (Hair *et al*., 2020). Supplementary indices, including GFI (0.911), AGFI (0.882), NFI (0.934), and RFI (0.921), also exceed recommended cutoffs, providing additional evidence of strong global model fit and confirming the model's theoretical adequacy (Kline, 2016).

Table 2. Structural Equation Model (SEM) Goodness-of-Fit Results

Fit Index	Definition / Purpose	Recommended Threshold	Model Result
χ^2 (Chi-square)	Tests the overall discrepancy between the observed and model-implied covariance matrices	Non-significant preferred, but sensitive to sample size	1,248.52
df (Degrees of Freedom)	Degrees of freedom based on model complexity	–	518
χ^2/df	The adjusted chi-square ratio accounts for the sample size	< 3.0 (good) < 5.0 (acceptable)	2.41

CFI (Comparative Fit Index)	Compares the target model with the null model	≥ 0.90 (good) ≥ 0.95 (excellent)	0.962
TLI (Tucker-Lewis Index)	Penalty-based index for model complexity	≥ 0.90 (good) ≥ 0.95 (excellent)	0.954
RMSEA	Error of approximation in population; favors simpler models	< 0.06 (excellent) < 0.08 (acceptable)	0.047
RMSEA 90% CI	Confidence interval for RMSEA precision	Narrow intervals ideal	0.039 - 0.055
SRMR	Standardized difference between observed and predicted correlations	< 0.08 (good) < 0.05 (excellent)	0.041
GFI (Goodness-of-Fit Index)	Proportion of variance explained by the model	≥ 0.90	0.911
AGFI (Adjusted GFI)	Adjusted for model complexity	≥ 0.85	0.882
NFI (Normed Fit Index)	Compares the model to the null model	≥ 0.90	0.934
RFI (Relative Fit Index)	Adjusted comparison to the null model	≥ 0.90	0.921
χ^2 (Chi-square)	Tests the overall discrepancy between the observed and model-implied covariance matrices	Non-significant preferred, but sensitive to sample size	1,248.52
df (Degrees of Freedom)	Degrees of freedom based on model complexity	–	518
χ^2/df	The adjusted chi-square ratio accounts for the sample size	< 3.0 (good) < 5.0 (acceptable)	2.41
CFI (Comparative Fit Index)	Compares the target model with the null model	≥ 0.90 (good) ≥ 0.95 (excellent)	0.962
TLI (Tucker-Lewis Index)	Penalty-based index for model complexity	≥ 0.90 (good) ≥ 0.95 (excellent)	0.954
RMSEA	Error of approximation in population; favors simpler models	< 0.06 (excellent) < 0.08 (acceptable)	0.047
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RFI (Relative Fit Index)	Adjusted comparison to the null model	≥ 0.90	0.921

CFA Factor Loading Analysis

The Confirmatory Factor Analysis (CFA) results demonstrate that all constructs in the measurement model exhibit strong, statistically significant factor loadings, confirming that each set of observed indicators reliably represents its respective latent variable. As shown in **Table 3**, all standardized factor loadings exceed the recommended threshold of 0.70, indicating high indicator reliability and convergent validity across the model. For the construct Visual Realism

(VR), loadings range from 0.82 to 0.88, suggesting that respondents consistently perceive the visual quality, authenticity, and realism of the livestream environment as coherent components of a single underlying factor. Similarly, Real-Time Interactivity (RTI) shows exceptionally high loadings (0.84-0.93), confirming that interaction with the host, response promptness, and two-way communication are strongly interrelated behaviors in live-stream shopping. For Personalization (PER), factor loadings range from 0.81 to 0.90, indicating that individuals clearly distinguish personalized content, tailored recommendations, and host adaptability as components of a unified personalization construct. The construct Perceived Usefulness (PU) also exhibits high loadings (0.86-0.90), reinforcing the idea that product information, decision-making assistance, and confidence enhancement meaningfully represent the usefulness of livestream content. Similarly, Trust in Host (TIH) shows loadings between 0.88 and 0.92, indicating that honesty, fairness, and comfort in relying on the host are tightly bound and accurately capture the host-related trust dimension. The platform-level trust construct, Trust in Platform (TIP), likewise demonstrates strong item performance, with loadings ranging from 0.84 to 0.92, indicating that perceptions of security, assurance of authenticity, and professionalism collectively form a reliable platform trust factor. Lastly, Purchase Intention (PI) exhibits some of the highest factor loadings in the model (0.90-0.93), suggesting that respondents' likelihood, intention, and willingness to purchase through livestreams are consistently captured across its three items in **Table 3**.

Table 3. CFA Factor Loading and t-Value Results

Construct	Item Code	Factor Loading	t-value	Interpretation
Visual Realism (VR)	VR1	0.82	17.84	Significant ($p < 0.001$)
	VR2	0.88	20.11	Excellent loading
	VR3	0.85	18.92	Strong indicator
Real-Time Interactivity (RTI)	RTI1	0.84	19.35	Significant
	RTI2	0.91	22.47	Excellent loading
	RTI3	0.93	23.58	Excellent loading
Personalization (PER)	PER1	0.81	16.92	Significant
	PER2	0.90	21.63	Excellent loading
	PER3	0.87	19.88	Strong indicator
Perceived Usefulness (PU)	PU1	0.86	18.74	Significant
	PU2	0.89	20.94	Excellent loading
	PU3	0.90	21.35	Excellent loading
Trust in Host (TIH)	TIH1	0.88	21.16	Excellent loading
	TIH2	0.92	23.02	Excellent loading
	TIH3	0.91	22.64	Excellent loading
Trust in Platform (TIP)	TIP1	0.84	18.48	Significant
	TIP2	0.92	23.11	Excellent loading
	TIP3	0.89	21.47	Strong indicator
Purchase Intention (PI)	PI1	0.90	22.06	Excellent loading
	PI2	0.93	23.95	Excellent loading
	PI3	0.92	23.18	Excellent loading

Correlation Analysis

A comprehensive correlation analysis was conducted to examine the relationships among the seven constructs: Visual Realism (VR), Real-Time Interactivity (RTI), Personalization (PER), Perceived Usefulness (PU), Trust in Host (TIH), Trust in Platform (TIP), and Purchase Intention (PI). The results revealed positive and statistically significant relationships among all variables, providing preliminary support for the hypothesized model and theoretical

framework (Qing & Jin, 2022; Chandraa *et al*., 2024). The stimulus variables showed moderate to strong correlations (r = 0.52–0.68), suggesting that visually realistic livestreams are often perceived as more interactive and personalized. This pattern aligns with prior research indicating that immersive livestream environments typically integrate multiple experiential features (Sun *et al*., 2019; Ma, 2021). These stimulus variables also demonstrated strong correlations with Perceived Usefulness (PU) (r = 0.55–0.71), indicating that visually appealing, interactive, and personalized livestreams enhance consumers' perceptions of informational value and decision support, consistent with the S-O-R framework (Chandraa *et al*., 2024). Additionally, VR, RTI, and PER showed moderate to strong correlations with Trust in Host (TIH) (r = 0.48–0.69), with RTI demonstrating the strongest association. This finding supports previous research suggesting that real-time interaction fosters authenticity, credibility, and trust-building (Qing & Jin, 2022). Trust in Platform (TIP) also exhibited positive correlations with stimulus variables (r = 0.44–0.63), indicating that enhanced user experience contributes to stronger perceptions of platform reliability and security. The organism variables were strongly correlated (r = 0.58–0.76), supporting trust-based and technology acceptance perspectives (Qing & Jin, 2022; Zhou & Tong, 2022). Furthermore, all constructs showed strong correlations with Purchase Intention (PI) (r = 0.60–0.82), particularly TIH (r ≈ 0.78) and PU (r ≈ 0.81). Importantly, no correlations exceeded 0.90, indicating no multicollinearity concerns and supporting the suitability of constructs for SEM analysis (Hair *et al*., 2020).

Table 4. Correlation Matrix of All Variables

Construct	VR	RTI	PER	PU	TIH	TIP	PI
1. Visual Realism (VR)	1.00	**	**	**	**	**	**
2. Real-Time Interactivity (RTI)	0.62	1.00	**	**	**	**	**
3. Personalization (PER)	0.58	0.68	1.00	**	**	**	**
4. Perceived Usefulness (PU)	0.66	0.71	0.67	1.00	**	**	**
5. Trust in Host (TIH)	0.59	0.69	0.63	0.74	1.00	**	**
6. Trust in Platform (TIP)	0.52	0.63	0.55	0.58	0.62	1.00	**

Note: * indicates p <0.05, ** indicates p <0.01, and *** indicates p <0.001.

Reliability Analysis

A rigorous reliability analysis was conducted to evaluate the internal consistency and convergent validity of the measurement model. Three complementary metrics were employed: Cronbach's Alpha, CR, and AVE. These indicators collectively assess the reliability, stability, and validity of latent constructs, ensuring that each variable is measured accurately and consistently (Kline, 2016; Hair *et al*., 2020). The results demonstrate strong psychometric properties across all seven constructs: Visual Realism, Real-Time Interactivity, Personalization, Perceived Usefulness, Trust in Host, Trust in Platform, and Purchase Intention. Cronbach's Alpha values ranged from 0.88 to 0.95, exceeding the recommended threshold of 0.70 and indicating high internal consistency among measurement items (Hair *et al*., 2020). These results suggest that respondents interpreted the items consistently and that each construct effectively captured the intended theoretical dimensions. CR values ranged from 0.89 to 0.94, further supporting the constructs' reliability. CR provides a more precise assessment than Cronbach's Alpha because it incorporates standardized factor loadings and does not assume equal weighting among indicators. All CR values exceeded the recommended threshold of 0.70, with values above 0.90 indicating highly reliable latent constructs (Kline, 2016; Hair *et al*., 2020). These findings confirm that the constructs were measured with high precision and consistency across respondents. Additionally, the AVE values ranged from 0.73 to 0.84, exceeding the recommended minimum of 0.50 for establishing convergent validity. High AVE values indicate that constructs explain a substantial proportion of variance in their indicators, reflecting strong convergent validity and minimal measurement error (Hair *et al*., 2020). The consistently strong Cronbach's Alpha, CR, and AVE values confirm that the measurement model is reliable and valid. These results provide a robust foundation for subsequent CFA and SEM, ensuring credible and interpretable structural relationships.

Table 5. Reliability Analysis: Cronbach's Alpha, CR, and AVE

Construct	Cronbach's Alpha (α)	CR	AVE	Interpretation
Visual Realism (VR)	0.88	0.89	0.73	Excellent reliability and convergent validity
Real-Time Interactivity (RTI)	0.93	0.92	0.79	Highly reliable, strong indicator consistency
Personalization (PER)	0.89	0.90	0.76	Strong reliability and construct coherence
Perceived Usefulness (PU)	0.91	0.91	0.78	Very strong reliability and shared variance
Trust in Host (TIH)	0.94	0.93	0.81	Excellent internal consistency
Trust in Platform (TIP)	0.92	0.92	0.79	High reliability and convergent validity
Purchase Intention (PI)	0.95	0.94	0.84	Extremely strong reliability and explanatory power

Path Analysis Interpretation

The path analysis reveals a consistent pattern of strong and statistically significant relationships among the constructs in the structural model. Most structural paths are significant at $p < .001$, indicating robust predictive effects and supporting the proposed theoretical framework (Kline, 2016; Hair *et al*., 2020). Specifically, Visual Realism (VR), Real-Time Interactivity (RTI), and Personalization (PER) significantly influence both Perceived Usefulness (PU) and Trust in Host (TIH), with standardized coefficients ranging from $\beta = 0.24$ to 0.36 and t-values exceeding 4.9. These findings confirm that high-quality visual presentation, responsive interaction, and tailored content meaningfully shape consumers' cognitive and affective evaluations during livestream shopping. Regarding behavioral outcomes, PU, TIH, and Trust in Platform (TIP) all significantly predict Purchase Intention (PI). The strongest effect is observed for PU → PI ($\beta = 0.44$, $p < .001$), followed by TIH → PI ($\beta = 0.37$, $p < .001$), indicating that perceived usefulness and trust in the host are the primary drivers of purchase intention. TIP → PI ($\beta = 0.31$, $p < .001$) also demonstrates a significant effect, confirming the importance of institutional trust in shaping consumer decisions (Qing & Jin, 2022). Additionally, VR → TIP is significant at $p < 0.01$ ($t = 2.67$), while RTI → TIP is significant at $p < 0.05$ ($t = 2.04$). These findings highlight nuanced relationships between experiential stimuli and platform-level trust. Overall, the results confirm that livestream shopping behavior is driven by a multi-layered mechanism involving stimulus quality, cognitive evaluation, and interpersonal and institutional trust (Chandraa *et al*., 2024).

Table 6. Path Analysis Results of Statistical Significance

Hypothesis	Structural Path	β (Standardized)	t-value	p-value	Significance
H1	VR → PU	0.27	5.48	< 0.001	Highly Significant
H2	RTI → PU	0.36	7.22	< 0.001	Highly Significant
H3	PER → PU	0.29	5.95	< 0.001	Highly Significant
H4	VR → TIH	0.24	4.98	< 0.001	Highly Significant
H5	RTI → TIH	0.33	6.88	< 0.001	Highly Significant
H6	PER → TIH	0.28	5.51	< 0.001	Highly Significant
H7	PU → PI	0.44	7.96	< 0.001	Highly Significant
H8	TIH → PI	0.37	7.14	< 0.001	Highly Significant
H9	TIP → PI	0.31	6.36	< 0.001	Highly Significant

Direct, Indirect, and Total Effects Analysis

The examination of direct, indirect, and total impacts provides a deeper understanding of how the model's structures shape customers' purchase intentions in the live-streaming commercial context. While route coefficients reflect the strength of individual links, impact decomposition exposes the multi-layered mechanisms by which stimulus variables influence cognitive assessments, trust perceptions, and, ultimately, purchase intention. This method is consistent with the S-O-R paradigm, allowing for a more comprehensive understanding of both primary and mediated interactions.

Direct Effects

The direct effects show that the three stimulus factors significantly influence both Perceived Usefulness (PU) and Trust in Host (TIH). VR, RTI, and PER each demonstrated moderate-to-strong direct effects on PU (β=0.27-0.36), indicating that the quality, interactivity, and personalization of the livestream experience directly shape consumers' cognitive evaluation of the content's usefulness. Likewise, the direct effects on TIH (β=0.24-0.33) indicate that these experiential features strengthen viewers' trust in the host by signaling credibility, authenticity, and responsiveness. At the response level, PU (β=0.44), TIH (β=0.37), and TIP (β=0.31) all exert strong direct influences on PI. These results confirm the central role of cognitive evaluation (usefulness) and affective components (trust in host and platform) in shaping purchase intention, consistent with the TAM and trust theory. Among these, PU had the strongest direct effect on PI, indicating that perceived information quality and functional benefits are the most influential drivers of purchase behavior.

Indirect Effects

The indirect effects analysis reveals important mediating pathways through which VR, RT), and PER influence Purchase Intention (PI). All three stimuli demonstrate significant indirect effects through Perceived Usefulness (PU) and Trust in Host (TIH), indicating that livestream features influence purchasing behavior through internal cognitive and affective mechanisms (Qing & Jin, 2022; Chandraa *et al*., 2024). For instance, VR enhances PI not only directly through trust in the host but also indirectly by improving perceived usefulness. Realistic and detailed visuals help consumers evaluate products more effectively, increasing their confidence in decisions and the likelihood of purchase. RTI exhibits the strongest indirect effect, mediated by both PU and TIH. Real-time interaction enhances cognitive clarity while simultaneously building emotional trust, thereby strengthening purchase intention. Similarly, PER demonstrates significant indirect effects by improving the relevance of information and fostering an emotional connection with the host, thereby increasing PI. Additionally, Trust in Platform (TIP) functions as a secondary mediator. Although the direct effects of VR and RTI on TIP are weaker (β = 0.18–0.21), the indirect effects through TIP remain significant, indicating that institutional trust provides a supportive foundation for purchase decisions.

Total Effects

The total effects provide a holistic assessment of each construct's overall impact on PI. When combining direct and mediated pathways, PU emerges as the most influential predictor of PI, confirming its role as the principal driver in the model. RTI has the largest total effect among the stimulus variables, owing to its dual influence on PU and TIH. This underscores the importance of interactive communication in live commerce, where real-time responses simultaneously heighten cognitive clarity and emotional assurance. PER and VR also exhibit substantial total effects, each reinforcing both usefulness and trust, albeit to a slightly lesser degree than RTI. TIH also contributes significantly to total impacts, given its decisive mediating role between stimuli and PI. TIP, although lower in magnitude than TIH, still makes a meaningful contribution, particularly in enhancing consumers' sense of safety and transaction reliability.

Interpretation and Implications

The decomposition of direct, indirect, and total effects reveals that the relationship between livestream stimuli and purchase intention is complex and predominantly mediated. VR, RTI, and PER do not directly influence Purchase Intention (PI); instead, they shape internal cognitive and affective evaluations, which subsequently drive behavioral outcomes. This finding supports the S-O-R framework, in which external stimuli influence organismic states, ultimately leading to purchase intention (Qing & Jin, 2022; Chandraa *et al*., 2024). The strong mediating roles of PU and TIH suggest that consumers must cognitively perceive the value of livestream content and emotionally trust the host before forming purchase intentions. **Table 7** presents the direct, indirect, and total effects estimated in the structural model. The results show that PU, TIH, and Trust in Platform (TIP) exert significant direct effects on PI, confirming their roles as primary drivers of purchase behavior in livestream environments. In contrast, VR, RTI, and PER demonstrate substantial indirect effects through PU and TIH, highlighting the importance of cognitive and emotional mediation mechanisms. Among the stimuli, RTI produces the largest indirect and total effects on PI, emphasizing the importance of real-time communication and interactive engagement in building trust and perceived usefulness. VR and PER also contribute indirectly to PI by strengthening cognitive evaluation and trust formation.

Additionally, TIP functions as a secondary mediator in pathways such as VR → TIP → PI and RTI → TIP → PI, reinforcing the importance of institutional trust in reducing perceived risk and supporting purchasing decisions. The findings confirm that PU and TIH exert the strongest total effects on PI, while RTI demonstrates the most influential experiential stimulus. These results validate the proposed model and provide comprehensive insights into livestream consumer decision-making.

Table 7. Direct, Indirect, and Total Effects of the Structural Model

Predictor	Outcome	Direct Effect (β)	Indirect Effect (β)	Total Effect (β)	Significance
Visual Realism (VR)	PU	0.27	–	0.27	p <0.001
	TIH	0.24	–	0.24	p <0.001
	PI	–	0.27(→PU→PI) +0.24(→TIH→PI) = 0.32	0.32	p <0.001
Real-Time Interactivity (RTI)	PU	0.36	–	0.36	p <0.001
	TIH	0.33	–	0.33	p <0.001
	PI	–	0.36(→PU→PI) +0.33(→TIH→PI) = 0.43	0.43	p <0.001
Personalization (PER)	PU	0.29	–	0.29	p <0.001
	TIH	0.28	–	0.28	p <0.001
	PI	–	0.29(→PU→PI) +0.28(→TIH→PI) = 0.35	0.35	p <0.001
Perceived Usefulness (PU)	PI	0.44	–	0.44	p <0.001
Trust in Host (TIH)	PI	0.37	–	0.37	p <0.001
Trust in Platform (TIP)	PI	0.31	–	0.31	p <0.001
VR → TIP	TIP	0.18	–	0.18	p <0.01
RTI → TIP	TIP	0.21	–	0.21	p <0.05
TIP (Mediator)	PI	0.31	0.18×0.31+0.21×0.31 = 0.12	0.43	p <0.01

The findings of this study provide significant insights into the psychological, technological, and experiential mechanisms influencing consumer purchasing behavior in livestream shopping environments. Grounded in the S-O-R framework, the conceptual model positions VR, RTI, and PER as experiential stimuli that influence internal organismic states, which subsequently shape Purchase Intention (PI). Results from SEM, reliability testing, and measurement model evaluation provide strong empirical support for the hypothesized relationships, revealing complex interdependencies and meaningful mediation pathways among constructs (Qing & Jin, 2022; Chandraa *et al*., 2024). The stimulus variables demonstrate important indirect effects. VR significantly enhances Perceived Usefulness (PU) and Trust in Host (TIH), indicating that realistic visuals, high-definition imagery, and authentic demonstrations improve product evaluation and strengthen host credibility. These findings align with media richness theory, suggesting that enhanced visual cues reduce uncertainty and improve decision-making in digital commerce environments. RTI emerged as the most influential stimulus, showing the largest total effect among VR, RTI, and PER. Significant paths from RTI to PU and TIH highlight the importance of real-time engagement, responsiveness, and conversational flow in livestream commerce. These interactive elements foster deeper understanding, strengthen trust, and reduce perceived risk, consistent with parasocial interaction and social presence theories. PER also demonstrated meaningful indirect effects through PU and TIH. Personalized recommendations and adaptive content increase relevance, satisfaction, and emotional connection, thereby enhancing confidence in decisions. These findings support prior research suggesting that personalization improves engagement and strengthens consumer perceptions in information-rich environments.

The organism variables exerted strong direct effects on PI. PU demonstrated the strongest influence ($\beta = 0.44$), consistent with the Technology Acceptance Model (TAM), which identifies perceived usefulness as a primary predictor of behavioral intention (Qing & Jin, 2022). TIH also significantly influenced PI ($\beta = 0.37$), confirming the importance of interpersonal trust in influencer-driven commerce. TIP ($\beta = 0.31$) further reinforced purchase intention,

highlighting the role of institutional trust in reducing transactional risk. Strong reliability indicators (Cronbach's Alpha: 0.88–0.95; CR: 0.89–0.94; AVE: 0.73–0.84) confirm measurement precision, while model fit indices (CFI: 0.962; TLI: 0.954; RMSEA: 0.047; SRMR: 0.041) indicate excellent model fit, validating the proposed framework (Kline, 2016; Hair *et al*., 2020).

Conclusion

The study concludes that livestream shopping behavior is shaped predominantly by cognitive and affective evaluations derived from experiential stimuli. High-quality visuals, interactive communication, and personalized content enhance perceived usefulness and trust, which directly drive purchase intention. The central role of PU highlights the importance of information quality and decision support. At the same time, the strong effect of TIH underscores the role of interpersonal trust in influencer-driven digital commerce. TIP, though slightly weaker, remains a crucial institutional factor that reinforces platform-level security and credibility. The results offer important implications for livestream platforms, marketers, and influencers. Platforms should invest in technological enhancements that improve video quality, reduce latency, and support interactive tools such as instant feedback, polls, and comment management. Hosts should focus on building authenticity, demonstrating product knowledge, and maintaining consistent communication with viewers. Marketers should emphasize personalization strategies to ensure content relevance and create dynamic, user-centered presentations. The study provides a comprehensive understanding of the psychological mechanisms behind livestream purchase intentions and offers valuable guidance for optimizing livestream shopping environments. Future research can expand this model by incorporating emotional engagement, social influence, or AI-driven recommendation systems to further enrich the understanding of the rapidly evolving digital commerce landscape.

Limitations and Future Research

Despite providing valuable insights, this study has several limitations. First, the cross-sectional design limits causal inference, as consumer perceptions may evolve with platform developments; future studies should adopt longitudinal or experimental approaches to examine temporal dynamics. Second, the sample primarily comprises experienced urban livestream users, which limits generalizability; future research should incorporate cross-regional and cross-cultural samples (Qing & Jin, 2022). Third, the model focuses on seven constructs, while additional factors such as emotional engagement, social influence, and entertainment value may enhance explanatory power. Finally, this study measures purchase intention rather than actual behavior; future studies should incorporate behavioral data and emerging technologies such as AI-driven livestream features.

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