



Information Research – Vol. 31 No. iConf (2026)

The impact of parasocial interaction and perceived risk on consumer purchase intention in livestreaming e-commerce

Jiaying Li, Shijie Song, and Yujun Liu

DOI: <https://doi.org/10.47989/ir31iConf64138>

Abstract

Introduction. Livestreaming e-commerce is a key digital economy driver, yet research lacks a systematic exploration of streamer's characteristics and communication styles, creating a theoretical gap regarding parasocial interaction and perceived risk.

Method. This study takes parasocial interaction and perceived risk as a theoretical framework to construct a dual-path model. The questionnaire survey (N=296) and Structural Equation Modeling (SEM) are employed to examine the mechanism influencing consumer purchase intention in livestreaming e-commerce.

Results. The findings revealed three main findings: (1) parasocial interaction positively affects consumer purchase intention, while perceived risk has a reverse effect; (2) streamer's physical attractiveness and credibility can enhance consumer purchase intention through parasocial interaction, but physical attractiveness increases the perceived risk, and credibility reduces the perceived risk; (3) emotional and cognitive communication can promote consumer purchase intention through parasocial interaction, but the effect on perceived risk is not significant.

Conclusion. The study reveals the critical role of streamer initiative in the consumer decision-making process, providing a theoretical basis for optimizing streamer selection, setting up differentiated communication strategies and improving risk regulation. It also expands the application of parasocial interaction and perceived risk theories.

Introduction

Livestreaming e-commerce has quickly shifted from an emerging model to a major engine of the digital economy. Short-video platforms now guide users seamlessly from content consumption to purchase. By the end of 2024, China had 833 million livestreaming users—75.2% of its internet population (CNNIC, 2024). In 2023, livestreaming e-commerce reached 4.9 trillion RMB, making it a key consumer channel (Bolun et al., 2024). Unlike traditional e-commerce built on one-way text and images, livestreaming heightens immersion through real-time interaction and contextual demonstrations (Y. Li et al., 2021). Although it resembles home shopping TV (McDonald, 1995), its bidirectional emotional ties set it apart and invite examination of how parasocial interaction shapes consumer behavior (Z. Li et al., 2021). Parasocial interaction—one-sided bonds with media figures (Horton & Wohl, 1956)—is positively associated with purchase intention (Maharani et al., 2023). Thus, in livestreaming e-commerce, parasocial interaction can influence consumers' perceptions and purchase decisions.

Rapid growth has also exposed trust risks. Streamers cultivate emotional bonds and bolster persuasion through professional explanations and in-context trials (Ko & Chen, 2020). Yet some, lacking expertise, exaggerate benefits or misrepresent products, elevating perceived risk and eroding trust. Although perceived risk strongly shapes consumer choice, its mechanisms in livestreaming remain underexplored (Cabeza-Ramírez, Sánchez-Cañizares, et al., 2022). Accordingly, alongside the benefits of parasocial interaction, the potential negative effects of perceived risk warrant systematic study.

Key mechanisms remain understudied. Prior work emphasizes mediators such as perceived value and trust (Lu & Chen, 2021; Wu & Huang, 2023) but often sidelines parasocial interaction (Liao et al., 2022). Moreover, many frameworks are platform-centric and underrecognize streamers' active persuasive role in information delivery (Y. Li et al., 2021). These gaps suggest untested mediating effects of parasocial interaction and perceived risk. This paper integrates parasocial interaction and perceived-risk perspectives to offer a more complete account of consumer behavior in livestreaming e-commerce.

Within livestreams, the streamer is pivotal for forming parasocial relationships (Chew et al., 2024). Streamer characteristics can shape consumer attitudes and behaviors via parasocial processes (Lin et al., 2018). Effective communication and interaction positively influence purchase decisions because emotional and cognitive exchanges foster parasocial ties and, in turn, purchase intention (Chen & Yang, 2023; Jin & Ryu, 2019). However, few studies directly examine how streamers' communication styles affect purchase intention, and empirical evidence on streamer effects remains limited (Chew et al., 2024). These gaps motivate examining how streamer traits and communication styles drive consumer responses through parasocial interaction.

Accordingly, this study investigates how streamer characteristics and communication styles influence purchase intention, with parasocial interaction and perceived risk as mediators linking streamer behavior to consumer decision-making. The findings aim to fill theoretical gaps and offer practical guidance for livestreaming e-commerce.

Literature review

Livestreaming e-commerce delivers real-time audiovisual content that lets users watch and shop anytime, featuring rich visuals, immediate context, and high interactivity. In China, Taobao and JD.com launched livestreaming in 2016, followed by Douyin and Kuaishou; pandemic-era adoption then accelerated global diffusion, positioning livestreaming as a major growth driver (Chen et al., 2023).

Despite strong commercial performance, scholarship remains fragmented across platform design, brand/product effects, and streamer roles, with no unifying framework. Presence-based work

shows that interactivity, authenticity, and vividness heighten presence and trust, boosting purchase intention (Tong, 2017). Brand–influencer fit shapes consumer attitudes (Park & Lin, 2020). Streamer-focused studies, drawing on persuasion and rhetoric, show that linguistic style interacts with product type to lift sales when tailored (Luo et al., 2021). Yet the literature is piecemeal on psychological and behavioral mechanisms (Chen et al., 2023).

A more integrative view centers on interaction mechanisms. Streamers' self-presentation—emotional contagion, cognitive communication, real-time feedback—builds emotional ties that reduce uncertainty, increase stickiness, and raise purchase intention, but overhype can trigger persuasion knowledge and defensive responses (Lu & Chen, 2021; Song et al., 2024). Concurrently, peer cues (likes, bullet screens, live comments) amplify social influence, elevate arousal, stimulate impulse buying, and accumulate '*emotional energy*' that strengthens collective identity, reinforcing intention (Liu et al., 2023; Xia, 2024).

Recent models increasingly integrate multiple stimuli—streamer characteristics (expertise, homophily, interactivity) and platform design (visibility, authenticity, interactivity)—and document immersive effects on decisions and repurchase via synergistic interactions (Liu & Zhang, 2023; Meng & Lin, 2023). However, research still leans on traditional mediators (perceived value, perceived trust) while underplaying the distinctive role of parasocial interaction in emotional bonding and underspecifying perceived risk—both central to decision-making in livestreaming contexts (Liao et al., 2022; Lu & Chen, 2021; Wu & Huang, 2023). Integrating parasocial interaction and perceived-risk perspectives can therefore supply the missing theoretical glue and clarify how livestreaming stimuli translate into purchase intention.

Theoretical background and hypotheses

Parasocial interaction

Parasocial interaction (PSI) denotes one-sided bonds that audiences form with media figures (Horton & Wohl, 1956). In livestreaming, PSI creates virtual intimacy that strengthens trust and identification with streamers, shaping purchase decisions (Frederick et al., 2012). PSI is a specific, deeper form of social presence where the user feels a unidirectional connection with attachment forming without reciprocal interaction (Kao & Huang, 2025; L. L. Zhu et al., 2020). Formation reflects both person factors (e.g., attractiveness, expertise, credibility) and communication style. Prior work shows that these factors increase sharing intentions and product favorability, with PSI moderating their effects (Choi & Lee, 2019). A three-dimensional PSI process—cognitive, emotional, and behavioral—captures the role of communication style and suits livestreaming contexts (Schramm & Wirth, 2010). Evidence across domains indicates that PSI mediates video viewing and luxury brand awareness (Lee & Watkins, 2016), channels endorsement effects on purchase intention (Maharani et al., 2023), and directly increases purchase intention in livestream shopping where real-time interaction is salient (Ko & Chen, 2020). Streamer characteristics may also condition framing effects through PSI (Long et al., 2024).

H1: Parasocial interaction positively affects consumer purchase intention.

Personal characteristics of streamers and parasocial interaction

Streamers function as persuaders, and viewers' real-time engagement creates conditions for PSI (Chen et al., 2021; Tsai et al., 2021). Influencer charisma facilitates PSI formation that, in turn, shapes attitudes and behavior (Lin et al., 2018). Three characteristics—physical attractiveness, credibility, and openness—are treated as core antecedents. Perceived physical appeal captures attention and strengthens psychological bonds (Finkel & Eastwick, 2015), motivates media use (Conway & Rubin, 1991), and heightens PSI, thereby influencing brand cognition and purchase intention (Lee & Watkins, 2016); in live shopping, attractiveness evokes emotional trust via PSI, indirectly promoting purchase (Zhu et al., 2021). Credibility, defined as perceived unbiasedness, trustworthiness, and accuracy (Rogers & Bhowmik, 1970), fosters psychological closeness central to PSI (Y.-Q. Zhu et al.,

2020); influencer credibility enhances PSI through emotional connection (Zhang et al., 2024), and attitude–message consistency strengthens persuasive impact, increasing the likelihood of PSI (Petty & Wegener, 1998). Openness—receptivity to novelty, creativity, and adventurousness (Adamopoulos et al., 2018)—manifests as creative content, flexible interaction, and self-disclosure that tighten PSI and reinforce “proposed-friendship” ties (Sun & Wu, 2012; Hassanzadeh et al., 2022); openness can enhance brand loyalty via PSI (Kim et al., 2021), improve trust and interaction quality (Zha et al., 2023), and shape value identification and imitation tendencies (Garcia, 2025).

H2: A streamer’s physical attractiveness positively affects PSI.

H3: A streamer’s credibility positively affects PSI.

H4: A streamer’s openness positively affects PSI.

Communication styles of streamers and parasocial interaction

Communication style is a central driver of PSI (Jin & Ryu, 2019). Emotional communication relies on contagion, empathy, and affective appeals that create closeness, satisfy belonging needs, and foster empathy; timely responses and personalized exchanges further strengthen PSI (Labrecque, 2014; Yuksel & Labrecque, 2016). Social attractiveness and emotional resonance operate as key pathways linking emotional exchanges to PSI and, indirectly, purchase intention (Quan et al., 2020; Sheng et al., 2022). Cognitive communication uses logical argumentation, two-sided messages, and comparative evidence. Comprehensive, balanced, and concrete information increases functional trust, reduces uncertainty, and intensifies PSI; effectiveness depends on completeness and credibility, including in virtual-influencer settings (Lim & Lee, 2023; Quan et al., 2020; Sheng et al., 2022; Yuksel & Labrecque, 2016).

H5: A streamer’s emotional communication positively affects PSI.

H6: A streamer’s cognitive communication positively affects PSI.

Perceived risk

Perceived risk denotes subjective judgment of potential loss and uncertainty and is fundamental to intention formation and behavior (Abdelrahman, 2022; Gao, 2006). Mechanisms vary by context yet are pervasive in consumer decisions. In an information system (livestreaming), users must process uncertain information and typically employs perceived risk as a key element in information assessment. Research indicates that perceived risk is a significant barrier to consumers' perception and evaluation of information (Chen et al., 2018). In online settings, performance and privacy risks moderate purchase behavior (Chen & Huang, 2016), and risk attitude relates to experience, satisfaction, and repurchase (Wu & Chang, 2007). Streamer attributes and communication can reduce risk by lowering uncertainty (Gao, 2006), while platform security and transparency further dampen risk; interactivity and instant feedback improve transparency (Martins et al., 2014). Information asymmetry and virtual transactions amplify uncertainty in e-commerce, suppressing confidence and purchase intention (Biswas et al., 2006; Deshbhag & Mohan, 2020; Wang & Tian, 2022). Higher perceived risk reduces intention in online games (Hsu & Lu, 2004), food purchases (Stefani et al., 2008), and luxury contexts where risk also weakens the attitude–intention link (Majeed et al., 2024).

H7: Perceived risk negatively affects consumer purchase intention.

Personal characteristics of streamers and perceived risk

Personal characteristics operate as antecedents of perceived risk in livestreaming e-commerce (Almeida & Neto, 2018). Physical attractiveness generates favorable trait inferences that transfer to recommended products, lowering concerns about performance or quality, and reducing perceived risk; positive affect elicited by visual appeal further strengthens emotional trust and eases risk (Almeida & Neto, 2018; Lee & Watkins, 2016). Credibility serves as a risk buffer in high-uncertainty

contexts; recommendations from credible sources function as authoritative inputs that reduce decision uncertainty, and trust lowers perceived risk directly and via elevated purchase intention (Ba, 2001; Cabeza-Ramírez, Fuentes-García, et al., 2022; Gunawan & Huarng, 2015; Sirdeshmukh, 2002). Openness signals transparency and authentic interaction—explicit values, candid experiences, creative demonstrations—that mitigate information asymmetry and reduce uncertainty and risk; individuals high in openness also tend to perceive less risk when adopting new technologies, and perceiving others as open increases willingness to communicate and trust (Changchit et al., 2024; Kim et al., 2021; Zhong et al., 2021; Zha et al., 2023).

H8: A streamer's physical attractiveness negatively affects perceived risk.

H9: A streamer's credibility negatively affects perceived risk.

H10: A streamer's openness negatively affects perceived risk.

Communication styles of streamers and perceived risk

Communication style shapes perceived risk through emotional and cognitive pathways (Zafar et al., 2021). Emotional exchanges—resonant language, facial expression, tone, and interaction cues such as likes—stimulate positive affect, foster instant trust, and reduce information risk (Cabeza-Ramírez et al., 2022a, 2022b; Kim & Yang, 2017). Cognitive exchanges—detailed functional descriptions, balanced comparisons, and usage-scenario demonstrations—reduce cognitive uncertainty and perceived risk by addressing information asymmetry; the valence and credibility of related content (e.g., comments) further condition these effects (Cabeza-Ramírez et al., 2022a, 2022b; Kim & Yang, 2017).

H11: A streamer's emotional communication negatively affects perceived risk.

H12: A streamer's cognitive communication negatively affects perceived risk.

Figure 1 depicts the research model summarizing H1–H12.

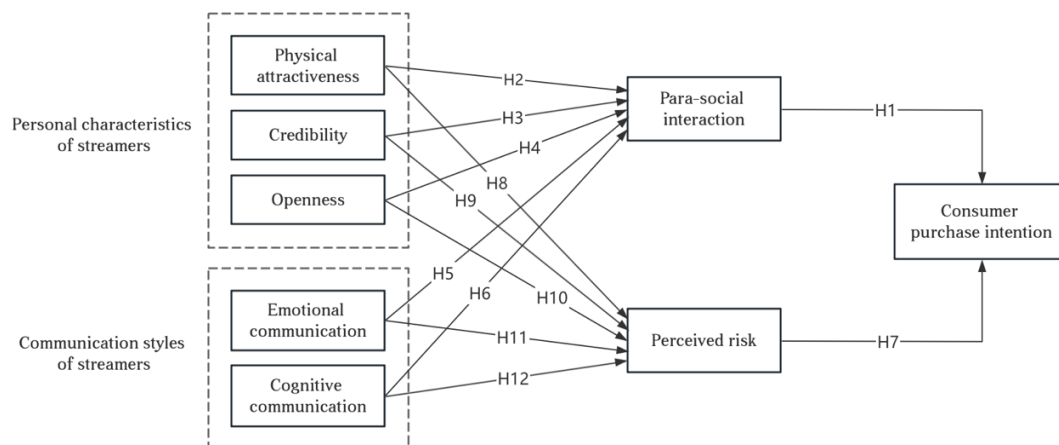


Figure 1. Research model structure diagram.

Methods

Measures

Guided by parasocial interaction and perceived risk theory, the study models consumer purchase intention in livestreaming e-commerce. Streamer characteristics and communication styles serve as antecedents; parasocial interaction and perceived risk operate as mediators; and consumer purchase intention is the outcome. This structure specifies the underlying logic by which

livestreaming influences consumer decision-making. Operational definitions of all constructs appear in Table 1.

All constructs were assessed with established scales, adapted to five-point Likert formats and contextually tailored to livestreaming e-commerce. Item wording was refined for clarity and rendered in colloquial Chinese to reduce comprehension bias in translation. Measurement details for each variable are as Table 2.

Variable	Definition	Sources
Physical attractiveness	Consumers' subjective perception of media figures' physical features and aesthetic appeal.	Conway and Rubin (1991)
Credibility	Consumers' judgment of whether the information provided by the streamer is truthful, reliable, and unbiased.	Rogers and Bhowmik (1970)
Openness	The degree to which streamers embrace new things and their creative traits.	Adamopoulos et al. (2018)
Emotional communication	Streamers build emotional connections through emotional contagion, empathetic expression, and affective appeals.	Achar et al. (2016)
Cognitive communication	Streamers enhance persuasive effect by relying on rational argumentation and the presentation of two-sided message.	Bohner et al. (2003)
Parasocial interaction	A one-sided, para-interpersonal intimate relationship between audiences and media figures.	Horton and Wohl (1956)
Perceived risk	Individuals' subjective assessment and feeling of potential dangers in the environment.	Abdelrahman (2022)
Consumer purchase intention	The likelihood of consumers making purchase decisions based on subjective product evaluations under certain income levels.	Sharma et al. (2021)

Table 1. The definition of each variable.

Variable	Observation variable	Sources
Physical attractiveness	A1. The streamer is very good-looking.	Lee and Watkins (2016); Mccroskey J. C. (1974)
	A2. The streamer is very charming.	
	A3. The streamer is nice.	
	A4. The streamer dresses appropriately.	
Credibility	B1. The streamer is always honest.	Choi and Lee (2019)
	B2. The streamer neither exaggerates nor lies.	
	B3. The streamer does not make unfounded statements.	
	B4. The streamer frankly expresses his/her positions, thoughts, and opinions.	
Openness	C1. The streamer often proposes novel viewpoints or unique insights.	Zhong et al. (2021)
	C2. The streamer shows strong interest in new products or trends and is willing to share.	
	C3. Overall, the streamer is open-minded and receptive to new things.	
Emotional communication	D1. The streamer often makes me feel valued through warm conversations.	Sheng et al. (2022); Walters et al. (2010)
	D2. The streamer often evokes positive emotions about love, family, and friendship.	
	D3. The streamer proactively asks about the audience's feelings.	
Cognitive communication	E1. The streamer informs me of all product details comprehensively.	Sheng et al. (2022)
	E2. The streamer points out both advantages and disadvantages of products to help me make rational decisions.	
	E3. The streamer explains product functions and usage scenarios in detail to help me better understand the goods.	
	E4. The streamer can clearly answer technical questions raised by the audience.	
Parasocial interaction	F1. I look forward to watching live-stream shopping of the streamer.	Lee and Watkins (2016)
	F2. If there are news or magazine reports about the streamer, I will read them.	
	F3. When the streamer shows explanation and impressions of the product, it helps me make decisions about the product.	
Perceived risk	G1. Purchasing products recommended by the streamer has risks.	Cabeza-Ramírez, Sánchez-Cañizares, et al. (2022)
	G2. I worry that buying products recommended by the streamer may lead to undesirable outcomes.	
	G3. Purchasing products from the streamer may result in financial loss for me.	
Consumer purchase intention	H1. I want to use the products introduced by the streamer.	Choi and Lee (2019); Duffett (2015)
	H2. I am willing to purchase products recommended during livestreams	
	H3. The streamer will help me make purchasing decisions.	
	H4. If purchasing similar products, I will prioritize those recommended by the streamer.	

Table 2. The specific measurement contents of each variable.

The study examines how parasocial interaction and perceived risk influence consumers' purchase intention in livestreaming e-commerce using a three-part questionnaire. Part 1 states the academic purpose, guarantees anonymity and confidentiality, and screens for respondents with prior livestreaming e-commerce experience. Part 2 records demographics (gender, age, education, income) and usage information (platforms, viewing frequency, shopping frequency). Part 3

measures the core constructs. The instrument was administered via WeChat and Questionnaire Star to maximize reach and convenience.

A pilot test assessed clarity and validity. Sixty-one responses were collected; nine logically inconsistent questionnaires were discarded, yielding 52 valid cases. Results indicated that the items were well designed and suitable for measuring the target variables.

Sampling and data collection

The study used a structured questionnaire. A pilot with 52 valid respondents assessed reliability and validity. For the main study, a commercial panel from an online survey platform (wjx.cn/Questionnaire Star) was used. The fielding yielded 313 responses; 17 were removed based on preset eligibility criteria (e.g., unreasonable completion time, inconsistent answers, failed attention checks). The final dataset includes 296 valid respondents. Each participant received a 6 RMB monetary incentive ($\approx$ USD 0.80).

Of the 296 valid cases, 41.6% were male ($n = 123$) and 58.4% female ($n = 173$). The largest age group was 31–40 years (43.9%, $n = 130$); respondents under 18 and over 61 accounted for 1.0% and 0.3%, respectively. Bachelor's degree holders comprised 71.3% ($n = 211$), while junior high school or below accounted for 2.4% ($n = 7$). For monthly income, 27.7% ($n = 82$) reported above 9,001 RMB, with all income levels represented. The sample covers diverse ages, education levels, and incomes, supporting its adequacy for analysis, as in Table 3.

Item	Descriptive indicators	Frequency	Percentage (%)
Gender	Male	123	41.6
	Female	173	58.4
Age	Under 18 years old	3	1.0
	18-25 years old	67	22.6
	26-30 years old	67	22.6
	31-40 years old	130	43.9
	41-50 years old	20	6.8
	51-60 years old	8	2.7
	61 years old and up	1	0.3
	Junior high school and below	7	2.4
Education level	High school/ Secondary vocational school	14	4.7
	College	42	14.2
	Undergraduate	211	71.3
	Postgraduate and above	22	7.4
Monthly income	Below 1000 RMB	24	8.1
	1000-3000 RMB	30	10.1
	3001-5000 RMB	47	15.9
	5001-7000 RMB	64	21.6
	7001-9000 RMB	49	16.6
	9001 RMB and above	82	27.7

Table 3. Descriptive statistics of personal information (N=296).

Table 4 summarizes respondents' livestreaming e-commerce usage. Douyin emerged as the most popular platform. Taobao/Tmall also showed high penetration, with 204 viewers (68.9%) selecting it; its professional e-commerce orientation continues to attract users for live shopping. Viewing frequency data indicate that over half of respondents watch three to four times per week ($n = 151$, 51.0%), while nearly one-third watch almost daily ($n = 83$, 28.0%). These figures highlight the strong appeal and stickiness of livestreaming e-commerce. Shopping frequency patterns reveal that more than 70% of respondents purchase either one to two times per month or three to four times per week. Only 3.4% reported never having purchased through livestreaming e-commerce, underscoring the medium's significance as a purchasing channel.

Item	Descriptive indicators	Frequency	Percentage (%)
Platform	Douyin	257	86.8
	Taobao/Tmall	204	68.9
	Rednote	140	47.3
	JD.com	123	41.6
	Kuaishou	97	32.8
	Pinduoduo	93	31.4
	Never watched	3	1.0
Frequency of viewing	3-4 times per week	151	51.0
	Almost daily	83	28.0
	1-2 times per month	40	13.5
	Rarely watch	19	6.4
	Never having watched	3	1.0
Frequency of shopping	1-2 times per month	127	42.9
	3-4 times per week	92	31.1
	Rarely purchase	51	17.2
	Almost daily	16	5.4
	Never having purchased	10	3.4

Table 4. Statistics on the platforms, frequency and shopping frequency of watch livestreaming e-commerce (N=296).

Descriptive statistics of variable data

Eight variables were analyzed: physical attractiveness, credibility, openness, emotional communication, cognitive communication, parasocial interaction, perceived risk, and purchase intention. The dataset comprises 296 valid cases with no missing values. As reported in Table 5, most means fall between 3.4 and 3.7, indicating above-average evaluations; perceived risk is notably lower ($M = 2.52$), suggesting relatively low risk perceptions. Standard deviations cluster near 1.0, implying comparable dispersion across variables. Skewness and kurtosis indicate some asymmetry and mixed kurtosis (leptokurtic/platykurtic) across distributions. Standard errors are small, supporting the stability of the sample means.

Variable	N	Min	Max	Mean	Sd
Physical attractiveness	296	1.00	5.00	3.6410	1.05211
Credibility	296	1.00	5.00	3.4443	1.06199
Openness	296	1.00	5.00	3.5177	1.03943
Emotional communication	296	1.00	5.00	3.4505	1.06784
Cognitive communication	296	1.00	5.00	3.5220	1.07846
Parasocial interaction	296	1.00	5.00	3.4250	0.97288
Perceived risk	296	1.00	5.00	2.5203	1.10689
Consumer purchase intention	296	1.00	5.00	3.4189	1.08171

Table 5. Descriptive statistics of sample data (N=296).

Common method bias test

All constructs were measured on five-point Likert scales via self-report, raising the possibility of common method bias (CMB). Harman's single-factor test was conducted using principal component analysis. Following Podsakoff et al. (2003), CMB is unlikely if a single factor does not account for more than 50% of the variance. As shown in Table 6, the first unrotated factor explains 42.217% of the variance—below the 50% threshold—indicating that CMB is not a serious concern, and the data are suitable for subsequent analyses.

Factor	Initial eigenvalue value			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative % of variance	Total	% of Variance	Cumulative % of variance
1	11.821	42.217	42.217	11.821	42.217	42.217
2	2.335	8.340	50.557	2.335	8.340	50.557
3	1.197	4.275	54.832	1.197	4.275	54.832
4	1.093	3.902	58.734	1.093	3.902	58.734
5	1.044	3.729	62.463	1.044	3.729	62.463

Table 6. Total variance explained.

Results

Partial least squares structural equation modeling (PLS-SEM) was used to test the conceptual model in SmartPLS 4.1.1.2. All items were adapted from established scales informed by domestic and international studies, supporting content validity. The analysis followed the standard two-step procedure: assessment of the measurement model followed by the structural model. The PLS algorithm converged in five iterations; inference was based on bootstrapping with 5,000 resamples.

Measurement model

Table 7 reports reliability and convergent validity. Cronbach's α for all constructs exceeded 0.70, and composite reliability (CR) values were above 0.85, indicating strong internal consistency. Average variance extracted (AVE) exceeded 0.60 for all constructs, and all indicator loadings were ≥ 0.74 , evidencing adequate convergent validity.

Factor	Observation variable	Factor loading	AVE	Cronbach's alpha	CR
Physical attractiveness	A1	0.740	0.613	0.791	0.863
	A2	0.807			
	A3	0.765			
	A4	0.816			
Credibility	B1	0.825	0.661	0.829	0.886
	B2	0.808			
	B3	0.825			
	B4	0.794			
Openness	C1	0.793	0.677	0.763	0.862
	C2	0.845			
	C3	0.827			
Emotional communication	D1	0.853	0.683	0.767	0.865
	D2	0.783			
	D3	0.839			
Cognitive communication	E1	0.794	0.645	0.816	0.879
	E2	0.767			
	E3	0.807			
	E4	0.842			
Parasocial interaction	F1	0.823	0.695	0.781	0.872
	F2	0.828			
	F3	0.849			
Perceived risk	G1	0.850	0.730	0.817	0.890
	G2	0.836			
	G3	0.876			
Consumer purchase intention	H1	0.816	0.680	0.843	0.895
	H2	0.843			
	H3	0.789			
	H4	0.849			

Table 7. Reliability and validity indicators of the measurement model.

Discriminant validity was evaluated using the Fornell–Larcker criterion. As shown in Table 8, the square root of each construct's AVE (diagonal) was greater than its inter-construct correlations, indicating satisfactory discriminant validity. Collectively, these indices confirm that the measurement model is reliable and valid for subsequent structural analysis.

	PSI	C	PA	O	EC	CPI	CC	PR
PSI	0.834							
C	0.635	0.813						
PA	0.680	0.664	0.783					
O	0.613	0.593	0.669	0.822				
EC	0.730	0.598	0.681	0.648	0.826			
CPI	0.769	0.671	0.699	0.627	0.692	0.824		
CC	0.666	0.637	0.641	0.588	0.633	0.694	0.803	
PR	-0.158	-0.244	-0.022	-0.136	-0.137	-0.240	-0.196	0.854

Table 8. The square roots of the AVE values for each factor and correlation coefficients between factors.

Note: Parasocial interaction PSI, credibility C, physical attractiveness PA, openness O, emotional communication EC, consumer purchase intention CPI, cognitive communication CC, perceived risk PR. Bold numbers represent the square roots of the AVE values for each factor, while the remaining numbers represent the correlation coefficients between factors.

Structural model

Multicollinearity test

The first step in evaluating the structural model is to assess potential multicollinearity among predictors. Variance inflation factor (VIF) values were examined for both outer and inner models. A $VIF \leq 5$ indicates no problematic collinearity. As reported in Table 9, all outer model indicators had VIF values below 3, with most ranging from 1.4 to 2.0. For the inner model, the predictors of consumer purchase intention (parasocial interaction and perceived risk) both reported VIFs of 1.026. The predictors of parasocial interaction and perceived risk—physical attractiveness, credibility, openness, emotional communication, and cognitive communication—had VIFs of 2.639, 2.171, 2.184, 2.339, and 2.168, respectively. All values fall well below the threshold of 5. These results confirm the absence of multicollinearity problems in either the measurement or structural components of the model.

Model interpretability

Coefficient of determination (R^2) and effect size (F^2) were used to assess explanatory power and predictor importance (Table 10). For consumer purchase intention, $R^2 = 0.605$ (adjusted $R^2 = 0.602$), indicating that the model explains about 60% of the variance—substantial explanatory power. Using Cohen (1992) benchmarks ($F^2 \approx 0.02$ small, 0.15 medium, 0.35 large), parasocial interaction shows a very large effect on purchase intention ($F^2 = 1.387$), whereas perceived risk has a small effect ($F^2 = 0.036$). For parasocial interaction, $R^2 = 0.641$ (adjusted $R^2 = 0.635$), also indicating strong explanatory power. Emotional communication exhibits the largest unique contribution among its predictors ($F^2 = 0.156$, approximately medium), while openness contributes negligibly ($F^2 = 0.005$). For perceived risk, $R^2 = 0.117$ (adjusted $R^2 = 0.102$), reflecting weak explanatory power. Physical attractiveness ($F^2 = 0.060$) and credibility ($F^2 = 0.052$) show the largest—though still small—effects relative to other predictors. Overall, predictors meaningfully account for variation in purchase intention and PSI but explain relatively little variance in perceived risk.

VIF for the outer model		VIF for the inner model	
A1	1.573	Parasocial interaction -> Consumer purchase intention	1.026
A2	1.578	Physical attractiveness -> Parasocial interaction	2.639
A3	1.489	Credibility -> Parasocial interaction	2.171
A4	1.671	Openness -> Parasocial interaction	2.184
B1	1.897	Emotional communication -> Parasocial interaction	2.339
B2	1.684	Cognitive communication -> Parasocial interaction	2.168
B3	1.904	Perceived risk -> Consumer purchase intention	1.026
B4	1.754	Physical attractiveness -> Perceived risk	2.639
C1	1.623	Credibility -> Perceived risk	2.171
C2	1.693	Openness -> Perceived risk	2.184
C3	1.418	Emotional communication -> Perceived risk	2.339
D1	1.647	Cognitive communication -> Perceived risk	2.168
D2	1.488		
D3	1.584		
E1	1.714		
E2	1.544		
E3	1.753		
E4	1.826		
F1	1.627		
F2	1.619		
F3	1.612		
G1	1.925		
G2	1.797		
G3	1.746		
H1	1.853		
H2	2.028		
H3	1.759		
H4	2.114		

Table 9. Multicollinearity test.

Factor	R ²	Adjusted R ²	F ²
Consumer purchase intention	0.605	0.602	Parasocial interaction -> Consumer purchase intention: 1.387 Perceived risk -> Consumer purchase intention: 0.036
Parasocial interaction	0.641	0.635	Physical attractiveness -> Parasocial interaction: 0.030 Credibility -> Parasocial interaction: 0.025 Openness -> Parasocial interaction: 0.005 Emotional communication -> Parasocial interaction: 0.156 Cognitive communication -> Parasocial interaction: 0.052
Perceived risk	0.117	0.102	Physical attractiveness -> Perceived risk: 0.060 Credibility -> Perceived risk: 0.052 Openness -> Perceived risk: 0.002 Emotional communication -> Perceived risk: 0.002 Cognitive communication -> Perceived risk: 0.013

Table 10. The R² and F² values of factors.

Out-of-sample predictive ability was evaluated following Shmueli et al. (2019). As reported in Table 11, all Q² values exceed zero, indicating predictive relevance for the endogenous constructs. A PLSpredict comparison with a linear model (LM) benchmark shows that most RMSE and MAE values are lower for PLS-SEM than for LM. These results support a moderate level of predictive capability for the model.

Factor	Observation variable	Q ² value	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
Parasocial interaction	F1	0.365	0.934	0.688	0.998	0.730
	F2	0.398	1.016	0.776	0.977	0.767
	F3	0.503	0.988	0.762	1.036	0.766
Perceived risk	G1	0.024	1.230	1.006	1.294	1.011
	G2	0.037	1.376	1.157	1.445	1.193
	G3	0.071	1.194	0.945	1.276	0.992
Consumer purchase intention	H1	0.382	0.959	0.701	0.941	0.692
	H2	0.487	0.962	0.751	0.975	0.728
	H3	0.442	1.021	0.785	1.012	0.759
	H4	0.317	1.095	0.896	1.128	0.889

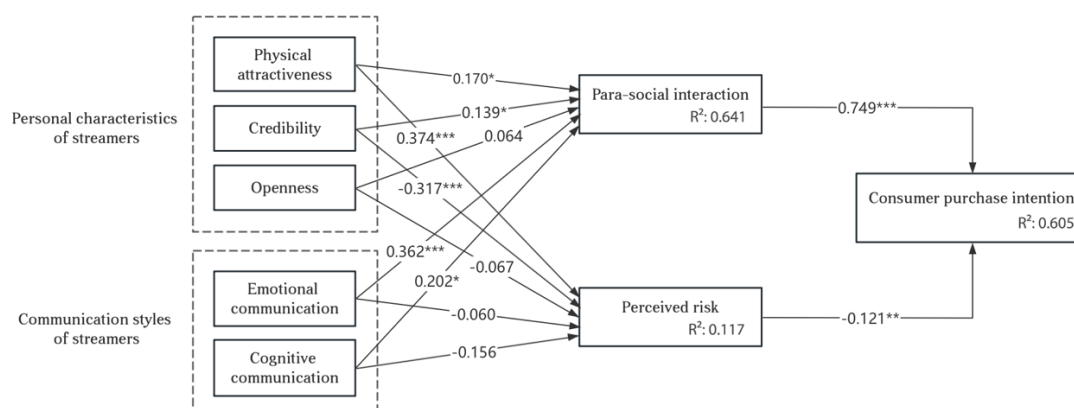
Table 11. The Q² values of factors, the RMSE and MAE values of PLS-SEM, and the RMSE and MAE values of LM.

Path analysis and hypotheses testing

Path coefficients were estimated using bias-corrected and accelerated (BCa) bootstrapping with two-tailed tests at $\alpha = .05$. The algorithm converged after three iterations; detailed estimates are reported in Figure 2 and Table 12.

Parasocial interaction exerted a significant positive effect on purchase intention ($\beta = 0.749$, $p < .01$; 95% CI excludes zero), supporting H1. Among the antecedents of parasocial interaction, physical attractiveness ($\beta = 0.170$, $p < .05$), credibility ($\beta = 0.139$, $p < .05$), emotional communication ($\beta = 0.362$, $p < .01$), and cognitive communication ($\beta = 0.202$, $p < .05$) were all positive and significant, each with 95% confidence intervals that excluded zero, thereby supporting H2, H3, H5, and H6. Openness did not reach significance ($\beta = 0.064$, $p > .05$; 95% CI includes zero), and H4 is not supported.

Perceived risk showed a significant negative effect on purchase intention ($\beta = -0.121$, $p < .01$; 95% CI excludes zero), supporting H7. With respect to the antecedents of perceived risk, physical attractiveness displayed a significant positive association ($\beta = 0.374$, $p < .01$; 95% CI excludes zero), contrary to H8, which is therefore not supported. Credibility exhibited a significant negative association ($\beta = -0.317$, $p < .01$; 95% CI excludes zero), supporting H9. Openness ($\beta = -0.019$, $p > .05$), emotional communication ($\beta = 0.012$, $p > .05$), and cognitive communication ($\beta = -0.028$, $p > .05$) were not significant, with confidence intervals including zero, leading to rejection of H10–H12.



Note: *, **, and *** respectively represent $p < 0.05$, $p < 0.01$, and $p < 0.001$

Figure 2. Path analysis of the structural equation model.

Path	Path coefficient	t-statistics	P	Hypothesis Testing
H1: Parasocial interaction -> Consumer purchase intention	0.749	22.403	<0.001	Supported
H2: Physical attractiveness -> Parasocial interaction	0.170	2.281	0.023	Supported
H3: Credibility -> Parasocial interaction	0.139	2.178	0.029	Supported
H4: Openness -> Parasocial interaction	0.064	0.864	0.387	Not supported
H5: Emotional communication -> Parasocial interaction	0.362	4.420	<0.001	Supported
H6: Cognitive communication -> Parasocial interaction	0.202	2.481	0.013	Supported
H7: Perceived risk -> Consumer purchase intention	-0.121	2.997	0.003	Supported
H8: Physical attractiveness -> Perceived risk	0.374	3.484	<0.001	Not supported
H9: Credibility -> Perceived risk	-0.317	3.520	<0.001	Supported
H10: Openness -> Perceived risk	-0.067	0.705	0.481	Not supported
H11: Emotional communication -> Perceived risk	-0.060	0.535	0.593	Not supported
H12: Cognitive communication -> Perceived risk	-0.156	1.567	0.117	Not supported

Table 12. The path coefficient and significance level of the structural model.

Conclusion and discussion

Research finding

Descriptive evidence indicates that livestreaming e-commerce functions as a salient shopping channel. Douyin leverages short-video social features and scale, whereas Taobao/Tmall attracts loyal viewers through e-commerce specialization; platforms thereby serve differentiated consumer needs. Usage intensity is high, with most respondents viewing three to four times per week or nearly daily. Purchasing frequency is substantial: while one to two purchases per month is common, 31.1% report buying three to four times per week. Only 3.4% have never purchased via livestreams, suggesting a latent adopter segment.

Structural results highlight the roles of parasocial interaction and perceived risk. Parasocial interaction exhibits a strong positive association with purchase intention, consistent with evidence from livestream shopping contexts (Ko & Chen, 2020). Perceived risk shows a negative association with purchase intention, aligning with research that risk generally suppresses online purchasing (Phamthi et al., 2024). Streamer characteristics operate through distinct pathways: physical attractiveness and credibility increase purchase intention indirectly via parasocial interaction, whereas openness does not reach significance—plausibly because audiences in real-time settings prioritize instrumental information and affective companionship. On the perceived-risk pathway, physical attractiveness unexpectedly heightens perceived risk, a pattern aligned with research suggesting that high physical attractiveness can activate persuasion vigilance, divert attention from message elaboration, and prompt inferences of strategic impression management (Baker & J., 1977). In livestreaming environments—where authenticity functions as a central heuristic for uncertainty reduction—strong physical attractiveness may also elicit upward social comparison or perceptions of social distance, thereby weakening perceived sincerity and attenuating trust (Edelblum et al., 2025; Feng et al., 2022). Moreover, consumers frequently associate highly polished

appearance with beautification tactics or deliberate image curation, which can amplify concerns about exaggerated claims or opportunistic selling (Edelblum et al., 2025). Collectively, these mechanisms provide a coherent explanation for why physical attractiveness may paradoxically increase rather than diminish perceived risk in livestream commerce. In contrast, credibility reduces perceived risk, while openness remains nonsignificant. Communication styles shape intention via parasocial interaction: both emotional and cognitive communication are positively associated with purchase intention through this mechanism. Direct effects of communication styles on perceived risk are not pronounced, a pattern consistent with countervailing inferences such as perceived performativity in emotional displays (Cabeza-Ramírez et al., 2022a, 2022b) or misalignment between cognitive arguments and product attributes (Kim & Yang, 2017).

Research implication

Theoretical implications

This study extends parasocial interaction theory to livestreaming e-commerce by demonstrating that parasocial interaction is a proximal driver of purchase intention in this domain and by incorporating both emotional and cognitive communication into the explanatory framework (Ko & Chen, 2020; Schramm & Wirth, 2010). The positive association between physical attractiveness and perceived risk introduces a contextual qualification to perceived-risk theory, suggesting that heightened attractiveness can trigger skepticism about commercial intent (Cabeza-Ramírez et al., 2022a, 2022b). The introduction of openness from the Big Five to this context indicates boundary conditions for influencer marketing: in real-time interactions, audiences appear to privilege practicality and affective connection over openness per se (Kim & Yang, 2017). By integrating parasocial interaction and perceived risk, the study advances a bidirectional streamer–consumer interaction model that differentiates how streamer traits and communication styles map onto purchase intention versus risk (Ko & Chen, 2020; Phamthi et al., 2024).

Practical implications

Streamer selection and training should prioritize domain expertise and credibility, accompanied by training that emphasizes authenticity and clear disclosure to strengthen trust (Ko & Chen, 2020). Awareness of the potential ‘performative’ downside of physical attractiveness is warranted to avoid elevating perceived risk (Cabeza-Ramírez et al., 2022a, 2022b). Communication strategies should be differentiated by product type and audience goals: emotional exchanges to cultivate engagement and presence, and cognitively rich content to build functional trust through completeness and diagnosticity (Kim & Yang, 2017). Platform governance should incorporate dynamic monitoring for exaggeration and false claims, enhance information transparency, and employ third-party certifications to mitigate risk perceptions (Phamthi et al., 2024). Experience design should strengthen real-time interaction and analytics-based matching between high-engagement users and highly interactive streamers to improve conversion, while remaining attentive to signals that may inadvertently raise perceived risk (Kim & Yang, 2017).

Limitations and future direction

The present study offers a novel theoretical lens and mechanism-based account, yet several limitations remain. First, the cross-sectional design captures static associations in a context where interactions unfold dynamically. Parasocial relationships may strengthen through repeated exposure, and perceived risk can fluctuate with real-time cues; static models cannot recover these trajectories. Second, the dual-path framework (parasocial interaction and perceived risk) does not examine their joint operation—possible synergy, suppression, or reciprocal feedback—limiting insight into how the two processes coevolve. Future research should adopt designs and methods aligned with these dynamics. Longitudinal or panel surveys, experience-sampling, and field experiments can trace within-person change and causal ordering; latent growth and cross-lagged models, or dynamic SEM, can test temporal precedence. Multi-source behavioral data (e.g., viewing logs, comment streams, transaction records) can complement self-reports and reduce shared-

method variance. Model extensions could incorporate moderators (e.g., product type, price level, consumer involvement, regulatory cues, algorithmic prominence) and account for heterogeneity (e.g., age, gender, platform). Finally, mixed-methods approaches—combining qualitative interaction analysis with computational text/vision measures of streamer behavior—can clarify how specific communicative cues jointly shape parasocial processes and risk perceptions over time.

Acknowledgments

We thank two anonymous reviewers for their helpful comments on the manuscript. This work was jointly supported by the National Natural Science Foundation of China (No. 72204076), the Fundamental Research Funds for the Central Universities (No. B240207009), and China Postdoctoral Science Foundation (Nos. 2022M722477 and 2023T160499).

About the authors

Li Jiaying is a postgraduate student at the Business School, Hohai University. Her research interests include social media studies and consumer behavior. She can be contacted at jylli0430@163.com

Dr. Shijie Song is an Associate Professor at the Business School, Hohai University, and a Postdoctoral Researcher at the School of Information Management, Wuhan University. His research interests include human information behavior, human-computer interaction, and health informatics. He can be contacted at ssong@hhu.edu.cn

Yujun Liu is an undergraduate student at the University of Warwick. She can be contacted at stephanieliu1111@gmail.com

References

- Abdelrahman, M. (2022). Personality Traits, Risk Perception, and Protective Behaviors of Arab Residents of Qatar During the COVID-19 Pandemic. *International Journal of Mental Health and Addiction* (2022), 20(1), 237-248. <https://doi.org/10.1007/s11469-020-00352-7>
- Achar, C., So, J., Agrawal, N., & Duhachek, A. (2016). What we feel and why we buy: the influence of emotions on consumer decision-making. *Current Opinion in Psychology*, 10, 166-170. <https://doi.org/10.1016/j.copsyc.2016.01.009>
- Adamopoulos, P., Ghose, A., & Todri, V. (2018). The Impact of User Personality Traits on Word of Mouth: Text-Mining Social Media Platforms. *Information Systems Research*, 29(3), 612-640. <https://doi.org/10.1287/isre.2017.0768>
- Almeida, d., & Neto, M. (2018). Influencer Marketing on Instagram : How Influencer Type and Perceived Risk Impact Choices in the Beauty Industry Universidade NOVA de Lisboa (Portugal). <https://www.proquest.com/docview/3059335440?pq-origsite=wos&accountid=27446&sourcetype=Dissertations%20%20Theses>
- Ba, S. (2001). Establishing online trust through a community responsibility system. *Decision Support Systems*, 31(3), 323-336. <https://linkinghub.elsevier.com/retrieve/pii/S0167923600001445>
- Baker, & J., M. (1977). The Impact of Physically Attractive Models on Advertising Evaluations. *Journal of Marketing Research*, 14(4), 538. <https://doi.org/10.2307/3151194>

- Biswas, D., Biswas, A., & Das, N. (2006). The Differential Effects of Celebrity and Expert Endorsements on Consumer Risk Perceptions. The Role of Consumer Knowledge, Perceived Congruency, and Product Technology Orientation. *Journal of Advertising*, 35(2), 17-31. <https://doi.org/10.1080/00913367.2006.10639231>
- Bohner, G., Einwiller, S., Erb, H. P., & Siebler, F. (2003). When Small Means Comfortable: Relations Between Product Attributes in Two-Sided Advertising. *Journal of Consumer Psychology*, 13(4), 454-463. https://doi.org/10.1207/s15327663jcp1304_12
- Bolun, Z., Yan, Z., & Minghui, J. (2024). The configurational impact of e-commerce live streaming interactivity on consumer engagement behavior. *Asia Pacific Journal of Marketing and Logistics*, 631-649. <https://doi.org/10.1108/apjml-03-2024-0271>
- Cabeza-Ramírez, L. J., Fuentes-García, F. J., Cano-Vicente, M. C., & González-Mohino, M. (2022). How Generation X and Millennials Perceive Influencers' Recommendations: Perceived Trustworthiness, Product Involvement, and Perceived Risk. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(4), 1431-1449. <https://doi.org/10.3390/jtaer17040072>
- Cabeza-Ramírez, L. J., Sánchez-Cañizares, S. M., Santos-Roldán, L. M., & Fuentes-García, F. J. (2022). Impact of the perceived risk in influencers' product recommendations on their followers' purchase attitudes and intention. *Technological Forecasting and Social Change*, 184, 121997. <https://doi.org/10.1016/j.techfore.2022.121997>
- Changchit, C., Cutshall, R., DeLatte, G., Ibrahimov, A., & Changchit, C. (2024). Exploring Personality Traits' Impact on Risk Perception in Mobile Payments. *Journal of Computer Information Systems*, 1-16. <https://doi.org/10.1080/08874417.2024.2325417>
- Chen, C. C., Hsiao, K. L., & Wu, S. J. (2018). Purchase intention in social commerce An empirical examination of perceived value and social awareness. *Library Hi Tech*, 36(4), 583-604. <https://doi.org/10.1108/lht-01-2018-0007>
- Chen, H., Dou, Y., & Xiao, Y. (2023). Understanding the role of live streamers in live-streaming e-commerce. *Electronic Commerce Research and Applications*, 59, 101266. <https://doi.org/10.1016/j.elerap.2023.101266>
- Chen, N., & Yang, Y. (2023). The Role of Influencers in Live Streaming E-Commerce: Influencer Trust, Attachment, and Consumer Purchase Intention. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(3), 1601-1618. <https://doi.org/10.3390/jtaer18030081>
- Chen, T. Y., Yeh, T. L., & Lee, F. Y. (2021). The impact of Internet celebrity characteristics on followers' impulse purchase behavior: the mediation of attachment and parasocial interaction. *Journal of Research in Interactive Marketing*, 15(3), 483-501. <https://doi.org/10.1108/jrim-09-2020-0183>
- Chen, Y.-S., & Huang, S. Y. B. (2016). The effect of task-technology fit on purchase intention: The moderating role of perceived risks. *Journal of Risk Research*, 20(11), 1418-1438. <https://doi.org/10.1080/13669877.2016.1165281>
- Chew, X., Alnoor, A., Khaw, K. W., Sadaa, A. M., Al Halbusi, H., & Muhsen, Y. R. (2024). Symmetric and asymmetric modeling to boost customers' trustworthiness in livestreaming commerce. *Current Psychology*, 43(31), 25874-25892. <https://doi.org/10.1007/s12144-024-06200-4>
- Choi, W., & Lee, Y. (2019). Effects of fashion vlogger attributes on product attitude and content sharing. *Fashion and Textiles*, 6(1), 1-18. <https://doi.org/10.1186/s40691-018-0161-1>

- CNNIC. (2024). The 53th Statistical Report on China's Internet Development. <https://www.cnnic.net.cn/n4/2024/0322/c88-10964.html>
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, 112(1), 155-159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Conway, J. C., & Rubin, A. M. (1991). Psychological predictors of television viewing motivation. *Communication Research*, 18(4), 443-463. <https://doi.org/10.1177/009365091018004001>
- Deshbhag, R. R., & Mohan, B. C. (2020). Study on influential role of celebrity credibility on consumer risk perceptions. *Journal of Indian Business Research*, 12(1), 79-92. <https://doi.org/10.1108/jibr-09-2019-0264>
- Duffett, R. G. (2015). Facebook advertising's influence on intention-to-purchase and purchase amongst Millennials. *Internet Research*, 25(4), 498-526. <https://doi.org/10.1108/IntR-01-2014-0020>
- Edelblum, A., Frank, A., & Palmer, J. (2025). The Beauty Backfire Effect: How Extreme Attractiveness Undermines Fitfluencer Relatability and Engagement. *Psychology & Marketing*, 42(11), 2981-2995. <https://doi.org/10.1002/mar.70023>
- Feng, W., Chang, D., & Sun, H. (2022). The impact of social media influencers' bragging language styles on consumers' attitudes toward luxury brands: The dual mediation of envy and trustworthiness. *Frontiers in Psychology*, 13, 1113655. <https://doi.org/10.3389/fpsyg.2022.1113655>
- Finkel, E. J., & Eastwick, P. W. (2015). Interpersonal attraction: In search of a theoretical Rosetta Stone. In *APA handbook of personality and social psychology*, Volume 3: Interpersonal relations. (pp. 179-210). <https://doi.org/10.1037/14344-007>
- Frederick, E. L., Lim, C. H., Clavio, G., & Walsh, P. (2012). Why We Follow: An Examination of Parasocial Interaction and Fan Motivations for Following Athlete Archetypes on Twitter. *International Journal of Sport Communication*, 5(4), 481-502. <https://doi.org/10.1123/ijsc.5.4.481>
- Gao, H. (2006). Research on components of consumer perceived risk IEEE International Engineering Management Conference, <http://ieeexplore.ieee.org/document/4279880/>
- Garcia, D. (2025). Perceptions of Monica Geller in Friends: A Pilot Study on Personality Frameworks and Parasocial Relationships. *Behavioral Sciences*, 15(2), 146-170. <https://doi.org/10.3390/bs15020146>
- Gunawan, D. D., & Huarng, K.-H. (2015). Viral effects of social network and media on consumers' purchase intention. *Journal of Business Research*, 68(11), 2237-2241. <https://doi.org/10.1016/j.jbusres.2015.06.004>
- Hassanzadeh, M., Taheri, M., Shokouhyar, S., & Shokoohyar, S. (2022). Who one is, whom one knows? Evaluating the importance of personal and social characteristics of influential people in social networks. *Aslib Journal of Information Management*, 75(6), 1008-1032. <https://doi.org/10.1108/ajim-12-2021-0382>
- Horton, D., & Wohl, R. R. (1956). Mass communication and para-social interaction; observations on intimacy at a distance. *Psychiatry*, 19(3), 215-229. <https://doi.org/10.1080/00332747.1956.11023049>

- Hsu, C.-L., & Lu, H.-P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. *Information & Management*, 41(7), 853-868. <https://doi.org/10.1016/j.im.2003.08.014>
- Jin, S. V., & Ryu, E. (2019). Instagram fashionistas, luxury visual image strategies and vanity. *Journal of Product & Brand Management*, 29(3), 355-368. <https://doi.org/10.1108/jpbm-08-2018-1987>
- Kao, C. Y., & Huang, C. (2025). Investigating the impact of fear of missing out on inaction inertia in live streaming purchase intention. *Aslib Journal of Information Management*, 77(6), 1152-1175. <https://doi.org/10.1108/ajim-01-2024-0030>
- Kim, C., & Yang, S.-U. (2017). Like, comment, and share on Facebook: How each behavior differs from the other. *Public Relations Review*, 43(2), 441-449. <https://doi.org/10.1016/j.pubrev.2017.02.006>
- Kim, E. H., Yoo, D., & Doh, S. J. (2021). Self-construal on brand fan pages: the mediating effect of para-social interaction and consumer engagement on brand loyalty. *Journal of Brand Management*, 28(3), 254-271. <https://doi.org/10.1057/s41262-020-00211-9>
- Ko, H.-C., & Chen, Z.-Y. (2020). Exploring the Factors Driving Live Streaming Shopping Intention. *Proceedings of the 7th International Conference on Management of e-Commerce and e-Government*, <https://dl.acm.org/doi/10.1145/3409891.3409901>
- Labrecque, L. I. (2014). Fostering Consumer-Brand Relationships in Social Media Environments: The Role of Parasocial Interaction. *Journal of Interactive Marketing*, 28(2), 134-148. <https://doi.org/10.1016/j.intmar.2013.12.003>
- Lee, J. E., & Watkins, B. (2016). YouTube vloggers' influence on consumer luxury brand perceptions and intentions. *Journal of Business Research*, 69(12), 5753-5760. <https://doi.org/10.1016/j.jbusres.2016.04.171>
- Li, Y., Li, X., & Cai, J. (2021). How attachment affects user stickiness on live streaming platforms: A socio-technical approach perspective. *Journal of Retailing and Consumer Services*, 60, 102478. <https://doi.org/10.1016/j.jretconser.2021.102478>
- Li, Z., Zhang, S., Liu, H., & Wu, Q. (2021). Study on the Factors Influencing Users' Purchase Intention on Live-Streaming E-Commerce Platforms: Evidence from the Live-Streaming Platform of TikTok. *Journal of China Studies*, 24(3), 25-49. <https://doi.org/10.20288/jcs.2021.24.3.25>
- Liao, J., Chen, K., Qi, J., Li, J., & Yu, I. Y. (2022). Creating immersive and parasocial live shopping experience for viewers: the role of streamers' interactional communication style. *Journal of Research in Interactive Marketing*, 17(1), 140-155. <https://doi.org/10.1108/jrim-04-2021-0114>
- Lim, R. E., & Lee, S. Y. (2023). "You are a virtual influencer!": Understanding the impact of origin disclosure and emotional narratives on parasocial relationships and virtual influencer credibility. *Computers in Human Behavior*, 148, 107897. <https://doi.org/10.1016/j.chb.2023.107897>
- Lin, H.-C., Bruning, P. F., & Swarna, H. (2018). Using online opinion leaders to promote the hedonic and utilitarian value of products and services. *Business Horizons*, 61(3), 431-442. <https://doi.org/10.1016/j.bushor.2018.01.010>
- Liu, C., Sun, K., & Liu, L. (2023). The Formation and Transformation Mechanisms of Deep Consumer Engagement and Purchase Behavior in E-Commerce Live Streaming. *Sustainability*, 15(7), 5754. <https://doi.org/10.3390/su15075754>

- Liu, J., & Zhang, M. (2023). Formation mechanism of consumers' purchase intention in multimedia live platform: a case study of taobao live. *Multimed Tools Appl*, 1-24. <https://doi.org/10.1007/s11042-023-15666-6>
- Long, R., Yuan, X., & Wu, M. (2024). Consumers' green product purchase intention considering para-social interaction: An experimental study based on live-streaming e-commerce. *Journal of Cleaner Production*, 481, 144169. <https://doi.org/10.1016/j.jclepro.2024.144169>
- Lu, B., & Chen, Z. (2021). Live streaming commerce and consumers' purchase intention: An uncertainty reduction perspective. *Information & Management*, 58(7), 103509. <https://doi.org/10.1016/j.im.2021.103509>
- Luo, H., Cheng, S., Zhou, W., Yu, S., & Lin, X. (2021). A Study on the Impact of Linguistic Persuasive Styles on the Sales Volume of Live Streaming Products in Social E-Commerce Environment. *Mathematics*, 9(13), 1576-1597. <https://doi.org/10.3390/math9131576>
- Maharani, N. P., Bangsawan, S., & Ms, M. (2023). The Effect of Celebrity Endorsement and Parasocial Interaction on Somethinc Products Purchase Decisions. *Journal of Economics, Finance and Management Studies*, 06(10), 4789-4800. <https://doi.org/10.47191/jefms/v6-i10-14>
- Majeed, M. U., Aftab, H., Arslan, A., & Shakeel, Z. (2024). Determining online consumer's luxury purchase intention: The influence of antecedent factors and the moderating role of brand awareness, perceived risk, and web atmospherics. *PLoS One*, 19(2), e0295514. <https://doi.org/10.1371/journal.pone.0295514>
- Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1), 1-13. <https://doi.org/10.1016/j.ijinfomgt.2013.06.002>
- Mccroskey J. C. , H. P. R., Weiner A. N. (1974). The Effect of Interaction Behavior on Source Credibility, Homophily, and Interpersonal Attraction. *Human Communication Research*, 1(1), 42-52. <https://academic.oup.com/hcr/article/1/1/42-52/4637511>
- Mcdonald, W. J. (1995). Home shopping channel customer segments: A cross-cultural perspective. *Journal of Direct Marketing*, 9(4), 57-67. <https://doi.org/10.1002/dir.4000090407>
- Meng, Z., & Lin, M. (2023). The Driving Factors Analysis of Live Streamers' Characteristics and Perceived Value for Consumer Repurchase Intention on Live Streaming Platforms. *Journal of Organizational and End User Computing*, 35(1), 1-24. <https://doi.org/10.4018/joeuc.323187>
- Park, H. J., & Lin, L. M. (2020). The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement. *Journal of Retailing and Consumer Services*, 52, 101934. <https://doi.org/10.1016/j.jretconser.2019.101934>
- Petty, & Wegener. (1998). Matching versus mismatching attitude functions: Implications for scrutiny of persuasive messages. *Personality and Social Psychology Bulletin*, 24(3), 227-240. <https://journals.sagepub.com/doi/10.1177/0146167298243001>
- Phamthi, V. A., Nagy, Á., & Ngo, T. M. (2024). The influence of perceived risk on purchase intention in e-commerce—Systematic review and research agenda. *International Journal of Consumer Studies*, 48(4), 13067. <https://doi.org/10.1111/ijcs.13067>

- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Quan, Y., Choe, J. S., & Im, I. (2020). The Economics of Para-social Interactions During Live Streaming Broadcasts : A Study of Wanghongs. *Asia Pacific Journal of Information Systems*, 30(1), 143-165. <https://doi.org/10.14329/apjis.2020.30.1.143>
- Rogers, & Bhowmik. (1970). Homophily-heterophily: Relational concepts for communication research. *Public Opinion Quarterly*, 34(4), 523-538. <https://academic.oup.com/poq/article-lookup/doi/10.1086/267838>
- Schramm, H., & Wirth, W. (2010). Testing a Universal Tool for Measuring Parasocial Interactions Across Different Situations and Media. *Journal of Media Psychology*, 22(1), 26-36. <https://doi.org/10.1027/1864-1105/a000004>
- Sharma, A., Dwivedi, Y. K., Arya, V., & Siddiqui, M. Q. (2021). Does SMS advertising still have relevance to increase consumer purchase intention? A hybrid PLS-SEM-neural network modelling approach. *Computers in Human Behavior*, 124. <https://doi.org/10.1016/j.chb.2021.106919>
- Sheng, X., Zeng, Z., Zhang, W., & Hu, Y. (2022). Vlogger's persuasive strategy and consumers' purchase intention: The dual mediating role of para-social interactions and perceived value. *Frontiers in Psychology*, 13, 1080507. <https://doi.org/10.3389/fpsyg.2022.1080507>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322-2347. <https://doi.org/10.1108/ejm-02-2019-0189>
- Sirdeshmukh, J. S., Barry Sabol. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing Research*, 66(1), 15-37. <https://doi.org/10.1509/jmkg.66.1.15.18449>
- Song, S., Xu, Y., Ma, B., & Zong, X. (2024). Understanding How Streamer's Self-Presentation in E-Commerce Live Streaming Affects Consumers: The Role of Persuasion Knowledge. *Journal of Theoretical and Applied Electronic Commerce Research*, 19(3), 1922-1942. <https://doi.org/10.3390/jtaer19030095>
- Stefani, G., Cavicchi, A., Romano, D., & Lobb, A. E. (2008). Determinants of Intention to Purchase Chicken in Italy: The Role of Consumer Risk Perception and Trust in Different Information Sources. *Agribusiness*, 24(4), 523-537. <https://doi.org/10.1002/agr.20177>
- Sun, T., & Wu, G. (2012). Influence of personality traits on parasocial relationship with sports celebrities: A hierarchical approach. *Journal of Consumer Behaviour*, 11(2), 136-146. <https://doi.org/10.1002/cb.1378>
- Tong, J. (2017). A Study on the Effect of Web Live Broadcast on Consumers' Willingness to Purchase. *Open Journal of Business and Management*, 05(02), 280-289. <https://doi.org/10.4236/ojbm.2017.52025>
- Tsai, W.-H. S., Liu, Y., & Chuan, C.-H. (2021). How chatbots' social presence communication enhances consumer engagement: the mediating role of parasocial interaction and dialogue. *Journal of Research in Interactive Marketing*, 15(3), 460-482. <https://doi.org/10.1108/jrim-12-2019-0200>

- Walters, G., Sparks, B., & Herington, C. (2010). The Impact of Consumption Vision and Emotion on the Tourism Consumer's Decision Behavior. *Journal of Hospitality & Tourism Research*, 36(3), 366-389. <https://doi.org/10.1177/1096348010390815>
- Wang, T., & Tian, M. (2022). Exploring consumer perceived risk and purchase intention of water-saving appliances: A moderated dual-mediation model. *Frontiers in Psychology*, 13, 1099897. <https://doi.org/10.3389/fpsyg.2022.1099897>
- Wu, W. Y., & Chang, M. L. (2007). The role of risk attitude on online shopping: Experience, customer satisfaction, and repurchase intention. *Social Behavior and Personality*, 35(4), 453-468. <https://doi.org/DOI.10.2224/sbp.2007.35.4.453>
- Wu, Y., & Huang, H. (2023). Influence of Perceived Value on Consumers' Continuous Purchase Intention in Live-Streaming E-Commerce—Mediated by Consumer Trust. *Sustainability*, 15(5), 4432. <https://doi.org/10.3390/su15054432>
- Xia, Y. C., SW ; Xiang, YC. (2024). How social and media cues induce live streaming impulse buying? SOR model perspective. *Frontiers in Psychology*, 15, 1379992. <https://doi.org/10.3389/fpsyg.2024.1379992>
- Yuksel, M., & Labrecque, L. I. (2016). "Digital buddies": parasocial interactions in social media. *Journal of Research in Interactive Marketing*, 10(4), 305-320. <https://doi.org/10.1108/jrim-03-2016-0023>
- Zafar, A. U., Qiu, J., Li, Y., Wang, J., & Shahzad, M. (2021). The impact of social media celebrities' posts and contextual interactions on impulse buying in social commerce. *Computers in Human Behavior*, 115, 106178. <https://doi.org/10.1016/j.chb.2019.106178>
- Zha, T., Aw, E. C.-X., Dastane, O., & Fernando, A. G. (2023). Social media marketing for luxury brands: parasocial interactions and empowerment for enhanced loyalty and willingness to pay a premium. *Marketing Intelligence & Planning*, 41(8), 1138-1161. <https://doi.org/10.1108/mip-05-2023-0192>
- Zhang, N., Ruan, C., & Wang, X. (2024). You recommend, I trust: the interactive self-presentation strategies for social media influencers to build authenticity perception in short video scenes. *Information Systems Frontiers*, 10523-10529. <https://doi.org/10.1007/s10796-024-10523-9>
- Zhong, Y., Shapoval, V., & Busser, J. (2021). The role of parasocial relationship in social media marketing: testing a model among baby boomers. *International Journal of Contemporary Hospitality Management*, 33(5), 1870-1891. <https://doi.org/10.1108/ijchm-08-2020-0873>
- Zhu, L., Li, H., Nie, K., & Gu, C. (2021). How Do Anchors' Characteristics Influence Consumers' Behavioural Intention in Livestream Shopping? A Moderated Chain-Mediation Explanatory Model. *Frontiers in Psychology*, 12, 730636. <https://doi.org/10.3389/fpsyg.2021.730636>
- Zhu, L. L., Li, H., Wang, F. K., He, W., & Tian, Z. J. (2020). How online reviews affect purchase intention: a new model based on the stimulus-organism-response (S-O-R) framework. *Aslib Journal of Information Management*, 72(4), 463-488. <https://doi.org/10.1108/ajim-11-2019-0308>
- Zhu, Y.-Q., Amelina, D., & Yen, D. C. (2020). Celebrity Endorsement and Impulsive Buying Intentions in Social Commerce - The Case of Instagram in Indonesia. *Journal of Electronic Commerce in Organizations*, 18(1), 1-17. <https://doi.org/10.4018/jeco.2020010101>