



Journal of Information Economics

Homepage: <https://www.anserpress.org/journal/jie>



Online consumers build trust with online merchants through real-time interaction function

Lifu Li ^{a,*}

^a *School of Professional Practice and Leadership University of Technology Sydney 15 Broadway, Ultimo NSW 2007, Australia*

ABSTRACT

iven the rapid development of live streaming commerce in China, this study focuses on the interactivity and sociability of live streaming shopping activities and explores online consumers' real-time interaction intentions and trust-building behaviours with online merchants. To discover the real-time interaction between online consumers and online merchants, this study builds a research model based on the Theory of Planned Behaviour (TPB). Through the data analysis based on the partial least squares path modelling and variance-based structural equation modelling (PLS-SEM), the key findings state that, three factors, including attitude, subject norm, and perceived control, positively affect online consumers' real-time interaction intentions and lead them to build trust with online merchants. Meanwhile, control variables, including gender, age, and educational background, demonstrate insignificant effects across the model. Unlike existing literature, the current study pays much attention to the interactive characteristics of live streaming shopping activities and can provide some valuable suggestions both for online consumers and online merchants, which can promote the co-development of the commercial and social aspects of live streaming platforms.

KEYWORDS

Online consumer; Online merchant; Real-time interaction; TPB model; Live streaming commerce

* Corresponding author: Lifu Li
E-mail address: Lifu.Li@uts.edu.au

ISSN 2972-3671

doi: 10.58567/jie01040002

This is an open-access article distributed under a CC BY license
(Creative Commons Attribution 4.0 International License)



Received date 14 December 2023; Accepted date 26 December 2023; Available online date 8 January 2024; Version of Record 8 January 2024.

1. Introduction

Unlike traditional social media platforms, online consumers using live streaming platforms can have a real-time interaction with online merchants through the video streaming technology (Zhang et al., 2020). According to the definition proposed by Azlan et al. (2020), video streaming technology refers to a new way to broadcast and watch videos over the Internet, which is convenient for users to engage in recreational, business, and learning activities (Azlan et al., 2020). On live streaming platforms, online consumers can enjoy the convenience of online shopping and attend virtual communities anytime and anywhere. Various functions are created on popular live streaming platforms, including online comment, virtual gift-sending system, and online store functions (Li et al., 2023a, Li and Kang, 2022b). Benefiting from unique features, online consumers have more opportunities to interact with online merchants and clearly understand the details of products and services (Hu and Chaudhry, 2020). Online merchants also apply the video streaming technology as a distinct tool to attract online consumers' watching interests and improve their sales performance (Sun et al., 2019). With the improvement of live streaming commerce, video marketing combined with live streaming platforms becomes a new trend around the world. The global market size will expand at a compound annual growth rate of 21.0% from 2021 to 2028 (Wang et al., 2022a). For instance, on Taobao Live platform, around 300 million online Chinese consumers have engaged live shopping activities during the 11.11 sales period, and 33 live streaming channels have achieved over a sales revenue of 100m RMB (Zhong et al., 2022). In the United States, Walmart has expressed strong interest in applying TikTok's live streaming platform to advertise their products and services (Wang et al., 2022b). As live streaming commerce becomes a new driving force, more and more online consumers attend live streaming shopping activities and accept this special shopping mode. Meanwhile, to avoid uncertainty issues, online consumers prefer to interact with online merchants to know products' information comprehensively before building trust with them and purchasing recommended products (Al-Adwan et al., 2022). Convenient interaction not only helps online consumers understand product information but also deepens their relationship with merchants. Thus, it is significant for the current study to explore the real-time interaction between online consumers and online merchants.

Based on the advanced function of real-time interaction, online consumers are willing to communicate with online merchants and provide some related suggestions for them. This kind of timely communication overcomes the disadvantages of virtual markets, assisting online merchants in winning online consumers' trust (Chen et al., 2022). Although online merchants have begun to apply video streaming technology to seek an innovative way to attract consumers' attention and market their online products since 2015, limited studies analyse why online consumers tend to have a real-time interaction with online merchants and how they build trust with online merchants through this process (Zhang et al., 2020, Zhang et al., 2022a). Specifically, interactivity is a major feature of live streaming platform, which is significantly different from traditional social media platforms (Ma et al., 2022). To deeply investigate online consumers' real-time interactions with online merchants, this study draws on the Theory of Planned Behaviour (TPB) to design the theoretical model and explores influencing factors of real-time interaction. Compared with other research theory, the TPB is more suitable to be applied in the current study. It has become a widely accepted model for discussing online consumers' intentions and discussing their behaviours on live streaming platforms, which has been supported by existing scholars (Lu et al., 2022, Xu et al., 2022b). According to the TPB research proposed by Ajzen (1991), the TPB model can be applied to analyse individuals' intention patterns from attitude, subjective norms, and perceived control aspects (Ajzen, 1991). All of them have a strong relationship with individuals' intention and lead to their final behaviours. Considering its theoretical value, this paper will utilise the TPB to explain online consumers' real-time interaction intention with online merchants and present the relationship between real-time interaction and trust building behaviours. To narrow the existing research gap, the objective of this current study is designed as follows: *Discover online consumers' real-time interaction intention and trust building behaviour with online merchants based on the TPB model.*

Theoretical and practical contributions can be presented in this article. Regarding the theoretical contribution, this paper focuses on the interactive nature of live streaming platforms and uncovers online consumers' real-time interaction intention, which is ignored by prior research. To clearly present related influencing factors and test their relationships, this article refers to the TPB model and studies online consumers' intention patterns from attitude, subjective norms, and perceived control aspects. Meanwhile, considering the rapid development of live streaming commerce in China, the

research results are beneficial for business researchers to understand the shopping mechanism on live streaming platforms and design suitable strategies to improve shopping environment both for online consumers and online merchants. Therefore, relevant findings can not only enhance the interactivity during live streaming shopping activities but also promote the development of live streaming economy, contributing to practical contributions.

2. Literature review

2.1 Real-time interaction and trust building behaviour

Real-time interaction means that online consumers on live streaming platforms have the ability to communicate with online merchants in real time, and it can reduce the time required for customers to acquire and process information (Wang et al., 2022a). Because of video streaming technology, online consumers can enquire about the information of product advertised by online merchants, and online merchants can also improve their marketing strategies based on consumers' real-time feedback (Zhang et al., 2022b). For instance, online consumers can ask questions through the online comment function and use the virtual gift-sending system to present their attitudes to live streaming content designed by online merchants (Li et al., 2023c). Hence, interactivity of live streaming platforms can significantly reduce the time interval and social distance in virtual shopping. This is the main reason why more and more online consumers begin to accept the live streaming shopping model and tend to interact with online merchants.

In addition to discussing the real-time interaction between online consumers and online merchants, this paper should pay much attention to online consumers' trust building with online merchants, especially analysing the relationship between real-time interaction and trust building behaviour. In detail, online shopping activities on live streaming platforms are commercial and social, which means online consumers can have frequent communication with online merchants and build a strong relationship with them (Xu et al., 2022a). With the help of advanced functions, online consumers can narrow the emotional distance with online merchants and maintain close contact with them through joining their fan group. As the key findings claimed by existing literature, online consumers' trust building behaviours can be affected by frequent interactions and potentially influence their final purchasing behaviours (Xu et al., 2022a, Zhang et al., 2022a). Therefore, it is significant for the current study to explore the relationship between real-time interaction intention and trust building behaviours.

2.2 Theory of planned behaviour

The TPB is an extension of the theory of reasoned action and can be applied to explore individual's behavioral intentions (Ajzen, 1991). Ajzen (2020) claims that, the TPB has predictive power and thus can be widely used to investigate various human behaviors in different contexts, like business, management, and healthcare (Ajzen, 2020). It has been applied by existing scholars to discover online consumers' intentions and behaviours on live streaming platforms (Zhang and Chen, 2023, Li and Kang, 2023a). To be specific, the TPB can provide a theoretical background to identify the effects of attitude, subjective norms and perceived behavioural control on online consumers' intention (Rehman et al., 2019). Combined with the current study, the theory can state three core components, including subjective norms towards the real-time interaction, attitudes towards the real-time interaction, and perceived behavioural control towards the real-time interaction. Positive subjective norms, attitudes, and perceived behavioural control will result in specific intentions and final behaviours, which prior researchers have proved (Ajzen, 1991, Tarigan et al., 2021). In light of this, the theoretical framework of the TPB can be applied to explore online consumers' real-time interaction and discuss its impact on their trust building with online merchants on live streaming platforms.

3. Research model and hypotheses

As Figure 1 presents, the research model is established based on the TPB. In detail, this study refers to the TPB model to explain online consumers' real-time interaction intentions from attitude, subjective norm, and perceived control towards the real-time interaction (Ajzen, 1991). Based on the model, several hypotheses have been proposed in the following content.

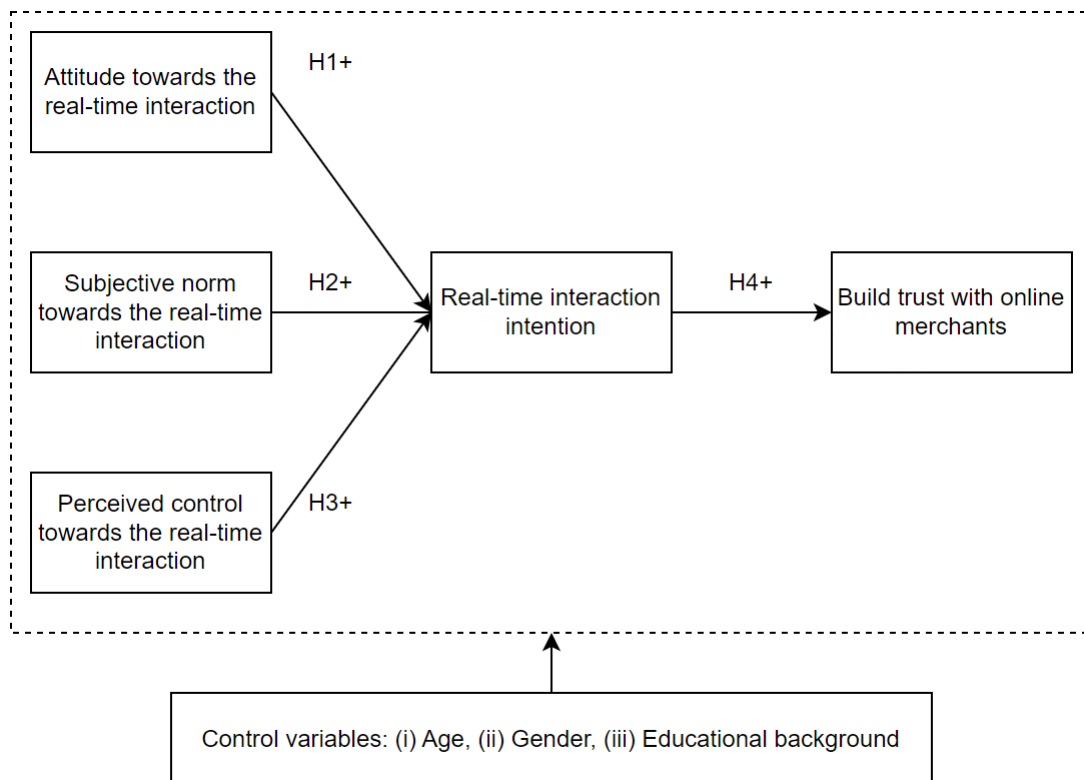


Figure 1. The research model.

3.1 Real-time interaction intention

Real-time interaction in this current study means the interaction between online consumers and online merchants on live streaming platforms. As mentioned before, video streaming technology provides online consumers with abundant chances to discuss products' details with online merchants and ask questions through the online comment function (Liu et al., 2022). To uncover online consumers' real-time interaction intention, this paper applies the TPB model and analyses influencing factors from attitudes, subjective norms, and perceived behavioural control towards the real-time interaction. To be specific, online consumers' attitude towards the real-time interaction means the degree to which an online consumer has a favourable or unfavourable evaluation of the real-time interaction behaviour, subjective norm towards the real-time interaction claims an online consumer with the perceived social pressure to perform or not to perform the real-time interaction, and perceived control refers to online consumer's perception of the ease or difficulty of using real-time interaction on live streaming platforms. Based on prior theoretical basis, all of them will significantly affect individuals' intention and cause their final behaviour (Ajzen, 1991, Tarigan et al., 2021, Li and Kang, 2023a). Considering similar platform environments and consumer groups, the research results could be applied in the current study, and the paper proposes several hypotheses as follows:

Hypothesis 1: Online consumers' attitude towards the real-time interaction positively affects their real-time interaction intention on live streaming platforms.

Hypothesis 2: Online consumers' subject norm towards the real-time interaction positively affects their real-time interaction intention on live streaming platforms.

Hypothesis 3: Online consumers' perceived control towards the real-time interaction positively affects their real-time interaction intention on live streaming platforms.

3.2 Trust building behaviour

Based on the TPB model, individuals' intention has a direct impact on their final behaviour (Ajzen, 1991). Although existing scholars have proved the positive relationship between real-time interaction and final purchasing behaviours, limited studies examine the positive relationship between online consumers' real-time interaction and their trust building with online merchants (Xu et al., 2020, Li et

al., 2022b). Because of the social nature of live streaming platforms, frequent interaction and communication through the Danmaku and virtual gift-sending system are helpful for online consumers to build a strong tie with online merchants (uo et al., 2021) . Therefore, real-time interaction characteristic of live streaming commerce could motivate online customers to build trust with online merchants, and the paper states that:

Hypothesis 4: Online consumers' real-time interaction intention positively affects them to build trust with online merchants.

3.3 Control variables

As Figure 1 shows, the research model aims to test the hypotheses proposed based on the TPB. Online consumers' age, gender, and educational background should be included as control variables because of their potential effects on online consumers' intentions and behaviours. Specifically, prior scholars have identified that online consumers' real-time interaction intentions and trust-building behaviours in live streaming commerce could be affected by age, gender, and educational level (Liu et al., 2022, Zhong et al., 2023, Li and Kang, 2023b). Hence, the study should design the control variables and check their influences.

4. Methodology

4.1 Sampling plan and data collection

To test the research model, the online questionnaire method is suitable to be conducted in this paper. The online questionnaire method, as a quantitative research strategy, includes comprehensive coverage, time-saving, and easy filling, which is benefiting to overcome time and location restrictions. Even the research objectives, this study collects data samples from Chinese online consumers and distributes questionnaires among them. Because of the rapid development of the live streaming economy, China has a huge base of online consumers. Specifically, China's live streaming economy has developed rapidly and gained popularity in 2017, and many live shopping platforms, such as TikTok, Kuaishou, Taobao Live, and Jingdong Live, have attracted millions of online consumers (Li and Kang, 2022a). To better understand online products' information and even online merchants' backgrounds, most online Chinese consumers have abundant experiences of real-time interaction during live streaming shopping activity (Kang et al., 2021). Based on the large base of online experienced consumers in China, the Chinese live streaming shopping environment is selected as the research context. Meanwhile, all constructs measured in the current study are designed according to existing scholars, as the questionnaire list in Appendix shows. For instance, attitude, subject norm, and perceived control are measured based on Ajzen (1991) and Li and Kang' research (2023). According to Hong et al. (2011), online consumers' trust building behaviour is tested based on three items. To access all relevant dimensions of the concept, all questions are evaluated using a seven-point Likert scale ranging from 1 point for strongly disagree to 7 points for strongly agree.

4.2 Data collection

Considering the online questionnaire will be distributed among online Chinese consumers, this study applies the WJX. CN platform as the questionnaire design platform. Its link is convenient to be shared and forwarded on Chinese social media platforms. Due to most online Chinese participants are not skilful in the English language, the online questionnaire has been translated into Chinese by related scholars. Meanwhile, the invitation letter has been presented in advance to assist participants in understanding the research background and the questionnaire content. Even that different live streaming shopping platforms could have different shopping environments, this paper focuses on online consumers from the Taobao Live platform that is the most popular live streaming shopping platform in China. A pilot test has been conducted with 10 Taobao Live users, aiming to improve the instrument and avoid wording problems. The online questionnaire has been distributed among Taobao Live users from October 2023 to November 2023. During the data collection, 258 online questionnaires have been received from Taobao Live users. Among these questionnaires, inappropriate responses have been deleted, including the same responses, same IP address, incomplete responses, and mismatched platforms. Finally, 216 questionnaires are valid for this

research, and the percentage of valid questionnaires is 83.72%.

5. Data analysis

5.1 Descriptive statistics

Among these 216 respondents (Table 1), 54.63% are males, and 45.37% are females. Regarding participants' age, 23.15% are between 18 and 25 years old, 41.67% are between 26 and 40 years old, and 35.19% are more than 40 years old. Meanwhile, 39.81% have a high school or junior college background, and 36.11% have a bachelor's background. The demographic of respondents is similar to the online consumers' profiles of live streaming shopping platforms (Wang et al., 2020).

Table 1. The basic information of respondents (N=216).

Demographic Variables	Category	Frequency	Percentage (%)
Gender	Male	118	54.63%
	Female	98	45.37%
Age	18-25	50	23.15%
	26-40	90	41.67%
	≥41	76	35.19%
Educational background	High school or junior college	86	39.81%
	Bachelor degree	78	36.11%
	Master's degree or above	52	24.07%

The study uses variance-based structural equation modelling (SEM) and partial least squares (PLS) path modelling based on SmartPLS 3. PLS-SEM can be applied to analyse data and test the research model, and it tolerates fewer than 500 research samples (Hair et al., 2019). PLS-SEM is reasonable for scholars to examine measurement model parameters and calculate structural path coefficients (Hair et al., 2019). Meanwhile, SmartPLS 3 has the most improved functions to promote PLS-SEM analysis, and it can be used in the current study (Sarstedt and Cheah, 2019).

5.2 Measurement model

To assess the measurement model, the study needs to be involved in evaluations of reliability, convergent validity, and discriminant validity. Firstly, average variance extracted (AVE), composite reliability (CR), and Cronbach's Alpha, must be utilised to evaluate the reliability of the research model. In detail, AVE should be greater than 0.50, CR should be higher than 0.70, and Cronbach's Alpha should be greater than 0.70 (Chin, 1998, Hair et al., 2019). Table 2 shows that all data results meet the requirements, indicating reliability is reasonable.

Table 2. The results of factor loadings, AVE, CR, and Cronbachs Alpha.

Item	Indicator	Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
AR	AR1	0.940	0.915	0.947	0.855
	AR2	0.918			
	AR3	0.917			
BM	BM1	0.827	0.828	0.897	0.744
	BM2	0.885			
	BM3	0.875			
PR	PR1	0.928	0.903	0.939	0.837
	PR2	0.907			
	PR3	0.909			
RT	RT1	0.860	0.840	0.904	0.758
	RT2	0.896			
	RT3	0.854			

SR	SR1	0.905	0.845	0.906	0.763
	SR2	0.849			
	SR3	0.867			

Note. AR= Attitude towards the real-time interaction, BM= Build trust with online merchants, RT= Real-time interaction intention, PR= Perceived control towards the real-time interaction, SR= Subject norm towards the real-time interaction.

The convergent validity and discriminant validity can be tested by examining the confirmatory factor analysis. As Table 3 presents, the factor loadings within their intended constructs are highly correlated, meaning that the measurement model meets the requirement of convergent validity and discriminant validity. The range of marked items shown in Table 2 is from 0.827 to 0.940, which is higher than 0.708, indicating that the model meets the convergent validity (Hair et al., 2019).

In addition to the convergent validity, the discriminant validity can be examined by analysing the Fornell-Larcker criterion. The AVEs' square root on the diagonals (Table 3) can be utilised to evaluate whether the discriminant validity of the model is acceptable (Chin, 1998, Fornell and Larcker, 1981). As Table 3 states, the AVEs' square root on the diagonals is significantly higher than other correlations, meeting the discriminant validity requirement. Meanwhile, values of the HTMT ratio remain lower than 0.90, meeting relevant requirements (Hair et al., 2019).

Table 3. Discriminant validity based on Fornell–Larcker criterion.

Fornell-Larcker criterion					
Item	AR	BM	PR	RT	SR
AR	0.925				
BM	0.721	0.863			
PR	0.687	0.723	0.915		
RT	0.678	0.746	0.684	0.87	
SR	0.767	0.703	0.677	0.681	0.874
HTMT criterion					
Item	AR	BM	PR	RT	SR
AR					
BM	0.829				
PR	0.754	0.835			
RT	0.772	0.892	0.783		
SR	0.866	0.844	0.776	0.803	

5.3 Structural Model Evaluation

A common method variance could be a problem while self-report questionnaires are applied in the research to collect data simultaneously from the same participants. Regarding the issue of common method variance, this study can use the score of variance inflation factor (VIF) to check it (Kock, 2015, Hair et al., 2019). According to the research results proved by Kock (2015), the occurrence of a VIF higher than 3.3 must be proposed as an indication of pathological collinearity, and it is also as an indication that the research model may be contaminated by common method bias. According to the data analysis results, the VIF score for all constructs is between 1.003 and 2.859, and hence the study can present that there are no collinearity problems detected.

5.4 Description of Hypothesis Testing

To assess each path's significance and the t-statistical test, this paper utilises bootstrapping on SmartPLS 3 (Hair et al., 2019). First, as Table 4 presents, the bootstrapped results claim that control variables (i.e., gender, age, and educational background) demonstrate insignificant effects across the models. Second, according to Table 4, all hypotheses can be supported because t-statistics results are notably higher than 1.96 (Hair et al., 2019). Specifically, attitude towards the real-time interaction has a significant positive effect on online consumers' real-time interaction intention ($\beta=0.245$, $t=2.237$, $p<0.05$), supporting Hypothesis 1. Subjective norm towards the real-time interaction positively

correlates with online consumers' real-time interaction intention ($\beta=0.242$, $t=2.249$, $p<0.05$), supporting Hypothesis 2. Meanwhile, perceived control towards the impulse buying positively affects online consumers' impulse buying intention ($\beta=0.354$, $t=4.326$, $p<0.001$), supporting Hypothesis 3. Finally, online consumers' real-time interaction intention can lead them to build trust with online merchants on live streaming platforms ($\beta=0.745$, $t=19.673$, $p<0.001$), supporting Hypothesis 4.

Table 4. Hypotheses results

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
AR -> RT	0.245	0.232	0.110	2.237	0.026
Age -> BM	0.036	0.034	0.048	0.763	0.446
Age -> RT	0.033	0.032	0.052	0.634	0.526
Educational background -> BM	-0.036	-0.038	0.046	0.791	0.429
Educational background -> RT	0.062	0.063	0.045	1.375	0.170
Gender -> BM	0.021	0.019	0.048	0.448	0.654
Gender -> RT	0.036	0.040	0.046	0.791	0.429
PR -> RT	0.354	0.352	0.082	4.326	0.000
RT -> BM	0.745	0.749	0.038	19.673	0.000
SR -> RT	0.242	0.257	0.107	2.249	0.025

6. Discussions and implications

6.1 Key findings

Based on the research results, several key findings need to be presented. Notably, attitude towards the real-time interaction, subject norm towards the real-time interaction, and perceived control towards the real-time interaction have positive relationships with online consumers' real-time interaction intention, which accords with the theoretical basis of the TPB model. Specifically, online consumers' real-time interaction intentions can be influenced by their evaluation of the real-time interaction behaviour. Meanwhile, perceived social pressure from their peers or family members affect online consumers' real-time interaction on live streaming platforms. Moreover, perception of the ease of real-time interaction significantly influences online consumers' interaction intention. In light of this, the influencing factors based on the TPB model positively affect online consumers' real-time interaction intention on live streaming platforms. This means that, whether for live streaming shopping activities or live streaming social activities, the TPB model can be applied to explore online consumers' intentions and their final behaviours. Furthermore, for online consumers' real-time interaction intentions, three control variables, including gender, age, and educational background, demonstrate insignificant effects across the relationships. Finally, online consumers' real-time interaction intention positively impacts them to build trust with online merchants, which future studies should pay much attention to.

6.2 Theoretical implications and Practical implications

The rapid development of live streaming commerce attracts lots of online consumers to engage in live streaming shopping activities. Although existing researchers investigate online consumers' shopping intentions and behaviours on live streaming platforms, few types of studies pay much attention to online consumers' real-time intentions and trust-building behaviours on live streaming platforms (Li et al., 2022a, Li and Kang, 2020). Live streaming platforms provides video streaming functions for online users, which is different from traditional social media platforms. To understand products and services' information, online consumers prefer to have a real-time interaction with online merchants through the virtual gift-sending system and online comment function. Unlike previous studies, this article draws on the TPB model to analyse online consumers' real-time

interaction intention during live streaming shopping activities and discover influencing factors from three aspects. Meanwhile, considering the commercial and social nature of live streaming platforms, online Chinese consumers tend to know online merchants' background and build trust with them after various real-time interaction. Although previous studies have analysed online consumers' shopping intentions on live streaming platforms, few of them discuss the social mechanism of live streaming platforms and check the social relationship between online consumers and online merchants. Therefore, future studies should pay more attention to the connection between real-time interaction and trust-building behaviours.

About practical implications, the research results are beneficial for related scholars and platform managers to understand the importance of interactivity. As a prominent feature, interactivity helps online consumers and merchants comprehend each other's needs. Hence, it is significant to uncover what kinds of influencing factors affect online consumers' real-time interaction. Meanwhile, considering the significant relationship between real-time interaction and trust-building behaviours, online merchants should design valuable marketing strategies to enhance online consumers' interaction and win their trust. This method can not only help them meet online consumers' expectations but also promote the long-term development of their online business. Finally, for online Chinese consumers, it should be clear for them that their frequent interactions are affected by these three factors, including attitude, subject norm, and perceived control. For example, they need to follow their own opinions rather than the influence of their peers if they want to interact rationally with online merchants. Thus, related research findings can provide suitable suggestions for online consumers and online merchants.

6.3 Limitations and future study

Considering the popular interactivity on live streaming platforms, this paper establishes the research model based on the TPB and discovers online consumers' real-time interaction intention. However, some limitations should be concerned in the future. Although the article designs online consumers' age, gender, and educational background as control variables, it should also consider potential effects of consumers' cultural backgrounds. For instance, online consumers from Eastern cultural backgrounds could pay more attention to the *guanxi* (social network) with others, and others from Western backgrounds would focus more on their real needs (Li and Kang, 2023c, Li et al., 2023b). Future work needs to compare these differences and promote a multi-group analysis. Meanwhile, online consumers' real-time interaction can be promoted through the virtual gift-sending system, online comment function, and others. Relevant scholars should distinguish their specific effects if they aim to have a deep-understanding of online consumers' real-time interaction.

7. Conclusion

The study explores online consumers' real-time interaction intentions and trust-building behaviours on live streaming platforms, which dramatically differs from previous research. To uncover specific influencing factors, this study builds a research model based on the TPB. Although existing studies refer to the TPB model to analyse individuals' shopping intention, few of them discuss their real-time interaction intention. Based on the data analysis results, attitude, subject norm, and perceived control towards the real-time interaction have positive relationships with online consumers' real-time interaction intention, leading to them to build trust with online merchants during live streaming shopping activities. Specific research findings can provide some suggestions for related scholars and platform managers, helping them build a more convenient and comfortable shopping environment for online consumers.

Funding Statement

This research received no external funding.

Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

References

- Ajzen, I. (1991), "The theory of planned behavior", *Organizational behavior and human decision processes*, Vol. 50 No. 2, pp. 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2020), "The theory of planned behavior: Frequently asked questions", *Human Behavior and Emerging Technologies*, Vol. 2 No. 4, pp. 314-324. <https://doi.org/10.1002/hbe2.195>
- Al-Adwan, A. S., Alrousan, M. K., Yaseen, H., Alkufahy, A. M. and Alsoud, M. (2022), "Boosting online purchase intention in high-uncertainty-avoidance societies: a signaling theory approach", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8 No. 3, p. 136. <https://doi.org/10.3390/joitmc8030136>
- Azlan, C. A., Wong, J. H. D., Tan, L. K., Huri, M. S. N. A., Ung, N. M., Pallath, V., Tan, C. P. L., Yeong, C. H. and Ng, K. H. (2020), "Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic—A case study from Malaysia", *Physica Medica*, Vol. 80, pp. 10-16. <https://doi.org/10.1016/j.ejmp.2020.10.002>
- Chen, H., Zhang, S., Shao, B., ao, W. and Xu, Y. (2022), "How do interpersonal interaction factors affect buyers' purchase intention in live stream shopping? The mediating effects of swift guanxi", *Internet Research*, Vol. 32 No. 1, pp. 335-361. <https://doi.org/10.1108/INTR-05-2020-0252>
- Chin, W. W. (1998), "Commentary: Issues and opinion on structural equation modeling", JSTOR. <https://www.jstor.org/stable/249674>
- Fornell, C. and Larcker, D. F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of marketing research*, Vol. 18 No. 1, pp. 39-50. <https://doi.org/10.1177/002224378101800104>
- uo, L., Hu, X., Lu, J. and Ma, L. (2021), "Effects of customer trust on engagement in live streaming commerce: mediating role of swift guanxi", *Internet Research*, Vol. 31 No. 5, pp. 1718-1744. <https://doi.org/10.1108/INTR-02-2020-0078>
- Hair, J. F., Risher, J. J., Sarstedt, M. and Ringle, C. M. (2019), "When to use and how to report the results of PLS-SEM", *European business review*, Vol. 31 No. 1, pp. 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hong, I. B. and Cho, H. (2011), "The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust", *International journal of information management*, Vol. 31 No. 5, pp. 469-479. <https://doi.org/10.1016/j.ijinfomgt.2011.02.001>
- Hu, M. and Chaudhry, S. S. (2020), "Enhancing consumer engagement in e-commerce live streaming via relational bonds", *Internet Research*, Vol. 30 No. 3, pp. 1019-1041. <https://doi.org/10.1108/INTR-03-2019-0082>
- Kang, K., Lu, J., uo, L. and Li, W. (2021), "The dynamic effect of interactivity on customer engagement behavior through tie strength: Evidence from live streaming commerce platforms", *International Journal of Information Management*, Vol. 56, p. 102251. <https://doi.org/10.1016/j.ijinfomgt.2020.102251>
- Kock, N. (2015), "Common method bias in PLS-SEM: A full collinearity assessment approach", *International Journal of e-Collaboration (ijec)*, Vol. 11 No. 4, pp. 1-10. <https://doi.org/10.4018/ijec.2015100101>
- Li, L., Feng, Y. and Zhao, A. (2023a), "An interaction-immersion model in live streaming commerce: the moderating role of streamer attractiveness", *Journal of Marketing Analytics*, pp. 1-16. <https://doi.org/10.1057/s41270-023-00225-7>
- Li, L. and Kang, K. (2020), "Analyzing Shopping Behavior of the Middle-aged users in Tiktok Live Streaming Platform", in *AMCIS*. https://aisel.aisnet.org/amcis2020/virtual_communities/virtual_communities/2
- Li, L. and Kang, K. (2022a), "Impact of opportunity and capability on e-entrepreneurial motivation: a comparison of urban and rural perspectives", *Journal of Entrepreneurship in Emerging Economies*. <https://doi.org/10.1108/JEEE-06-2022-0178>
- Li, L. and Kang, K. (2022b), "Understanding the real-time interaction between middle-aged consumers and online experts based on the COM-B model", *Journal of Marketing Analytics*, pp. 1-13. <https://doi.org/10.1057/s41270-022-00196-1>
- Li, L. and Kang, K. (2023a), "Discovering online Chinese consumers' impulse buying in live streaming by the theory of planned behavior", *Journal of Economic Analysis*. <https://doi.org/10.58567/jea03020008>

- Li, L. and Kang, K. (2023b), "The impact of social and cultural atmosphere on ethnic minority groups' online entrepreneurship intention: A multi-group analysis on the gender gap", *Journal of International Entrepreneurship*, pp. 1-29. <https://doi.org/10.1007/s10843-023-00346-1>
- Li, L. and Kang, K. (2023c), "Why ethnic minority groups' online-startups are booming in China's tight cultural ecosystem?", *Journal of Entrepreneurship in Emerging Economies*, Vol. 15 No. 2, pp. 278-300. <https://doi.org/10.1108/JEEE-08-2021-0322>
- Li, L., Kang, K., Feng, Y. and Zhao, A. (2022a), "Factors affecting online consumers' cultural presence and cultural immersion experiences in live streaming shopping", *Journal of Marketing Analytics*, pp. 1-14. <https://doi.org/10.1057/s41270-022-00192-5>
- Li, L., Kang, K. and Sohaib, O. (2023b), "The Impact of Group Support on College Student's Online Business Motivation: The Uncertainty Avoidance Thinking as a Moderating Factor", *Business Perspectives and Research*. <https://doi.org/10.1177/2278533723116394>
- Li, L., Kang, K. and Sohaib, O. (2023c), "Investigating factors affecting Chinese tertiary students' online-startup motivation based on the COM-B behaviour changing theory", *Journal of Entrepreneurship in Emerging Economies*, Vol. 15 No. 3, pp. 566-588. <https://doi.org/10.1108/JEEE-08-2021-0299>
- Li, L., Kang, K., Zhao, A. and Feng, Y. (2022b), "The impact of social presence and facilitation factors on online consumers' impulse buying in live shopping-celebrity endorsement as a moderating factor", *Information Technology & People*, No. ahead-of-print. <https://doi.org/10.1108/ITP-03-2021-0203>
- Liu, F., Wang, Y., Dong, X. and Zhao, H. (2022), "Marketing by live streaming: How to interact with consumers to increase their purchase intentions", *Frontiers in Psychology*, Vol. 13, p. 933633. <https://doi.org/10.3389/fpsyg.2022.933633>
- Lu, F., Huang, X. and Wang, X. (2022), "Willingness to Pay for Mobile Health Live Streaming during the COVID-19 Pandemic: Integrating TPB with Compatibility", *Sustainability*, Vol. 14 No. 23, p. 15932. <https://doi.org/10.3390/su142315932>
- Ma, L., ao, S. and Zhang, X. (2022), "How to use live streaming to improve consumer purchase intentions: evidence from China", *Sustainability*, Vol. 14 No. 2, p. 1045. <https://doi.org/10.3390/su14021045>
- Rehman, S. U., Bhatti, A., Mohamed, R. and Ayoup, H. (2019), "The moderating role of trust and commitment between consumer purchase intention and online shopping behavior in the context of Pakistan", *Journal of Global Entrepreneurship Research*, Vol. 9 No. 1, pp. 1-25. <https://doi.org/10.1186/s40497-019-0166-2>
- Sarstedt, M. and Cheah, J.-H. (2019), "Partial least squares structural equation modeling using SmartPLS: a software review", *Journal of Marketing Analytics*, Vol. 7 No. 3, pp. 196-202. <https://doi.org/10.1057/s41270-019-00058-3>
- Sun, Y., Shao, X., Li, X., uo, Y. and Nie, K. (2019), "How live streaming influences purchase intentions in social commerce: An IT affordance perspective", *Electronic Commerce Research and Applications*, Vol. 37, p. 100886. <https://doi.org/10.1016/j.elerap.2019.100886>
- Tarigan, E. D. S., Putri, Y. S. and Sabrina, H. (2021), "reen Buying Behavior Using Theory of TPB in Online Shop in Medan City", *International Journal of Science, Technology & Management*, Vol. 2 No. 3, pp. 604-607. <https://doi.org/10.46729/ijstm.v2i3.223>
- Wang, D., Luo, X. R., Hua, Y. and Benitez, J. (2022a), "Big arena, small potatoes: A mixed-methods investigation of atmospheric cues in live-streaming e-commerce", *Decision Support Systems*, Vol. 158, p. 113801. <https://doi.org/10.1016/j.dss.2022.113801>
- Wang, O., Somogyi, S. and Charlebois, S. (2020), "Food choice in the e-commerce era: a comparison between business-to-consumer (B2C), online-to-offline (O2O) and new retail", *British Food Journal*. <https://doi.org/10.1108/BFJ-09-2019-0682>
- Wang, Y., Lu, Z., Cao, P., Chu, J., Wang, H. and Wattenhofer, R. (2022b), "How live streaming changes shopping decisions in E-commerce: A study of live streaming commerce", *Computer Supported Cooperative Work (CSCW)*, Vol. 31 No. 4, pp. 701-729. <https://doi.org/10.1007/s10606-022-09439-2>
- Xu, P., Cui, B.-j. and Lyu, B. (2022a), "Influence of streamer's social capital on purchase intention in live streaming E-commerce", *Frontiers in Psychology*, Vol. 12, p. 748172. <https://doi.org/10.3389/fpsyg.2021.748172>
- Xu, X., Wu, J.-H. and Li, Q. (2020), "What drives consumer shopping behavior in live streaming

- commerce?", *Journal of Electronic Commerce Research*, Vol. 21 No. 3, pp. 144-167. http://www.jecr.org/sites/default/files/2020vol21no3_Paper1.pdf
- Xu, Y., Ye, Y. and Liu, Y. (2022b), "Understanding virtual gifting in live streaming by the theory of planned behavior", *Human Behavior and Emerging Technologies*, Vol. 2022. <https://doi.org/10.1155/2022/8148077>
- Zhang, M., Liu, Y., Wang, Y. and Zhao, L. (2022a), "How to retain customers: Understanding the role of trust in live streaming commerce with a socio-technical perspective", *Computers in Human Behavior*, Vol. 127, p. 107052. <https://doi.org/10.1016/j.chb.2021.107052>
- Zhang, M., Qin, F., Wang, . A. and Luo, C. (2020), "The impact of live video streaming on online purchase intention", *The Service industries journal*, Vol. 40 No. 9-10, pp. 656-681. <https://doi.org/10.1080/02642069.2019.1576642>
- Zhang, R. and Chen, M. (2023), "Predicting Online Shopping Intention: the Theory of Planned Behavior and Live E-Commerce", in *SHS Web of Conferences*, Vol. 155, p. 02008. <https://doi.org/10.1051/shsconf/202315502008>
- Zhang, Z., Zhang, N. and Wang, J. (2022b), "The influencing factors on impulse buying behavior of consumers under the mode of hunger marketing in live commerce", *Sustainability*, Vol. 14 No. 4, p. 2122. <https://doi.org/10.3390/su14042122>
- Zhong, R., Han, S. and Wang, Z. (2023), "Developing personas for live streaming commerce platforms with user survey data", *Universal Access in the Information Society*, pp. 1-17. <https://doi.org/10.1007/s10209-023-00996-x>
- Zhong, Y., Zhang, Y., Luo, M., Wei, J., Liao, S., Tan, K.-L. and Yap, S. S.-N. (2022), "I give discounts, I share information, I interact with viewers: a predictive analysis on factors enhancing college students' purchase intention in a live-streaming shopping environment", *Young Consumers*. <https://doi.org/10.1108/YC-08-2021-1367>

Appendix

The list of questionnaire contents.

Variable	Item	Measurement
Attitude towards the real-time interaction (Ajzen, 1991, Li and Kang, 2023a)	AR1	Real-time interaction on live streaming platforms is attractive.
	AR2	I like to have a real-time interaction with online merchants while watching live streaming.
	AR3	Real-time interaction on live streaming platforms is a good idea.
Subject norm towards the real-time interaction (Ajzen, 1991, Li and Kang, 2023a)	SR1	I will have a real-time interaction with online consumers if people of importance to me encourage me to do that.
	SR2	Recommendations from close friends will make me want to try the real-time interaction with online merchants.
	SR3	The opinions of those who are important to me will affect my decision to have a real-time interaction.
Perceived control towards the real-time interaction (Ajzen, 1991, Li and Kang, 2023a)	PR1	I would be able to use live streaming platforms for the real-time interaction.
	PR2	Using live streaming platforms to have a real-time interaction with online merchants is entirely under my control.
	PR3	I have the resources, knowledge, and skills to promote a real-time interaction.
Real-time interaction intention (Ajzen, 1991, Li and Kang, 2023a)	RT1	If the opportunity arises, I intend to have a real-time interaction with online merchants on live streaming platforms.
	RT2	If given a chance, I can predict that I will have a real-time interaction on live streaming platforms in the

Build trust with online merchants (Hong and Cho, 2011)	RT3	future. I am likely to start a real-time interaction on a live streaming platform soon.
	BM1	I believe that the community of online merchants is trustworthy.
	BM2	When shopping on live streaming platforms, I tend to build trust with online merchants.
	BM3	I trust online merchants on live streaming platforms.
