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# The Influence of online Celebrity Live Streaming E-commerce on Consumers' Purchase Intention

Ziru Hong

Master in Marketing

Supervisor:
Prof. Maria Conceição Santos, Marketing, Operations and General Management, ISCTE Business School

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# Acknowledgments

The completion of this assignment indicates that I have graduated and have started a new phase of my life. I was fortunate and grateful to have the chance to live and study in Lisbon for about a year, a city far and apart from my homeland. This experience provided me with the chance to learn about diverse cultures and travel to different regions of the world, for which I am grateful.

This is the first time I've finished such a complete and methodical piece of academic writing, and I'm truly grateful to my two supervisors, Maria Santos and Graça Trindade, for their encouragement and guidance with this project. I couldn't have completed this project without their advice. When I was puzzled, they encouraged and supported me. My main takeaway from this experience is that it helped me build my academic skills.

Finally, I'd like to thank my parents, who were always by my side, as well as all my classmates and friends who helped me with advice.

# Resumo

Com a visualização de videos colocados nas redes sociais por celebridades, o e-commerce de streaming ao vivo explodiu na China, tornando-se um canal de marketing cada vez mais importante., e os streamers são frequentemente celebridades da internet. Pesquisas anteriores analisaram os aspectos que influenciam as intenções de compra dos clientes no comércio eletrônico de transmissão ao vivo. O objetivo desta disseratção é investigar que factores influenciam a intenção de compra dos consumidores quando assistem aos videos das celebridades na internet.

 Neste estudo, as variáveis são resumidas combinando recursos de transmissão ao vivo e o efeito celebridade de celebridades da Internet, e hipóteses são sugeridas usando o modelo SOR.

Foram considerados  305 questionários válidos, e então usa as ferramentas SPSS.26 e SmartPLS 4.0 para estimar o modelo. Os resultados demonstram que as interações da celebridade da internet, o desconto promocional e a atratividade têm um impacto significativo na intenção de compra dos clientes, com Presença Social e Emoções atuando como mediador no e-commerce de celebridades da internet ao vivo.

Por fim, ao final do trabalho, são sumarizadas a contribuição teórica, implicações práticas, limitações e sugestões de pesquisas futuras.

Palavras-chave: *e-commerce de streaming* ao vivo, celebridade na internet, intenção de compra do consumidor, modelo SOR

JEL Classification system: M31, L81, L82

# Abstract

Live streaming e-commerce has exploded in China as a result of the videoization of social networks，becoming an increasingly important marketing tool, where the streamers are frequently Internet celebrities. Previous research has looked at the aspects that influence customers' purchase intentions in live streaming e-commerce. In this study, variables are summarized by combining live streaming features and the celebrity effect of Internet celebrities, and hypotheses are suggested using the SOR model. The goal is to investigate what factors influence consumers' purchase intentions when they watch Internet celebrities in live streaming e-commerce.

This study distributed surveys, collected 305 valid questionnaires, and then utilized the tools SPSS.26 and SmartPLS 4.0 to estimate the model. The results demonstrate that the Internet celebrity's interactions, promotion discount, and attractiveness have a significant impact on customers' purchase intention, with Social Presence and Emotions acting as mediator in the internet celebrity live streaming e-commerce.

Finally, towards the end of the work, the theoretical contribution, practical implications, limitations, and future research suggestions are summarized. This study examines the influencing elements of live streaming e-commerce on customers' buy intentions from the standpoint of online celebrity mixed with live streaming, however it does not examine the moderating influence of different commodity categories.

Keywords: live streaming e-commerce, internet celebrity, consumer purchase intention, SOR model

JEL Classification system: M31, L81, L82

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# Glossary of Abbreviations

AOI           Attractive of internet celebrities

COVID-19    Coronavirus disease2019

E              Emotion

I               Interaction

IP             Intellectual Property

KOL         Key Opinion Leaders

MCN        Multi-Channel Network

PCA         Principal Component Analysis

PD           Promotional Discounts

PLS-SEM    Partial Least Squares Structural Equation Modelling

PUI         Purchase Intention

SOR         Stimulus-Organism-Response

SP           Social Presence

# 1.Introduction

## 1.1 Theme

As a result of the videoization of social media platforms, e-retailers are utilizing new digital marketing techniques such as live streaming to attract customers and increase sales. Since 2011, live streaming has grown in appeal as an interactive multimedia platform for leisure, social, and business activities (Hilvert-Bruce et al, 2018). In August 2019, China had up to 433 million live stream watchers (CNNIC, 2019). Applying live streaming to promote businesses and goods is "blowing up" in China's e-commerce industry (Ali research, 2020).

Live streaming is a new e-commerce trend that is changing consumer behavior. During COVID-19's lock-in period, a few physical retail stores were forced to close. (Corona virus disease 2019), thus some businesses used live streaming to reach customers remotely. The most authentic shopping experience the digital world can currently offer is created by this innovative e-commerce experience, which combines entertainment, interactivity, and community features. Customers can virtually "walk around" the store as the owner describes the products. and even interact with other customers as if they were there in person. Without a doubt, the coronavirus has exacerbated the current retail trend.

An internet celebrity as key opinion leader typically serves as the live streaming host, introducing a product and answering questions from the digital audience. Consumers can watch the live streaming on their smart phones in real time. Live streaming shopping has boomed in China and has become an extra social activity.

Despite the rapid growth of the live-streaming e-commerce industry, little research has been conducted on how live e-commerce influences customers' intention to make an online purchase based on the celebrity impacts of internet celebrities. Although some studies have examined what factors of live streaming affects consumer psychology, for instance, live broadcasts may influence customers' purchase intentions by lowering mental distance and lowering people 's doubts (Zhang, Qin, Wang, & Luo, 2019). The effect of the live shopping on customers' buying behavior has also been studied from the standpoint of a technology viewpoint (visibility, meta voicing, and advice buying) (Sun, Shao, Li, Guo, &amp; Nie, 2019). However, the celebrity impact, high interactivity, and emotional stimulation of Internet celebrities in live-streaming e-commerce are not fully captured by any of this research.

As a result, the purpose of this research is to look at the factors that impact customers' buy intentions when they watch online celebrity live streaming e-commerce.

## 1.2 Research problem

Numerous research that studies the impact of live-streaming e-commerce on customers' purchasing choices concur that live-streaming promotions have a positive influence on consumers' online purchase decision. Additionally, several studies have discovered that viewers of live broadcasts are very likely to engage in herd purchasing (Liu,2022) and impulsive buying (Huang & Suo, 2021) behavior. And it was determined that the most significant element impacting customer decisions was live streaming (Huang & Suo, 2021).

Therefore, it is essential to research how online celebrity live-streaming e-commerce influences customers' readiness to buy, whether the goal is to inform the marketing team about consumers or to assist consumers in making informed judgments.

**Research Question:** What factors influence customers' purchase intention while watching the online celebrity live streaming shopping?

## 1.3 Objectives

It is crucial to understand how consumers' buy intentions are affected by online celebrity live-streaming e-commerce in order to develop effective live marketing tactics. The Internet celebrity live streaming e-commerce channel is a fresher and more targeted form than traditional e-shopping, which has been the subject of several studies that look at how customers make decisions. This study can serve as a theoretical foundation for developing marketing strategies for internet celebrity live streaming.

On the other side, both merchants and celebrity teams may benefit from this research. Businesses may utilize internet celebrities and live streaming to draw customers, raise brand awareness, and boost sales by doing targeted marketing, better understanding consumer psychology, and using these strategies. To better serve customers, the Internet celebrity team may also have stronger control over the live broadcast link and the selection of goods and brands.

Even viewers of live broadcasts can choose more logically what to buy and refrain from emotional impulses.

## 1.4 Structure

Five sections make up the study's structure: Literature Review，Theoretical Framework and Hypothesis，Methodology，Results and Discussion，Conclusion.

Introduce the market size, industry background, and research context for internet celebrity live e-commerce first. The required definitions of the pertinent terms are supplied, together with a brief discussion of the relevant research. then describe how the SOR model is used to study customer purchasing intentions.

Then, depending on the pertinent ideas in the literature study, hypotheses and research model frameworks are presented.

The discussion of research methodologies follows, including topics like selecting variables, creating and distributing surveys, etc.

On the data that had been gathered, SPSS.26 and SmartPLS 4.0 to estimate the model through using the PLS-SEM (partial least squares structural equation modelling) bootstrapping to test the hypothesis testing. If the outcomes differed from the prediction, the model framework was corrected.

Finally, the study's theoretical relevance, practical implications, and limits are examined, and recommendations for further study are offered.

# 2. Literature Review

## 2.1 Live Streaming

### 2.1.1 Live Streaming E-Commerce Industry

The Internet is used everywhere in people's lives nowadays, and many Internet-based sectors are growing quickly, including live shopping. We now live in a data-driven society.

Alibaba's Taobao Live, the first online Live streaming shopping platform, was introduced in April 2016. By combining a livestream with an e-business, the Chinese retail giant had invented a potent new strategy that allowed users to watch and buy simultaneously. (Mckinsey Digital, 2021). This idea came up by a product manager of Alibaba who would love to make e-commerce more like in-store shopping（Chen，2021）.

Live streaming e-commerce was first introduced in 2016 and became a new industry worth more than billions of dollars in just 5 years（Chen, 2021）. And currently, one of the most important sorts of internet live streaming is live streaming e-commerce (Yang & Siegfried, 2021). Especially in the difficult times of the COVID-19, in China, many people have been quarantined at home due to the epidemic prevention policy, and the demand for online shopping has surged.

In Ding's research, the business model of Live streaming E-commerce is "Internet celebrity + Live streaming + E-commerce" (Ding, 2018), which is, consumers can complete the purchase behavior in the process of watching the entertainment live streaming. In the process of interacting with fans in the live streaming of celebrities, it not only allows consumers to fully understand the product, but also increases their trust in internet celebrities, however, consumers can easily produce the following two purchase behaviors during the live broadcast process: impulse buying behavior and herd buying behavior (Ding, 2018). Yang & Siegfried (2021) think that the live streaming plus e-commerce model enables online live to relate to diverse sectors via the Internet.

Based on previous research theories, the definition of "Live Streaming E-Commerce" in this study adopts the proposition of Yang & Siegfried (2021), that is, Key Opinion Leaders or product sellers promote goods, brands, events, and so on through the live streaming function of the platform (e-commerce or social media) to improve brand awareness and product sales. This marketing strategy is currently widely used (Yang & Siegfried, 2021). When compared to

traditional e-commerce, live streaming offers benefits and conveniences that may explain why it is so popular.

## 2.1.2 Marketing size of Live streaming e-commerce

According to Mckinsey Digital, since the Taobao live in 2016, Live streaming e-commerce has quickly become a digital tool that can boost customer engagement and sales (MCKINSEY, 2021). In the first 30 minutes of Alibaba's Singles' Day—a major shopping event in China, Taobao Live's pre-sale event produced an amazing $7.5 billion in total transaction value (Zhang, 2020).

According to a survey, two-thirds of Chinese customers bought a product via livestreaming in the past year (AlixPartners, 2020). The predict from Mckinsey Digital that by 2026, live streaming e-commerce sales might account for 10% to 20% of total e-commerce revenues (MCKINSEY, 2021).

From 2017 to 2020, the value of China's livestreaming e-commerce business increased at a compound annual growth rate (CAGR) of more than 280%, and it is expected to reach $171 billion by 2020 (MCKINSEY, 2021). The COVID-19 epidemic has accelerated this rise, and by 2022, Chinese sales are predicted to exceed $423 billion. From the analysis of Mckinsey, apparel and fashion is the leading category of live streaming events (MCKINSEY, 2021).

**Apparel and fashion is by far the leading category in livestream events.**

% of livestreamers[1]

| | | |
|---|---|---|
| **35.6** Apparel and fashion | **7.6** Beauty | **7.4** Fresh food |
| **4.6** Consumer electronics | **3.6** Furnishing and home decor | **0.2** Automobile and local online-to-offline sales (eg, tickets, experiences) |
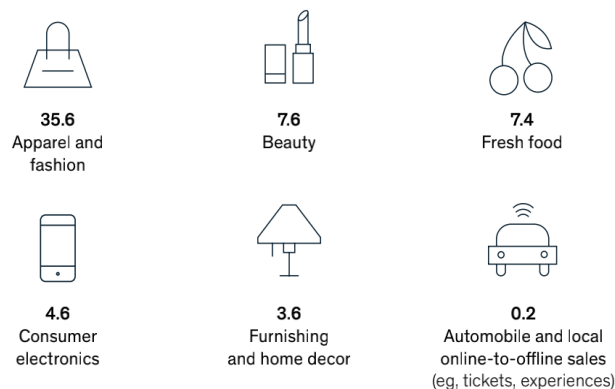
[1]Share of livestreaming by category = 1/2*(number in category livestreaming / total number livestreaming + viewers of category livestreaming / total viewers).
Source: Everbright Securities, iResearch, McKinsey analysis

*Figure 2. 1. Share of live streaming by category*
*Source: Everbright Securities, iResearch, McKinsey analysis*

In addition to China, Foresight Research estimates that live streaming e-commerce sales in the America would exceed $11 billion this year.However, things are going to change soon:

Other digital behemoths are making great attempts into live commerce, including Facebook, Amazon, TikTok, Twitter, and Pinterest ( Koetsier, 2022 ). An article states that the market can be divided by two forces:e-commerce platforms, like Amazon,Taobao, PingDuoDuo；and social media giants, which allow celebrity live, such as DouYin (Tiktok in China), YouTube, Instagram, and Facebook (Jiemian, 2021).

Following an introduction to the background and market size of the livestreaming e-commerce sector, the following chapter will begin with the key ideas that must be reviewed: Internet Celebrity economy.

## 2.2 Internet Celebrity Economy

Internet celebrity economy is the product of the continuous development and growth of the Internet celebrity group and the gradual enhancement of its commercial monetization ability. Therefore, it is necessary to first introduce the definition of the Internet celebrity.

Nowadays, it is much simpler to be noticed by a large amount of people than it was in the days of television and print media. More and more individuals are sharing their thoughts, experiences, and other stuff as content producers online because to the growth of social media and video platforms. Some content providers get media attention as a result of the online spreading of their characteristics and personalities. Internet celebrities are those who become popular and famous through the Internet (Rich, 2009). In addition, Yang's article points out that the internet celebrities refer to people who spread original high-quality content, such as videos, articles, etc. in different channels, resulting in the gathering of a large following with emotional consensus (Yang, 2016).

An internet celebrity's value is created in the broadest sense through social interaction between them and their individual followers (especially "superfans"), and interaction among fans within the fan community (Liang & Shen, 2016). Li (2016) considers the Internet celebrity economy to be a phenomenon in which Internet celebrities share their personal looks, experience, abilities, and so on, resulting in an effect, and this is essentially a sharing of virtual resources.

YouTube was the first to use the phrase "multi-channel network" (MCN) (Gardner & Lehnert, 2016). MCN is an organization which is equivalent to internet celebrity economy companies, they work with internet celebrities to help them create content, build images, and undertake advertisements for profit sharing (Jiang, 2019). Content producers or individual influencers often join MCNs to gain: a wider audience, co-promotion, brand strategies,

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investment, linking to "mainstream" content, access to additional legal services and digital rights management（Gardner & Lehnert，2016). In China, there are also many similar MCN companies. In Wu's research on 2018, the business model of the Chinese MCN company can be summarized in Figure 2.2
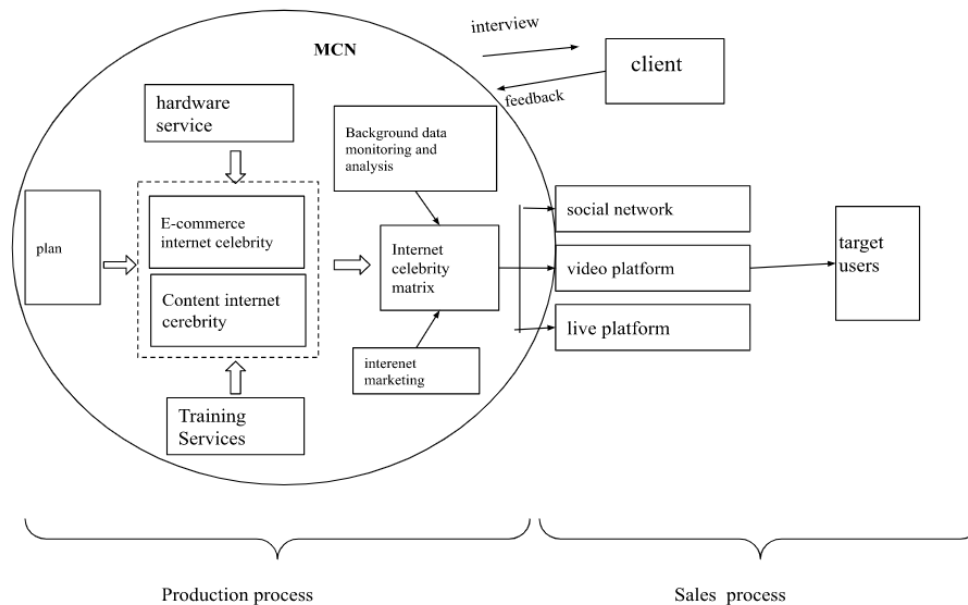


*Figure 2. 2 MCN company operation flow chart (take Feibo company as an example)*
*Source: Wu, 2018*

## 2.2.1 Internet Celebrity in Live Streaming e-commerce

Before talking about the internet celebrity in live streaming e-commerce, we need to know the whole chain of the live streaming e-commerce. According to Wang's study, a live streaming platform, a commodity monetization end, the content providers, and consumers make up the live streaming e-commerce business chain (Wang, 2020).

A live streaming e-commerce often begins with companies and factories offering platforms with items while working with MCNs to define the live schedule. Next, it directs the production of the live streaming platform's content before assisting users in realizing platform monetization (Wang, 2020).

Commodity monetization mainly includes traditional e-business platforms, like Taobao and PingDduoDuo, social media platforms with e-commerce functions such as TikTok mall, and third-party service platforms (Pan et al, 2017). As reviewed in chapter 2.2.2, in the live e-commerce market, social media platforms with their own e-commerce capabilities have steadily arisen and compete with traditional e-commerce platforms. It obtains user traffic

through platform content and creates a closed business cycle within the system. Nevertheless, the traditional e-business platforms are still dominant in the monetization stage (Wang, 2020).

Internet celebrities are content producers in the live streaming e-commerce business. Content producers are defined as streamers of live shopping and based on the identities of streamers we can divide them into the following three categories:

The first kind of streamers are well-known as the MCN and its anchors, such as Li Jiaqi and Viya, the most famous live hosts in Taobao platform. They host live shows every day and sell different kinds of products. Due to the significant sales and influence on their life, suppliers will provide  a unique discount and practically the lowest price to customers who are in their "live room." On the presale night of the Single's Day celebration, a significant shopping occasion in China, in October 2020, Viya broke a new record of USD 49.7 million (Yorke, 2021).

Another type of streamer is a brand representative or an online star with their own Live stream channel (Chen, 2021). Typically, they already have a sizable following of devoted followers and the commensurate impact. Also, being opinion leaders in their own related fields on the Internet. Their commercial monetization ability is mainly based on their own personal charm and the pursuit of fans, which is like the concept of fan's economy.

The third kind of streamers are suppliers themselves (Chen, 2021). More and more brands are starting to build their own live streaming accounts, especially the online brand. Manufacturers understand their products better  than Internet celebrities and have more control over price cuts. At the same time, suppliers have also reduced marketing costs and saved advertising fees that should have been paid to anchors.

On the other side, major Internet superstars and their MCN enterprises with massive traffic are dissatisfied with advertising revenue. When they have accumulated enough fans, they will also devote themselves to building their own offline supply chain system and even their own brand.

### 2.2.2 KOL Theory

Opinion leader is a communication theory term, and it was first proposed by American sociologist Paul Lazars Field. The author argues that the mainstream media does not directly transfer information to the public, but rather transmits information through opinion leaders who first contact the mass media, then add their own opinions to the information they obtain and

disseminate it to the people around them, thus having an impact on those people. (Liu & You, 2009).

Key opinion leader (KOL) is a marketing idea, according to Yang and Siegfried (2021), and it is commonly described as the people who have more knowledge and whose opinion is more likely to be recognized and trusted by a relevant group of people.

Lots of evidence can be found to support that KOL could affect people's thoughts, attitudes, and behavior. Rogers believes opinion leaders are the most influential group in social systems (Rogers, 1983) because the opinion leaders exert an influence on the opinions of others (Raghupathi, et al, 2009).

Based on the concept of KOL, we can easily understand that the internet celebrity in the live streaming e-commerce can be recognized as the KOL. They know more information about the products and share their feelings and ideas with the audiences. Yang and Siegfried (2021) think the information chosen and shared by live streamers will influence the consumer's decision to purchase the goods.

SanJose-Cabezudo et al (2021) also named this kind of KOL a digital opinion leader. These KOL earn the trust of users (Nahapiet & Ghoshal, 1998; Nooteboom, 2007) and lead them to perform purchase and/or click online (Hsu & Wang, 2008). Individuals are now very susceptible to digital opinion leaders and are more prone to embrace their opinions or views，especially when it comes to consumers' buying habits influenced heavily by online content (Case et al., 2004).

## 2.3 Theoretical models of Consumers' Purchase Intention

### 2.3.1 SOR Model

In 1974, Mechrabian and Russell proposed the famous stimulus-response model SOR (stimulus-organism-response) based on environmental psychology. In the model, the external environment stimuli have an impact on the individual's cognition and emotional state (organism), and thus has an impact on the individual's behavior (response), such as motivation, emotion, and attitude (Mehrabian & Russell, 1974).
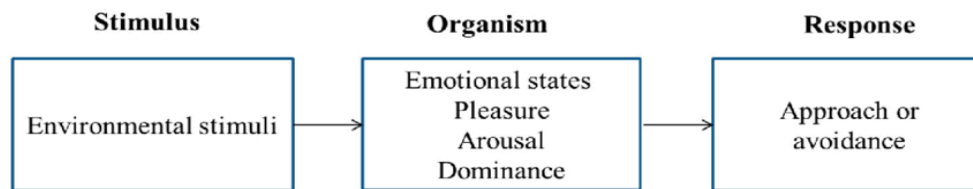
*Figure 2. 3. Stimulus Organism Response (SOR) Model*
*Source: Mehrabian & Russell, 1974*

Then, Donovan and Rossiter adapted the model and tested the SOR model in shopping scenarios for the first time in 1982. In their study two major emotional states of the consumer caused by the atmosphere of the store will act as mediators to affect consumer's shopping behaviors in store (Donovan & Rossiter,1982).

In recently, the SOR concept has been frequently used in e-commerce research to explain consumer's online shopping behavior. For example the research about consumers' attitudes towards communication and commerce through mobile devices (Kim & Hahn, 2012; Akram et al,2020), brand loyalty (Wang et al, 2020), taking part in online video game broadcasting (Xu et al, 2021), customer engagement behavior in live streaming e-commerce platforms (Kang et al , 2021), apparel online purchase intention(Nam et al, 2021), consumer's purchase intention on different internet online platforms (Patanasiri & Krairit, 2018), consumers' Continuous Purchase Intention of Fashion Products on e-commerce (Hewei & Youngsook, 2022), etc.

There are also many related studies using the SOR model to explain purchase intention in live streaming e-commerce (e.g., Xu et al, 2020; Sun et al, 2019; Jiang, 2019. etc.), which shows that the SOR model offers a suitable theoretical framework for explaining customers' buying intentions in live streaming e-commerce. One of the reasons the SOR model is chosen for this study is because of this.

Another reason is that in the SOR model, S is defined as material and social stimuli in the external environment (Mehrabian & Russell, 1974). Online shopping, as a new type of shopping mode, has unique characteristics that are different from offline shopping and traditional online shopping, and can provide different experiences for those who view live streaming e-commerce. These characteristics can be considered as the stimulus of the external environment in the model, so that it can be studied whether these factors have an impact on consumers' purchase intention.

## 2.3.2 Interaction as stimulus

Interaction(I) is generally referred to as the extent to which two parties interact in the course of a communication（Lee, 2005）. There are already studies showing that interaction is an key

website atmospheric indicator for consumers' responses in e-commerce (Sheng & Joginapelly, 2011).

Live streaming technology has established a highly interactive platform for viewers and streamers (Jiang, 2019). This study adopts the definition in Jiang's research, in the live stream e-commerce, interaction refers to the interaction between the internet celebrity streamers and consumers, consumers and consumers.

Haimson and Tang (2017) argue that four characteristics influence consumers' experience with live e-commerce: immersion, immediacy, interaction, and sociality. Compared with the interactive way of traditional online shopping, the main difference of live e-commerce is real-time (Meng & Zheng, 2019). Customers may communicate with other viewers in real - time basis when watching live e-commerce since the live broadcast is synchronous. For example, viewers may ask the streamers questions at any time and can also discuss their experience of shopping with other viewers.

At the same time, streamers may react to viewers' questions, suggestions, and responses. What is more, streamers can share their personal life experience, opinions, feelings and even make jokes (Xu et al.,2020). Therefore, a group of viewers may feel that they build a specific connection with the streamers and regard them as their old friends (Hu et al, 2017).

This is likely to affect consumers' attitudes and purchase intentions, so this study defines interaction as one of the stimuli in live streaming e-commerce.

### 2.3.3 Promotion Discount as stimulus

Promotion is a popular marketing tactic, particularly in the sphere of e-commerce. In order to increase sales and seize market share, many merchants will launch various discount promotions. Scholars usually define promotion as an incentive strategy to increase the sales of products and brands in a short period of time (Kotler, 2000).

In Bhatti's study, the results indicated that the sales' promotion can affect the consumers' purchase intention (Bhatti, 2018). Some scholars found that impulse buying behavior is very common in online e-commerce industry (Bagozzi, et al, 1999). Online promotions often offer deep discounts in limited quantities or for a limited time, creating a sense of urgency for consumers to shop, thereby increasing their willingness to purchase (Luo et al, 2021; Huangfu, 2018).

In live streaming e-commerce, various incentive mechanisms are also used as activity strategies to attract consumers, which have a certain impact on consumers' purchase intention

(Jiang, 2019). In this study, promotional discounts (PD) are defined as a series of preferential activities and incentive strategies to increase sales during the live streaming such as limited products, a low price for limited time, coupons, gift giving, etc. (Kotler, 2000; Huangfu, 2018). Based on the features of promotions in live streaming e-commerce, this study will use promotion discount as one of the stimuli in the SOR model.

### 2.3.4 Attractive of Internet Celebrity as stimulus

In this study, we adopted the theory of Ha and Lam (2017) and defined the attractive of internet celebrities (AOI) as the talent, appearance and personality displayed by them during the live streaming. As mentioned earlier, internet celebrities can act as opinion leaders. And some research argues that in the e-commerce environment, according to the KOL theory, internet celebrities can influence consumers' purchase behavior (e.g., Li, 2018；Yang & Siegfried, 2021).

During live streaming e-shopping, viewers are usually attracted by the streamers' appearance, personality and funny acting (Xu et al., 2020). Because of the trust and love for the Internet celebrity streamers, viewers often want to try the same product used by them (Li, 2018), which stimulates consumers' desire to buy. So, this study defines attractiveness of internet celebrity as one of the stimuli in live streaming e-commerce.

### 2.3.5 Social Presence as organism

The sense of recognizing others' existences in the medium and interactions is referred to as social presence (SP) (Short et al., 1976). Early research on the relationship between social presence, trust, and purchase intention discovered that social presence influences customers' trust in sellers positively.  (Lu et al, 2016).

In e-commerce marketing, a consumer's feeling of closeness with a seller in terms of human interaction, human warmth, and sensitivity is referred to as social presence (Ou et al, 2014). Recent researches showed that social presence in live streaming could change people's trust attitude and father induce impulse buying behavior（Ming et al, 2021），in live streaming of tourism, social presence could effectively influence people's visit intentions by improving their trust. (Zhang et al,2021).

The live streaming can directly transmit the picture and sound to our  eyes, and we can see the streamer's expressions, body movements, and interact with the streamer in real time. It can allow the viewers to contact directly or indirectly with the streamer (Hassanein & Head

2007). Therefore, the live streaming can give individuals the impression that they are literally present in person (Mueser & Vlachos, 2018; Xu et al., 2020). During the live streaming e-commerce, when the streamer frequently interacts with the audience, shows his/her strong emotions, and uses provocative language, such as the famous streamer Li Jiaqi's iconic phrase "oh my God, buy it!", the audience will have a strong sense of participation.

In recent research, social presence was applied as one of the organisms in the SOR model to explain the purchase intention in live streaming from the technologic standpoint (Sun et al, 2019).
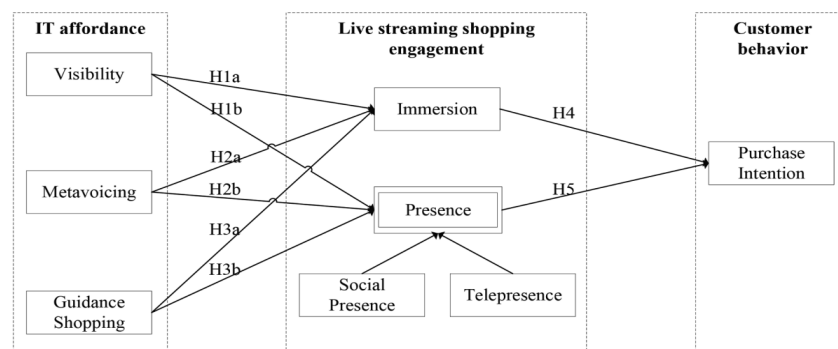


*Figure 2. 4. Social presence is organisms*
*Source: Sun et al, 2019*

This study attempts to explain whether the characteristics of live streaming e-commerce (Interaction, promotion discount, attractive of the celebrity) influence consumers' emotion and attitude inside and then influence the purchase intention, thus this study adopts the social presence from the research above and considers it as one of the organisms in SOR model.

### 2.3.6 Emotions as organism

Emotion(E) is an individual's emotional response to the experiences in nature and perceptions (Du et al., 2011), and can be affected by other people and environmental stimuli (Du et al., 2011; Sun et al., 2019). Early studies about consumer behavior find that many factors such as physical store characteristic (Yoo et al., 1998), live streaming e-commerce environment (Meng et al., 2021), product displayed (Oliver, 1994), price promotion (Aydinli et al., 2014), influence of internet celebrity (Ladhari et al., 2020) could affect consumers' emotions in shopping situations.

In the live streaming e-commerce environment, consumers' emotions may behave as the feeling of a specific product or a brand (Jiang, 2019). And it can influence consumers' attitude, evaluation and behavior towards the consumption object (Honea & Dahl, 2005).

According to the SOR theory, the emotional state inside an individual will affect his/her behavior response (Mehrabian & Russell, 1974). Based on this theory, previous studies have taken cognition and emotion as the organisms to explain the influence of facts such as social media marketing (Yu,2013), internet celebrities (Wang, 2017) and live streaming shopping (Jiang, 2019) on consumers' purchase intention.

On the other hand, recent studies hold the opinion that emotion is a mediator in the relationship between the live streaming and consumers' purchase intention (e.g., Meng et al, 2021; Zhou & Li, 2022; Tong et al,2022).
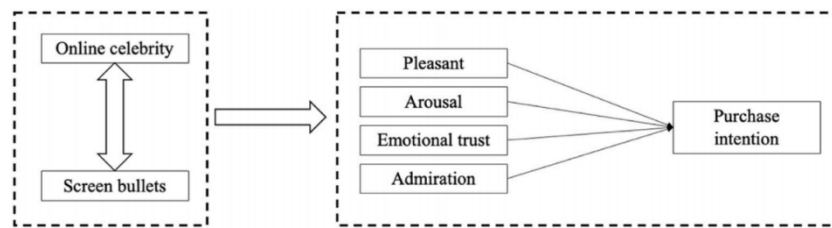


Figure 2. 5. *the mediating effect of emotion*
*Source: Meng et al, 2021*

When watching live streaming e-commerce, consumers' emotion might be influenced by the stimuli of the external environment and further affect consumers' purchase intention. Therefore, this study considers emotion as one of the organisms in the SOR model.

### 2.3.7 Purchase Intention as response

Purchase Intention (PUI) has been variously defined as a kind of decision making to buy a specific brand (Shah et al., 2012), a tendency to buy a particular product (Herrmann et al., 2007). As early as 1990, a study by Ghosh stated that purchase intention can be used to predict consumers' purchase process. Early studies also adopt purchase intention to explain the decision-making process (Chen et al., 2017). Subsequently, a study used purchase intention to show the impact between attractive of the internet celebrities and consumers' attitudes toward brands (Ha & Lam, 2017).

Some research before having begun to apply the SOR model to examine the consumer psychology and behavior, and the last aspect of the framework, according to the SOR model, is reaction. In the field of e-commerce web pages and apps, previous studies used purchase intention as a response in the SOR model to study consumer engagement online (e.g., Kim &Lennon, 2013; Nam et al., 2021; Akram et al., 2020).

With the recent popularity of live streaming e-commerce, purchase intention has also been used in consumers 'live streaming shopping scenarios. In the live streaming e-commerce situation, purchase intention refers to the user's desire to buy goods or services from merchants while watching live streaming e-commerce (Ajzen, 1991; Lu et al., 2016).

Moreover, like this study, there are many studies adopting SOR model and purchase intention as the response to study consumer decision making and behaviors (e.g., Sun et al.,2019; Zhang et al., 2021). These studies serve as the theoretical base for the framework design of this study.

As a conclusion for this chapter, the key definitions in the literature above are summarized in the following table 2.1.

| Constructs | Definitions |
|---|---|
| Interaction (I) | The interaction between internet celebrity streamers and consumers, consumers and consumers. (Jiang,2019) |
| Promotion Discount (PD) | A series of preferential activities and incentive strategies to increase sales during the live streaming like limited products, low prices for limited time, coupons, gift giving, etc. (Kotler, 2000; Huangfu, 2018) |
| Attractive of Internet celebrities (AOI) | The talent, appearance and personality displayed by them during the live streaming. (Ha & Lam,2017) |
| Social Presence (SP) | Consumer's feeling of closeness with seller. (Ou et al, 2014) |
| Emotions(E) | An individual's emotional response to the experiences in nature and perceptions. (Du et al., 2011) |
| Purchase Intention (PUI) | Customer's desire to buy goods or services from sellers while watching live streaming e-commerce. (Ajzen, 1991; Lu et al., 2016) |

*Table 2. 1.Constructs Definitions*
*Source: Own elaboration*

The literature review above offers a foundation to build a conceptual framework that can explore the impact of internet celebrity on consumer purchase intention in live streaming e-commerce. Next chapter will present the hypotheses and conceptual framework.

# 3 Theoretical Framework and Hypothesis

Based on the literature review above, the main theoretical basis of purchase intention in internet celebrity live streaming e-commerce can be summarized in follow Table 3.1

| Work | Context | Variables influencing purchase intention | Results |
|---|---|---|---|
| Sun et al., 2019 | purchase intentions in live-streaming shopping | Visibility, Metavoicing, Guidance Shopping, Immersion, Presence (Social Presence + Telepresence) | Via engagement (immersion and presence), visibility, metavoicing, and guide shopping all have a favorable impact on purchase intent in live shopping. |
| Huang & Suo., 2021 | Impulse Buying Decision in Live Streaming E-Commerce | Price Promotion, Promotion Time Limit, Perceived Opportunity Cost, Consumer-Streamer Interaction, Consumer-Consumer Interaction, Visual Appeal, Perceived Risk | All the variables have an influence on Impulse Buying Decision during live shopping |
| Ha & Lam., 2017 | Celebrity Endorsement on Purchase Intention | Celebrity Endorsement,  Customer's Attitude toward Brand | Celebrity endorsement can influence customer attitudes toward brands, which links to customer purchase intentions. |
| Meng et al, 2021 | purchase intention in live streaming e-commerce | online celebrity, screen bullets, Pleasure Emotion, Arousal Emotion, Emotional Trust, Admiration | The acts of online stars can have an emotional impact on customers' willingness to buy. Consumer buying willingness might be influenced indirectly by emotions. |
| Zhou & Tong, 2022 | purchase intention in live streaming e-commerce (emotion as mediating effect) | product, promotion, atmosphere, popularity, homogeneity, emotional trust, perceived emotional value | In live-streaming e-commerce, emotional trust and perceived emotional value can be viewed as mediating elements that drive users' buy intention. They are completely mediated by the product and the environment, and somewhat mediated by homogeneity and promotion. |
| Jiang, 2019 | purchase intention in live streaming e-commerce | Good content, Promotion, Attractive of Influencer, Trust, Interaction, value-added content, cognitive attitude, affective attitude, | Good content, influencer attraction, trust, and interactions all explain cognitive attitude. Promotion, Influencer attraction, interaction, and value-added contents all explain affective attitude. Purchase intention is explained by both cognitive and affective attitudes. |

*Table 3. 1. Studies of purchase intention in internet celebrity live streaming e-commerce*
*Source: Own elaboration*

## 3.1 Hypotheses

Based on the theories discussed above, this study uses the SOR model as the basic framework.

While watching the live streaming e-commerce, the interactions, promotion discount and the attractive of internet celebrities are all regarded as characteristics of the external environment. Thus, the stimulus includes Interaction (I), promotion discount (PD) and the attractive of internet celebrities (AOI), which means the predictor/independent variables are I, PD, AOI.

When consumers are stimulated by the environment, their inner mental and emotional state could be affected (Mehrabian and Russell 1974). According to the literature review in the last chapter, social presence (SP) and emotions(E) may have the mediating effect (Zhou & Tong, 2022) between the independent variables and purchase intention. So, the organism includes presence (SP) and emotions(E), which means the mediate variables are SP and E.

As this study adopts purchase intention (PUI) as the behavioral response in the SOR model, the dependent variable is PUI.

Based on the SOR model and the variables above, the hypotheses in this study can be present below:

**H1**: In live streaming e-commerce, Interaction positively explains Social Presence.

**H2**: In live streaming e-commerce, Promotion Discounts positively explains Social Presence.

**H3**: In live streaming e-commerce, Attractiveness of Internet celebrities positively explains Social Presence.

**H4a**: Social Presence explains Purchase Intention.

**H4b**: Social Presence is a mediator in the relationship between independent variable (Interaction, Promotion Discount, or Attractiveness) and Purchase Intention, the dependent variable

**H5**: In live streaming e-commerce, Interaction positively explains Emotions.

**H6**: In live streaming e-commerce, Promotion Discounts positively explains Emotions.

**H7**: In live streaming e-commerce, Attractiveness of Internet celebrities positively explains Emotions.

**H8a**: Emotions explain Purchase Intention.

**H8b**: Emotions is a mediator in the relationship with independent variable (Interaction, Promotion Discount, or Attractiveness) and Purchase Intention, the dependent variable.

## 3.2 Theoretical Framework

The relationship between the above-mentioned variables and hypotheses of the research can be viewed in the following figure 3.1.
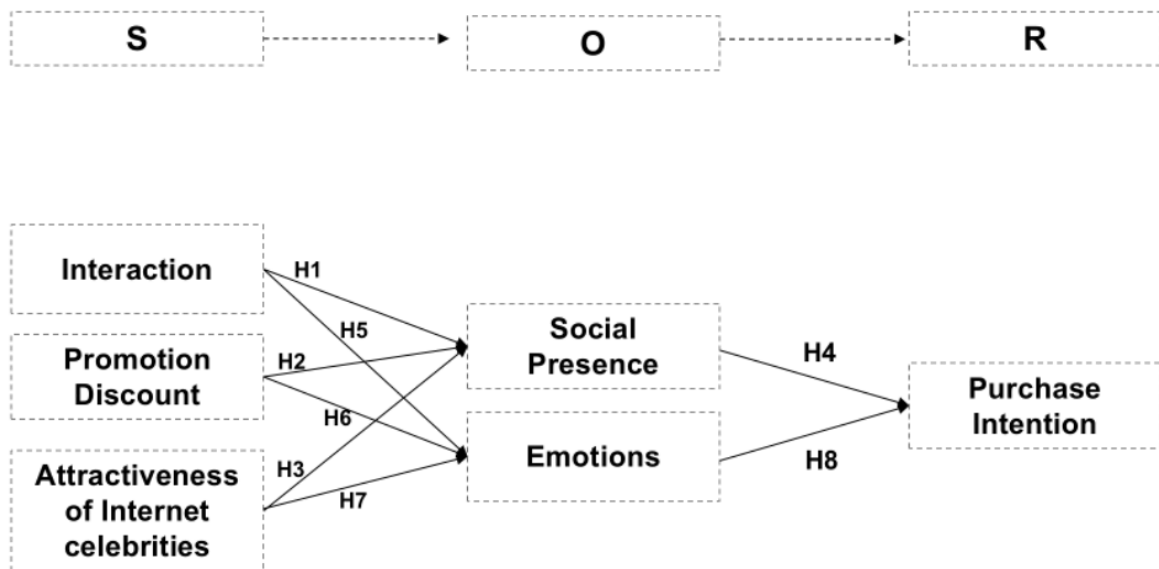


*Figure 3. 1.Theoretical framework*
*Source: Own elaboration*

# 4 Methodology

## 4.1 Participants

The questionnaires of this study were designed and sent on Questionnaire Star (https://www.wjx.cn/), a Chinese website platform, and distributed through WeChat (the most widely used social communication software in China), QQ (another social media app), email, and other channels in the form of links. The questionnaire had a validity rating of 97.4%, 313 questionnaires in total had been retrieved, and 8 invalid questionnaires had been eliminated.

The social demographic information for the sample is presented in Table 4.1 below.

| Variables | Categories | Percentages |
|---|---|---|
| Sex | Male | 45.57% |
| | Female | 54.43% |
| Age | Under 18 years old | 6.89% |
| | 18-25 years old | 20.66% |
| | 26-35 years old | 36.39% |
| | 36-45 years old | 25.90% |
| | over 45 years old | 10.16% |
| Education background | Middle school or less | 7.21% |
| | High school | 17.38% |
| | Junior college | 35.08% |
| | Bachelor | 36.72% |
| | Master or more | 3.61% |

*Table 4. 1. Sociodemographic details of the sample*
*Source: Own elaboration*

According to the table above, the following text will highlight the most important characteristics. Women watch more live streaming shopping (54.43%) than men (45.57%). The age of the participants watching live streaming e-commerce is from 18 years old to over 45 years, being the most frequent category (36.39%) the age interval from the ages of 26 to 35 years old. Then, 25.9% of them belong to the age level 36–45 years old, the 20.66% belong to the age level 18-25 years old, 10.16% are over 45 years old, and just 6.89% are under 18 years old. The educational background of the respondents is mostly junior college (35.08%) and

bachelor (36.72%), followed by high school (17.38%), middle school or less (7.21%), and finally master or more (3.61%).

## 4.2 Procedure

Data collection was from December 2021 to January 2022. Because the surveys were mostly delivered in China, the English version was translated into Chinese. To increase respondents' desire to engage in the replies, the poll was anonymous. Questionnaire Star (https://www.wjx.cn/), a Chinese website platform dedicated to collecting questionnaires, was used to design and distribute the questionnaires. Questionnaire links are mostly delivered via WeChat (China's most popular social communication program), QQ (another Chinese social media platform), and emails. A total of 313 responses were collected, with 5 respondents failing to watch live shopping, which was deemed an invalid questionnaire and will be removed from future research.

In this study, we use the software IBM SPSS Statistics 26 and the SmartPLS 4.0 to do data base. Firstly, we utilize Cronbach's alpha coefficient for reliability analysis to examine the consistency, reliability of the answer to some questions (variables). Second, for validity analysis of unidimensional constructs, we employ the Principal Component Analysis (PCA). Then, we evaluated the intensity and significance of the correlation between variables constructs.

To test the hypothesis and estimate the model, we use a Partial Least Squares Structural Equation Modelling (PLS-SEM) bootstrapping technique, using Process model, version 4. The data collected from the questionnaire in Excel was then uploaded to the PLS-SEM in a format.csv in order to test if the social presence and/or Emotions are mediators in the relationship between the independent variable (Interaction, Promotion Discount, and Attractiveness) and Purchase Intention, the dependent variable.

## 4.3 Design of questionnaire

The questionnaire is designed in the following three parts:

There are several multiple-choice questions in the first section to get personal data and using habits. The first three questions (Q1-Q3) ask participants about their personal information including gender, age and educational background.

Part two of the questionnaire is about users' habit of watching live streaming e-commerce. Question 4 enables the author to determine whether the respondent is qualified to participate

in this study. The options in Q4 are "have not seen it", "have seen it but not bought it", "have seen it and bought it", and the sample that chooses "have not seen it" is regarded as an invalid questionnaire. The next three questions (Q5-Q7) ask participants about their online shopping habits of watching live streaming including the platforms preference, frequency and product types.

Each potential variable was expanded in the third section surveyed. There are 20 items/questions (Q8-Q27) which correspond to the variables. In the questionnaire of this study, we gauge respondents' responses for each item measured in the Likert-type scale, which ranges from 1 (strongly disagree) to 5 (Strongly agree). The detail content and Chinese translation can be found in Annex A.

Next chapter will detail all the measurement items of our research.

## 4.4 Measures

The number of items corresponding to each variable and its author are shown in Table 4.2. Table 4.3 lists the specific measurement items for each variable in the study questionnaire.

| Variables | Authors | Number of Items |
|---|---|---|
| Interaction(I) | Huang & Suo., 2021 | 3 |
| Promotion Discount (PD) | Zhou & Tong, 2022 Huangfu, 2018; Jiang, 2019 | 4 |
| Attractive Internet celebrities (AOI) | Ha and Lam., 2017; Li, 2018 | 4 |
| Social Presence (SP) | Ou et al., 2014 | 3 |
| Emotions (E) | Cheng et al., 2009 | 3 |
| Purchase Intention (PUI) | Chen et al., 2017 | 3 |

*Table 4. 2. Authors' scales and number of items for each variable*
*Source: Own elaboration*

The constructs were measured using a five-point Likert scale, with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. This scale was based on several sources in the literature at the time.

| Variables | Questions | Source |
|---|---|---|
| Interaction (I) | I1: When watching live streaming e-commerce, Streamer is very happy to communicate with me. | Huang & Suo., 2021 |
| | I2: When watching live streaming e-commerce, I can communicate with other consumers. | |
| | I3: When watching live streaming e-commerce, I am willing to participate in the interaction. | |
| Promotion Discount (PD) | PD1: When watching live streaming e-commerce, I can get the lowest price among any other channel. | Zhou & Tong, 2022 |
| | PD2: I will buy it because the goods in the live room are sold in limited quantities. | Huangfu, 2018 |
| | PD3: I will buy it because the item is only on sale in the live room. | Zhou & Tong, 2022 |
| | PD4: I will continue to watch because of the coupons and gifts in the live room. | Jiang, 2019 |
| Attractive of Internet celebrities (AOI) | AOI1: I think internet celebrity live streamers have good taste. | Ha and Lam., 2017 |
| | AOI2: I think that the internet celebrity live streamers have strong attractive | Ha and Lam., 2017 |
| | AOI3: I think that the internet celebrity live streamers have an appealing appearance. | Ha and Lam., 2017 |
| | AOI4: I want to have the same style as the internet celebrity live streamers | Li, 2018 |
| Social Presence (SP) | SP1: There is a sense of human contact in live streaming e-commerce. | Ou et al., 2014 |
| | SP2: There is a sense of personalness in live streaming e-commerce. | |
| | SP3: There is human warmth in live streaming e-commerce. | |
| Emotions (E) | E1: I feel excited about engaging with the live streaming e-commerce. | Cheng et al., 2009 |
| | E2: I feel relaxed when watching the live streaming e-commerce. | |
| | E3: When watching the live streaming e-commerce, I feel happiness. | |
| Purchase Intention (PUI) | PUI1: I will consider live streaming e-commerce as my first shopping choice. | Chen et al., 2017 |
| | PUI2: I intend to purchase products or services through live streaming e-commerce. | |
| | PUI3: I expect that I will purchase products or services through live streaming e-commerce. | |

*Table 4. 3. Source of Measurement Item in Questionnaire*
*Source: Own elaboration*

# 5 Data Analysis and Results

For our data analysis, we used IBM SPSS26.0 and SmartPLS4.0. To analyze the reliability analysis, the correlations between each variable, and the PCA analysisthe IBM SPSS was used. To test the hypothesis and estimate the model, we use SmartPLS, version 4, because it is a popular software that is capable of handling small-sample data and non-normal data.

## 5.1 Characteristics and Consumer Behavior

The characteristics of the participants concerning consumer behavior can be viewed in the next Figure 5.1, Figure 5.2, Figure 5.3. and Figure 5.4.

1) Which platform do you usually watch live streaming e-commerce on?



| Percentage | TaoBao | DouYin (Tiktok in China) | PingDuoDuo | Others |
|---|---|---|---|---|
| | 48.9 % | 30.8% | 15.1% | 5.2% |
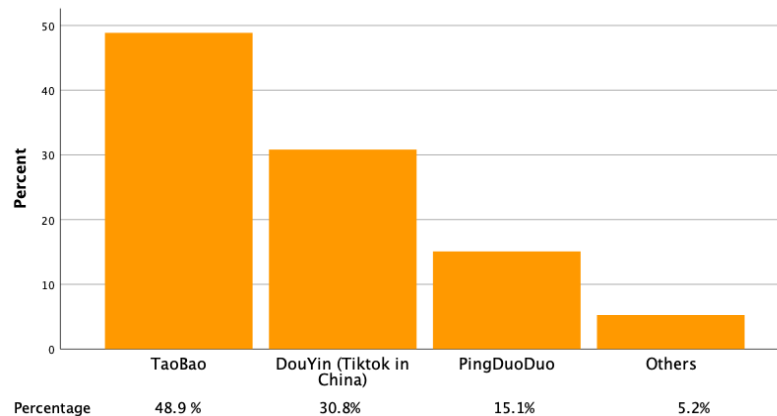
*Figure 5. 1. Distribution of platforms of watching live streaming e-commerce*
*Source: Own elaboration from SPSS*

This research focuses on the e-commerce platforms such as TaoBao and PingDuoDuo, as well as social media big names such as DouYin that offer internet celebrity live streaming e-commerce (Tiktok in China). TaoBao is one of China's leading e-commerce platforms and the first single-commerce site to offer live-streaming e-commerce. Figure 5.1 shows that TaoBao still has the most users (48.85%) viewing live streaming e-commerce, followed by DouYin (30.82%), with PinDuoDuo (15.08%) and other platforms (5.25%) having less users.

2) How often do you watch live streaming e-commerce?

| | | | |
|---|---|---|---|
| | at least once a day | More than 3 times a week | 1-2 times a week | Less than once a week |
| Percentage | 2.3% | 31.5% | 56.7% | 9.5% |
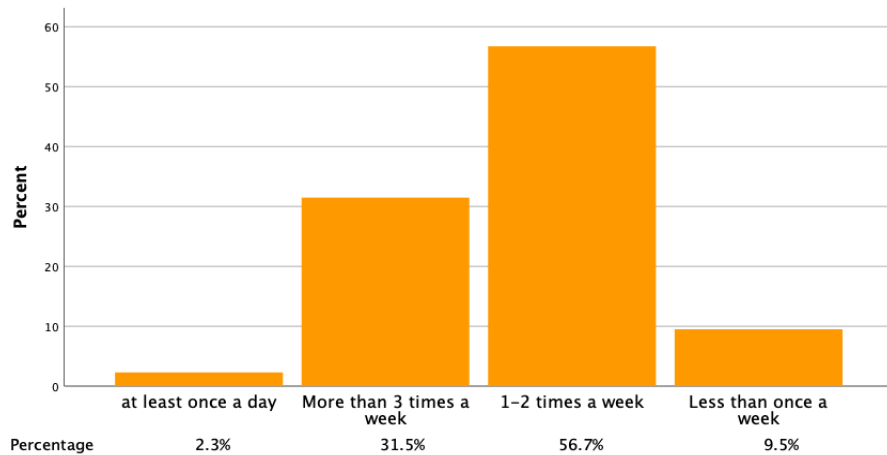
*Figure 5. 2. Freq*uency of watching live streaming e-commerce
Source: Own elaboration from SPSS

According to Figure 5.2, more than half (56.72%) of participants watch live shopping 1-2 times a week, almost one-third (31.48%) watch more than 3 times a week, and 2.3% watch live e-commerce at least once a day, indicating that live e-commerce is becoming a major option for consumers to purchase. Only around a tenth of participants (9.51%) view live streaming e-commerce less than once a week.

3) What products' type of live streaming e-commerce do you watch or buy most often?
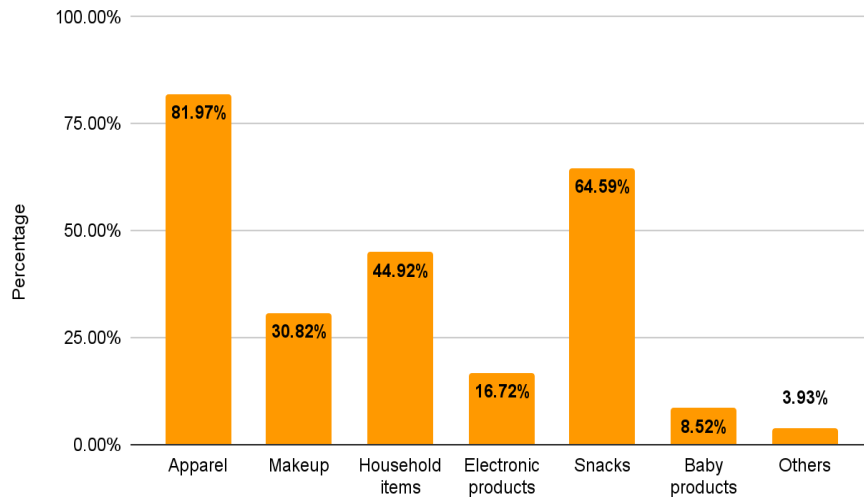


*Figure 5. 3. Distribution of products' type of watching live streaming e-commerce*
*Source: Own elaboration from SPSS*

According to Figure 5.3, the most common products purchased by consumers when viewing live stream e-commerce are clothing (81.97%), food (64.59%), home items (44.92%),

and beauty supplies (30.82%). Electronics (16.72%), infant items (8.52%), and others (3.93%) are next.

4) Have you ever watched or buy the internet celebrity live streaming e-commerce?
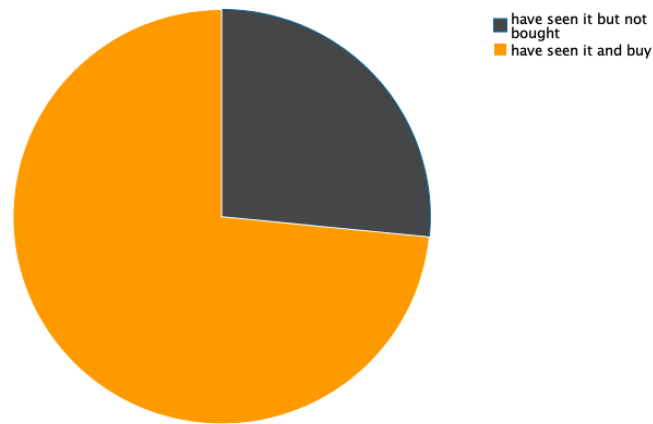


*Figure 5. 4. Have you ever watched the internet celebrity live streaming e-commerce?*
*Source: Own elaboration from SPSS*

According to Figure 5.4, Most of the participants have seen the live streaming shopping (73.44%), not only watched but also bought things during the live e-commerce, and 26.56% only viewed the live e-commerce but did not buy anything.

## 5.2 Reliability analysis and Validity analysis

Cronbach's alpha is used to assess the model's consistency between the items that belong to the same construct. According to Table 5.1, the reliability of all variables ranged from 0.683 to 0.876, above the value of 0.7 (Fornell & Larcker, 1981), indicating that the items associated with each of these instruments are consistent. And the reliability coefficient of the scale items is high, indicating that the survey data from this study is reasonably reliable and can be investigated further. The details of each item can be seen in Annex B.

| Item | Cronbach's Alpha | N of Items |
|---|---|---|
| Interaction | 0.746 | 3 |
| Promotion Discount | 0.812 | 4 |
| Attractives of Internet celebrities | 0.814 | 4 |
| Social Presence | 0.683 | 3 |
| Emotions | 0.734 | 3 |
| Purchase Intention | 0.845 | 3 |
| total | 0.876 | 20 |

*Table 5. 1. Result of Reliability Statistics*
*Source: Own elaboration from SPSS*

The validity of this study to reduce the dimensionality of the data is used the PCA analysis through the KMO coefficient and Bartlett sphericity tests. According to Table 5.2, all KMO values are above 0.6, and the significance of the Bartlett sphericity test statistic is 0.000<0.01, leading to the conclusion that the items are significantly correlated in the sample and in the population. The details of each item can be seen in Annex C.

| Item | KMO coefficient | Significance of Bartlett's Test |
|---|---|---|
| Interaction | 0.637 | 0.000 |
| Promotion Discount | 0.709 | 0.000 |
| Attractives of Internet celebrities | 0.694 | 0.000 |
| Social Presence | 0.662 | 0.000 |
| Emotions | 0.686 | 0.000 |
| Purchase Intention | 0.657 | 0.000 |
| total | 0.856 | 0.000 |

*Table 5. 2. Result of KMO and Bartlett's Test*
*Source: Own elaboration from SPSS*

## 5.3 Correlations

Before going into the model's estimation, let us present their correlations, Table 5.3. shows that all the latent variables have a positive and a significant correlation.

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 Interaction | 1 | 0.192** | 0.168** | 0.221** | 0.149** | 0.119* |
| 2 Promotion Discount | 0.192** | 1 | 0.201** | 0.272** | 0.262** | 0.303** |
| 3 Attractives of Internet celebrities | 0.168** | 0.201** | 1 | 0.752** | 0.791** | 0.284** |
| 4 Social presence | 0.221** | 0.272** | 0.752** | 1 | 0.714** | 0.332** |
| 5 Emotions | 0.149** | 0.262** | 0.791** | 0.714** | 1 | 0.351** |
| 6 Purchase Intention | 0.119* | 0.303** | 0.284** | 0.332** | 0.351** | 1 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

*Table 5. 3. Result of Correlations*
*Source: Own elaboration from SPSS*

## 5.4 Model's estimation

Based on the hypothesis and theoretical framework in chapter 3, we use the model Process in SmartPLS, version 4, to estimate the empirical model that can be visualized in the next figure.
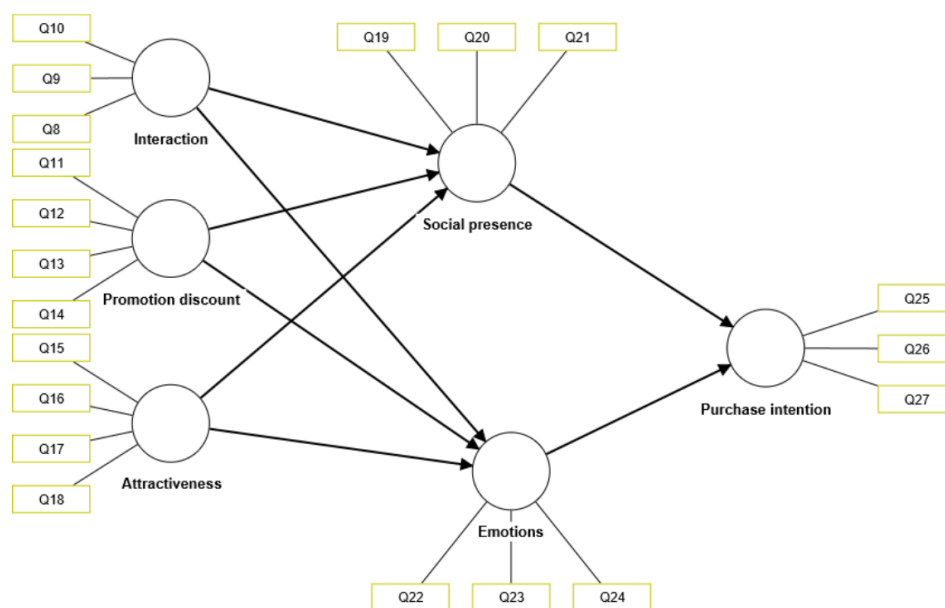


*Figure 5. 5. The detailed empirical model*
*Source: Own elaboration from SmartPLS*

A variable is a mediator if it explains the dependent variable and if it is explained by an independent variable. Therefore, the potential mediators are named as Social Presence and Emotions.

The Partial Least Squares Structural Equation Modeling (PLS-SEM) bootstrapping technique is going to be applied to estimate the relations between the constructs. The PLS is adequate for small databases (Hair et al., 2011) and relies on a nonparametric bootstrap procedure (Davison and Hinkley, 1997) to test if the estimated path coefficients in PLS-SEM are significant (Hair et al., 2017). To take a decision about the significance of the estimates, 5000 samples are generated, and a two-tailed test is used.

The major findings are presented and discussed here, while appendix E and annex f provide information on the outer loads and weights.

### 5.4.1 Collinearity diagnostic VIF

A collinearity diagnostic among predictors is necessary for path model evaluation. As can be seen in Table 5.4, each variable's VIF value ranges from 0 to 5 (Sheather, 2009), proving that multicollinearity is not present.

|  | Emotions | Purchase intention | Social presence |
| --- | --- | --- | --- |
| Attractiveness | 1.061 | | 1.061 |
| Emotions | | 2.038 | |
| Interaction | 1.058 | | 1.058 |
| Promotion discount | 1.071 | | 1.071 |
| Social presence | | 2.038 | |

*Table 5. 4. Collinearity diagnostic (VIF)*
*Source: Own elaboration*

### 5.4.2 Model quality: R-square/adjusted R-square

The R-square number, which ranges from 0 to 1, indicates how much the independent variables explains the variations of the dependent variable. The explanatory power increases with the increasing of the independent variables; but the adjusted R-square considers the number of independent variables and the sample size. According to Table 5.5, emotions and social presence have R-square values that are both around 0.6, indicating that the independent variables are effectively able to account for the variance in emotions and social presence.

|  | R-square | R-square adjusted |
|---|---|---|
| Emotions | 0.637 | 0.633 |
| Purchase intention | 0.137 | 0.131 |
| Social presence | 0.587 | 0.583 |

*Table 5. 5. Result of R-square/adjusted R-square*
*Source: Own elaboration*

### 5.4.3 Estimated path coefficients

Bootstrapping was used to measure the path significant coefficients. The path coefficient defines the relationship between the independent variable and the dependent variable.

| Dependent variable | Independent variables | Direct effects | P value | Indirect effects | P value | Total effects | P value |
|---|---|---|---|---|---|---|---|
| Emotions | Attractiveness | 0.801 | 0.000 |  |  | 0.801 | 0.000 |
| Social presence | Attractiveness | 0.665 | 0.000 |  |  | 0.665 | 0.000 |
| Purchase intention | Attractiveness |  |  | 0.321 | 0.000 | 0.321 | 0.000 |
| **Purchase intention** | **Emotions** | **0.240** | **0.008** |  |  | 0.240 | 0.008 |
| Emotions | Interaction | -0.002 | 0.968 |  |  | -0.002 | 0.968 |
| Social presence | Interaction | 0.076 | 0.046 |  |  | 0.076 | 0.046 |
| Purchase intention | Interaction |  |  | 0.014 | 0.412 | 0.014 | 0.412 |
| Emotions | Promotion discount | 0.117 | 0.006 |  |  | 0.117 | 0.006 |
| Social presence | Promotion discount | 0.110 | 0.001 |  |  | 0.110 | 0.001 |
| Purchase intention | Promotion discount |  |  | 0.049 | 0.002 | 0.049 | 0.002 |
| **Purchase intention** | **Social presence** | **0.194** | **0.056** |  |  | 0.194 | 0.056 |

*Table 5. 6. Estimated coefficients*
*Source: Own elaboration from SmartPLS*

According to the Table 5.6 several conclusions can be made:

1. Emotions is a mediator because it explains Purchase intentions (ß = 0.240; Sig = 0.008) and it is explained by Attractiveness (ß = 0.801; Sig = 0.000) and by Promotion Discount (ß = 0.117; Sig = 0.006).

2. Social Presence is a mediator because it explains Purchase intention (ß = 0.194; Sig = 0.056) and it is explained by Attractiveness (ß = 0.665; Sig = 0.000), Interaction (ß = 0.076; Sig = 0.046), and by Promotion Discount (ß = 0.110; Sig = 0.001).

3. Only the independent variable Interaction does not explain Emotions. In sum, the model's estimations can be viewed in the next figure:
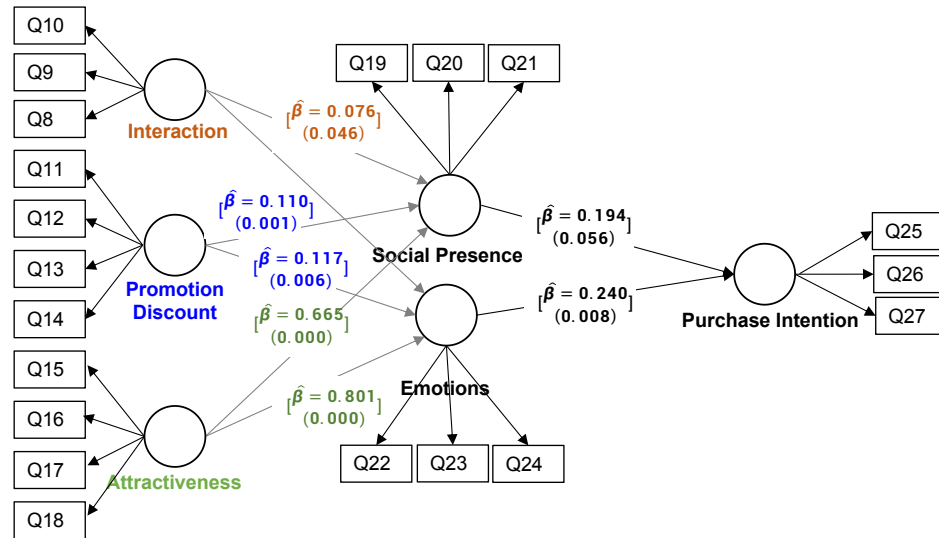
*Figure 5. 6.The detailed empirical model*
*Source: Own elaboration from SmartPLS*

## 5.5 Hypotheses validation

Chapter 5.4 shows the validation (or not) of the eight assumptions established in Chapter 3.1 Research Hypotheses.

| Hypotheses | Path | Validation |
|---|---|---|
| H1: Interaction positively explains Social Presence | I→SP | supported |
| H2: Promotion Discounts positively explains Social Presence | PD→SP | supported |
| H3: Attractiveness of Internet celebrities positively explains Social Presence | AOI→SP | supported |
| H4a: Social Presence explains Purchase Intention | SP→PUI | supported |
| H4b: Social Presence is a mediator | I→SP→PUI PD→SP→PUI AOI→SP→PUI | supported |
| H5: Interaction positively explains Emotions | I→E | rejected |
| H6: Promotion Discounts positively explains Emotions | PD→E | supported |
| H7: Attractiveness of Internet celebrities positively explains Emotions | AOI→E | supported |
| H8a: Emotions explain Purchase Intention | E→PUI | supported |
| H8b: Emotions is a mediator | I→E→PUI | rejected |
| | PD→E→PUI AOI→E→PUI | supported |

Notes: I – Interaction; SP – Social presence; PD – Promotion discount; AOI – Attractiveness of Internet celebrities; E – Emotions; and PI – Purchase Intention.

*Table 5. 7.  Hypotheses validation*
*Source: Own elaboration from SPSS*

30

## 5.6 Discussion

The primary goal of this research is to determine which aspects of internet celebrity live streaming e-commerce influence users' purchase intentions. Based on a review of previous research on influencers, live streaming, and consumer purchase intentions, this study investigates whether Interaction, Promotion Discount, and Attractive of Internet celebrity can positively influence viewers' Social Presence and Emotions during live streaming, thereby influencing consumers' purchase intentions.

The methodology provided in this study has been validated via a survey and analysis of 305 Chinese consumers who have observed internet celebrity live purchasing experiences, and the following results can be extracted:

Result 1: During internet celebrity live streaming e-commerce, Social Presence can be positively explained by Interaction, Promotion Discount, and Attractive of the internet celebrity. It indicates that H1, H2 and H3 are all supported.

When promoting, the host's furious vocal movements are all in real time, giving the viewers the impression that they are in the situation (Mueser & Vlachos, 2018; Xu et al., 2020). This paper's conclusion is like prior study (Sun et al., 2019), which discovered that real-time speech and visibility in live streams can influence Presence. People's affinity for influencers makes viewing live streaming feel like catching up with old acquaintances. The high level of engagement afforded by live broadcasting goes beyond the scope of typical e-commerce, including interactions between anchors and viewers and viewers themselves (Huang & Suo, 2021). Such intimate involvement can create a deep human connection and human warmth in the audience.

Furthermore, the discovery that AOI has a positive and significant influence on SP is consistent with the KOL hypothesis (Liu & You, 2009). With the Internet's infiltration into people's life, Internet celebrities have emerged as opinion leaders in the modern era, with a significant impact on the purchasing behavior of young customers. Previous research has also validated this conclusion (e.g., Li, 2018; Yang & Siegfried, 2021).

Result 2: Interaction, Promotion, and Attractive of the internet celebrity can influence consumers' purchase intention through Social Presence, and Social Presence acts as a mediator in the relationship between independent and dependent variables. It indicates that H4 is supported.

Different from this study, the presence in Sun's study comprises both SP and Telepresence. The result that SP has a beneficial effect on customers' purchase intentions supplements Sun's study on the role of presence on consumers' purchase intentions.

Result 3: During internet celebrity live streaming e-commerce, Emotions can be positively explained by Promotion Discount and Attractive of the internet celebrity but not by Interaction. It indicates that H6 and H7 are all supported, while H5 is rejected.

Promotion discounting is a popular marketing strategy, even in the e-commerce industry. One of the reasons for the quick expansion of traditional e-commerce in China is lower prices than brick-and-mortar retailers. The same is now true for live streaming e-commerce. During the livestream, almost all live platforms will launch time-limited or limited low-cost offers.

This dramatically boosts consumers' emotions, increasing the likelihood of impulsive and herd consumption (Liu, 2022; Huang & Suo, 2021). This study's conclusion supports this viewpoint. This study's definition of AOI covers the influencer's talent, personality, and appearance during the livestream (Ha & Lam,2017). This result demonstrates that during a livestream, AOI may elicit good and pleasant sentiments for the viewers.

A disappointing conclusion was that the Interaction has no significant effect on consumer purchase intention during the live streaming e-commerce. A similar study was conducted previously, and the results revealed that social interaction had a favorable and substantial influence on arousal (Xu, X.Y., Wu, J-H., & Li, Q., 2020). Arousal is defined in that study as the degree to which a viewer feels aroused, active, or inspired by the streamer during the live stream (Mehrabian and Russell 1974), whereas Emotion refers to a specific brand or product positive feeling in this study.

Result 4: Interaction, Promotion, and Attractive of the internet celebrity can influence consumers' purchase intention through Emotions, and Emotions acts as a mediator in the relationship between independent and dependent variables. It indicates that H8 is supported.

Much research has shown that emotions have an impact on consumer purchase decisions. Some previous research in the context of live-streaming e-commerce has reached the same conclusion as this study (Zhou & Tong, 2022).

To summarize, in internet celebrity live streaming e-commerce, interaction, promotion discounts, and attractiveness of the online celebrity can affect consumers' buy intentions via emotions and social presence, which suggests that emotions and social presence serve as mediators.

The following are our study's both theoretical and practical ramifications.

# 6 Conclusion

## 6.1 Contributions to Theory

The goal of this study is to identify the elements that impact customers' purchase intentions when they watch internet celebrity live streams e-commerce. Our research contributes to the literature by offering the following insights about live streaming shopping.

Firs, this study analyzes the influencing elements of live streaming on customers' purchase intentions from the standpoint of Internet celebrities combing live streaming. As opinion leaders, Internet celebrities have great influence in the online world. Internet celebrities + live e-commerce has become a very effective marketing model, but few previous studies have analyzed the impact of the two together. More studies on live streaming focus on analyzing the impact of technical features of live streaming on consumers, such as real-time language and visualization (Sun et al, 2019). In addition, this study discusses the operation mode of the mainstream MCN companies in China as well. It may provide some reference for future research on Chinese Internet celebrity companies.

Second, this study concludes that social presence and emotion are mediators between the dependent variable (interaction, promotion discount, and attractive of internet celebrities) and consumers' purchase intention. Some previous studies generally take psychological factors such as psychological distance (Zhang et al,2019), trust (Zhou & Tong, 2022), perceived uncertainty (Guo et al, 2021) and perceived risk (Huang & Suo,2021) as intermediate variables to explain the influence of the shopping guide function of live streaming on consumer decision-making. However, it neglects the influence of the intense and exciting atmosphere of the live streaming room on consumer sentiment and social presence. This study confirms the mediating role of emotion between live streaming factors and purchase intention. This finding can explain to some extent why live streaming ecommerce causes many impulse purchases and can also help merchants understand the reasons why viewers of live shopping often return orders after live streaming.

## 6.2 Practical Implications

If merchants wish to boost revenues by developing marketing tactics, internet celebrity live stream e-commerce is a digital media marketing strategy that should not be overlooked. To obtain better marketing results, the research and findings in this article can give marketers, suppliers, or enterprises with the following references:

This study shows that I, PD, and AOI may all have a big impact on customers' purchase intentions. As a result, during the live stream process, the anchor should focus on maintaining engagement with the audience, responding to queries from the public in a timely way, and paying attention to their demands. etc., to boost the audience's genuine sense of engagement. Discounts and promotions continue to play an essential part in consumer purchase as a popular marketing tactic. Restricted-time or limited snap-up actions can nonetheless successfully stimulate the audience's emotions and sensation of presence during the livestream, driving sales. For the selection of streamers, priority is given to Internet celebrities with a certain number of fans. It is better to choose an anchor with a high degree of overlap between the fan base and the target users of the brand or product. At the same time, the image, temperament and tonality of Internet celebrities are best in line with the brand image, because the conclusion of this research shows that the personal charm of Internet celebrities significantly affects consumers' purchase intention.

Internet celebrity groups should be devoted to developing personal IP (Intellectual Property), actively constructing and sustaining a highly active and sticky fan base, and fully embracing the role of opinion leaders. This implies that the content and quality of live streams must meet stricter standards.

As consumers, the capacity to recognize and choose information becomes increasingly vital as the voice of digital media takes an increasingly significant role in society and life. Online celebrity live broadcast e-commerce gives us additional product information to assist us make purchasing decisions, but we must be cautious and prevent illogical purchase behaviors caused by the live broadcast atmosphere, such as impulse consumption and herd spending.

## 6.3 Limitations and suggestions to further research

There are restrictions to sampling samples. The surveys are generally circulated by social media and emails, and the sample data comes mostly from students' or parents' relatives, acquaintances, and coworkers. In addition, the sample size is limited, so the regions where the samples are sourced are relatively concentrated, and there may be a certain deviation regardless of age. It is advised that future study broadens the research sample to include additional social groups and areas, making the findings more trustworthy.

Variables have limitations. Finally, this study proposes hypotheses and research projects based on three variables: interaction, discount promotion, and internet celebrity attractiveness.

The impacts of the three influencing factors on the two intermediate variables were investigated, as were the effects of the two intermediate variables on the outcome variable PUI. Consumers make purchasing decisions in the real-time streaming process, and the influencing elements are not the three listed above. Future studies could try including more variables as influencing factors for more extensive study and analysis.

Third, while we explored the categories of consumers' live shopping goods briefly and performed descriptive statistical analysis, we did not investigate the moderator influence of various products or platforms on consumers' purchase intention further. On the other hand, we largely concentrate on the three major livestream platforms, Taobao, Doyin, and PinDuoDuo, without delving into the fundamental aspects of the various platforms that impact the outcomes. Taobao, for example, mostly sells apparel, but PinDuoDuo has obvious pricing advantages.

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# 8 Annexes

## Annex A - Questionnaire

**Questionnaire**
**The Factors Affecting Consumers' Purchase Intention When Watching Internet Celebrity Live Streaming E-commerce**
**网红直播购物时影响消费者购买意愿的因素**

Hello!

First and foremost, thank you for taking the time to complete this survey. I am a postgraduate student majoring in Marketing from ISCTE Business School. My graduation thesis study is based on this questionnaire. The study's goal is to investigate the elements that influence customers' purchase intentions while they watch internet celebrities buy live. There are no correct or incorrect answers in the questionnaire; just select the one that best describes your behavior and thoughts considering your current position. This questionnaire's information is only used for the purpose of authoring this paper, is anonymous, and will not expose your personal information.

Thank you again for your cooperation!

您好！

首先感谢您参与本次问卷调查。我来自 ISCTE 商学院，是一名市场营销专业的在读研究生。本次问卷是我的毕业论文研究主题，研究目的是探讨在观看网红直播购物时影响消费者购买意愿的因素。问卷的选项不存在对错之分，请您根据自己的实际情况选择最符合您的行为和想法的选项。本问卷收集的信息仅用于本次论文撰写并且采取匿名的方式，不会泄漏您的个人隐私。

再次感谢您的配合!

Part1: Personal Information（Please select only one option） 第一部分：个人基本信息（单选题）

Q1. What is your gender? 您的性别？

   a.Male 男　　b.Female 女

Q2. What is your age? 您的年龄？

   a. <18　　b. 18-25　　c.26-35　　d.36-45　e.>45

Q3. What is your education background? 您的教育背景？

a. Middle school or less　初中及以下

b. High school　　高中（含中专）

c. Junior college　大专

d. Bachelor　本科

e. Master or more.　硕士及以上

Part 2: The habit of watching live streaming shopping 第二部分：观看直播购物的习惯

Q4. Have you ever watched internet celebrity live streaming E-commerce？（Please select only one option）

您是否观看过网红线上直播购物 (单选题)

a. hasn't seen it 没看过

b. has seen it but not bought it 看过但没买过

c. has seen it and bought it 看过并买过

Q5. Which platform do you watch live streaming E-commerce most often？（Please select only one option）

您最常通过哪个平台观看直播购物？（单选题）

a. TaoBao 淘宝

b. DouYin (Tiktok in China) 抖音

c. PingDuoDuo 拼多多

d. Others 其他

Q6：How often do you watch live streaming E-commerce？（Please select only one option）

您观看购物直播间的频率是多少？（单选题）

a. at least once a day 至少每天一次

b. More than 3 times a week 每周超过三次

c. 1-2 times a week 每周一至两次

d. Less than once a week 少于每周一次

Q7：What products' type of live streaming E-commerce do you watch or buy most often？（You can choose more than one options） 您最常观看或购买哪些产品类型的直播购物？（多选题）

a. Apparel 服饰类

b. Makeup 彩妆类

c. Household items 居家用品

d. Electronic products 电子产品

e. Snacks 零食

f. Baby products 母婴用品

g. Others 其他

Part 3: Depending on your situation, choose the option that most closely matches your experience of watching the live streaming e-commerce. From 1 to 5 are strongly disagree, disagree, neutral, agree, strongly agree. （Please

select only one option） 第三部分：根据您的实际情况，选择最贴近您在观看直播电商中的感受的选项。从 1 到 5 分别是非常不同意、不同意、中立、同意、非常同意.（单选题）

Interaction(I) 互动性调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q8 When watching live streaming E-commerce, Streamer is very happy to communicate with me. | | | | | |
| Q9 When watching live streaming E-commerce, I can communicate with other consumers. | | | | | |
| Q10 When watching live streaming E-commerce, I am willing to participate in the interaction. | | | | | |

Chinese Version

Q8 在观看直播购物时，主播很乐于和我交流

Q9 在观看直播购物时，我可以与其他观众交流

Q10 在观看直播购物时，我非常愿意在观看直播的过程中参与互动

Promotion Discount (PD) 促销折扣调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q11: When watching live streaming E-commerce, I can get the lowest price among any other channel. | | | | | |
| Q12: I will buy it because the goods in the live room are sold in limited quantities. | | | | | |
| Q13 I will buy it because the item is only on sale in the live room. | | | | | |
| Q14 I will continue to watch because of the coupons and lottery in the live room. | | | | | |

Chinese Version

Q11: 在观看直播购物时，我可以获得比任何其他渠道都更低的价格。

Q12:我会因为直播间中的商品是限量抢购而购买

Q13 我会因为商品仅在直播间中是特价而购买

Q14 我会因为直播间中发放优惠券、抽奖而持续观看

Attractiveness of internet celebrity (AOI) 网红主播魅力调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q15: I think the internet celebrity live streamer have good taste. | | | | | |
| Q16: I think that the internet celebrity live streamer has strong attractive. | | | | | |
| Q17, I think that the internet celebrity live streamer has an appealing appearance. | | | | | |
| Q18 I want to have the same style as the internet celebrity streamer | | | | | |

Chinese Version

Q15:我认为网红主播拥有好的品味

Q16:我认为网红主播有很强的魅力

Q17 我认为网红主播拥有迷人的外表

Q18 我想拥有网红主播同款

Social Presence (SP) 社交存在感调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q19 There is a sense of human contact in live streaming e-commerce. | | | | | |
| Q20 There is a sense of personalness in live streaming e-commerce. | | | | | |
| Q21 There is human warmth in live streaming e-commerce. | | | | | |

Chinese Version

Q19 在直播购物中，我能感受到人与人的交往

Q20 在直播购物中，我能感受到个性化

Q21 在直播购物中，我能感受到人情味

Emotions（E) 情绪调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q22, I feel excited about engaging with the live streaming e-commerce. | | | | | |
| Q23, I feel relaxed when watching live streaming e-commerce. | | | | | |
| Q24 When watching the live streaming e-commerce, I feel in a good mood. | | | | | |

Chinese Version

Q22 观看直播购物令我情绪高涨

Q23 观看直播购物时，我感到放松

Q24 观看直播购物的过程中，我是愉悦的

Purchase Intention (PUI) 购买倾向调查

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q25 I will consider live streaming e-commerce as my first shopping choice. | | | | | |
| Q26, I intend to purchase products or services through live streaming e-commerce. | | | | | |
| Q27, I expect that I will purchase products or services through live streaming e-commerce. | | | | | |

Chinese Version

Q25 我会把直播购物作为我的第一购物选择

Q26 我倾向于通过直播购物来购买产品或服务

Q27 我期待通过直播购物来购买产品或服务

Thanks for your answers. 感谢您的回答。

# Annex B - Cronbach's Alpha coefficients

## Interaction

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .746 | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q8 When watching live streaming shopping, Streamer is very happy to communicate with me. | 7.25 | 4.425 | .697 | .545 |
| Q9 When watching live streaming shopping, I can communicate with other consumers. | 7.50 | 4.218 | .527 | .718 |
| Q10 When watching live streaming shopping, I am willing to participate in the interaction. | 7.57 | 4.167 | .521 | .728 |

## Promotion Discount

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .812 | 4 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q11: When watching live streaming shopping, I can get the lowest price among any other channel. | 11.00 | 8.562 | .837 | .679 |
| Q12: I will buy it because the goods in the live room are sold in limited quantities. | 11.18 | 9.229 | .553 | .800 |
| Q13 I will buy it because the item is only on sale in the live room. | 11.25 | 9.043 | .554 | .801 |
| Q14 I will continue to watch because of the coupons and lottery in the live room. | 11.17 | 8.508 | .618 | .771 |

## Attravess of Internet Celebrity

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .814 | 4 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q15: I think internet celebrity live streamers have good taste. | 10.70 | 9.048 | .844 | .671 |
| Q16: I think that the internet celebrity live streamers have strong attractives. | 10.84 | 10.006 | .583 | .789 |
| Q17 I think that the internet celebrity live streamers has an appealing appearance. | 10.82 | 9.765 | .580 | .792 |
| Q18 I want to have the same style as the internet celebrity live streamers | 10.91 | 9.986 | .555 | .804 |

## Social Presence

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .683 | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q19 There is a sense of human contact in live streaming e-commerce | 7.03 | 4.884 | .489 | .620 |
| Q20 There is a sense of personalness in live streaming e-commerce | 7.17 | 3.872 | .488 | .605 |
| Q21 There is human warmth in live streaming e-commerce | 7.21 | 3.403 | .545 | .529 |

## Emotions

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .734 | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q22 I feel excited about engaging with the live streaming e-commerce | 7.11 | 4.893 | .563 | .641 |
| Q23 I feel relaxed when watching live streaming e-commerce | 7.10 | 5.059 | .550 | .657 |
| Q24 When watching the live streaming e-commerce, I feel in a good mood. | 7.09 | 5.002 | .559 | .646 |

## Purchase Intention

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .845 | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Q25 I will consider live streaming e-commerce as my first shopping choice. | 7.36 | 4.941 | .824 | .681 |
| Q26 I intend to purchase products or services through live streaming e-commerce | 7.46 | 4.986 | .656 | .844 |
| Q27 I expect that I will purchase products or services through live streaming e-commerce | 7.53 | 5.316 | .669 | .824 |

## Annex C - KMO coefficients and Bartlett's Test

## Interaction

**KMO and Bartlett's Test**

| Kaiser–Meyer–Olkin Measure of Sampling Adequacy. | | .637 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi–Square | 247.050 |
| | df | 3 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q8 When watching live streaming shopping, Streamer is very happy to communicate with me. | 1.000 | .787 |
| Q9 When watching live streaming shopping, I can communicate with other consumers. | 1.000 | .625 |
| Q10 When watching live streaming shopping, I am willing to participate in the interaction. | 1.000 | .614 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.026 | 67.540 | 67.540 | 2.026 | 67.540 | 67.540 |
| 2 | .625 | 20.846 | 88.386 | | | |
| 3 | .348 | 11.614 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

## Promotion Discount

**KMO and Bartlett's Test**

| Kaiser–Meyer–Olkin Measure of Sampling Adequacy. | | .709 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi–Square | 507.416 |
| | df | 6 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q11: When watching live streaming shopping, I can get the lowest price among any other channel. | 1.000 | .860 |
| Q12: I will buy it because the goods in the live room are sold in limited quantities. | 1.000 | .560 |
| Q13 I will buy it because the item is only on sale in the live room. | 1.000 | .560 |
| Q14 I will continue to watch because of the coupons and lottery in the live room. | 1.000 | .639 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.619 | 65.465 | 65.465 | 2.619 | 65.465 | 65.465 |
| 2 | .645 | 16.136 | 81.601 | | | |
| 3 | .527 | 13.173 | 94.774 | | | |
| 4 | .209 | 5.226 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

## Attractive of Internet Celebrity

**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .694 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 512.623 |
| | df | 6 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q15: I think internet celebrity live streamers have good taste. | 1.000 | .867 |
| Q16:I think that the internet celebrity live streamers has strong attractives. | 1.000 | .595 |
| Q17 I think that the internet celebrity live streamer has an appealing appearance. | 1.000 | .592 |
| Q18 I want to have the same style as the internet celebrity live streamer | 1.000 | .559 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.612 | 65.312 | 65.312 | 2.612 | 65.312 | 65.312 |
| 2 | .621 | 15.517 | 80.829 | | | |
| 3 | .568 | 14.206 | 95.035 | | | |
| 4 | .199 | 4.965 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

## Social Presence

**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .662 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 153.335 |
| | df | 3 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q19 There is a sense of human contact in live streaming e-commerce | 1.000 | .597 |
| Q20 There is a sense of personalness in live streaming e-commerce | 1.000 | .590 |
| Q21 There is human warmth in live streaming e-commerce | 1.000 | .669 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.856 | 61.854 | 61.854 | 1.856 | 61.854 | 61.854 |
| 2 | .627 | 20.889 | 82.743 | | | |
| 3 | .518 | 17.257 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

# Emotions

**KMO and Bartlett's Test**

| Kaiser–Meyer–Olkin Measure of Sampling Adequacy. | | .686 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi–Square | 191.448 |
| | df | 3 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q22 I feel excited about engaging with the live streaming e–commerce | 1.00 | .660 |
| Q23 I feel relaxed when watching live streaming e–commerce | 1.00 | .644 |
| Q24 When watching the live streaming e–commerce, I feel in a good mood. | 1.00 | .655 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.959 | 65.293 | 65.293 | 1.959 | 65.293 | 65.293 |
| 2 | .531 | 17.692 | 82.985 | | | |
| 3 | .510 | 17.015 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

# Purchase Intention

**KMO and Bartlett's Test**

| Kaiser–Meyer–Olkin Measure of Sampling Adequacy. | | .657 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi–Square | 440.254 |
| | df | 3 |
| | Sig. | .000 |

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Q25 I will consider live streaming e–commerce as my first shopping choice. | 1.000 | .869 |
| Q26 I intend to purchase products or services through live streaming e–commerce. | 1.000 | .709 |
| Q27 I expect that I will purchase products or services through live streaming e–commerce | 1.000 | .731 |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.308 | 76.949 | 76.949 | 2.308 | 76.949 | 76.949 |
| 2 | .482 | 16.078 | 93.027 | | | |
| 3 | .209 | 6.973 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

# Annex D - Sociodemographic characterization of the sample

| Items | Answers | Frequency | Percent |
|---|---|---|---|
| Sex | Male | 139 | 45.57% |
| | Female | 166 | 54.43% |
| Age | Under 18 years old | 21 | 6.89% |
| | 18-25 years old | 63 | 20.66% |
| | 26-35 years old | 111 | 36.39% |
| | 36-45 years old | 79 | 25.90% |
| | over 45 years old | 31 | 10.16% |
| Education background | Middle school or less | 22 | 7.21% |
| | High school | 53 | 17.38% |
| | Junior college | 107 | 35.08% |
| | Bachelor | 112 | 36.72% |
| | Master or more | 11 | 3.61% |
| Have you ever watched live streaming e-commerce | Have not seen it | 0 | 0% |
| | Have seen it but not bought | 81 | 26.56% |
| | Have seen it and bought | 224 | 73.44% |
| Platforms | TaoBao | 149 | 48.85% |
| | DouYin (Tiktok in China) | 94 | 30.82% |
| | PingDuoDuo | 46 | 15.08% |
| | Others | 16 | 5.25% |
| Watching frenquence | at least once a day | 7 | 2.30% |
| | More than 3 times a week | 96 | 31.48% |
| | 1-2 times a week | 173 | 56.72% |
| | Less than once a week | 29 | 9.51% |
| Watching or purchase type | Apparel | 250 | 81.97% |
| | Makeup | 94 | 30.82% |
| | Household items | 137 | 44.92% |
| | Electronic products | 51 | 16.72% |
| | Snacks | 197 | 64.59% |
| | Baby products | 26 | 8.52% |
| | Others | 12 | 3.93% |

# Annex E – Outer loadings

| Dependent variable | Item Indicator | Outer loadings | P values |
|---|---|---|---|
| Interaction | Q8 | 0.921 | 0.000 |
| | Q9 | 0.812 | 0.000 |
| | Q10 | 0.703 | 0.000 |
| Promotion Discount | Q11 | 0.930 | 0.000 |
| | Q12 | 0.671 | 0.000 |
| | Q13 | 0.781 | 0.000 |
| | Q14 | 0.818 | 0.000 |
| Attractiveness | Q15 | 0.941 | 0.000 |
| | Q16 | 0.759 | 0.000 |
| | Q17 | 0.772 | 0.000 |
| | Q18 | 0.743 | 0.000 |
| Social Presence | Q19 | 0.782 | 0.000 |
| | Q20 | 0.775 | 0.000 |
| | Q21 | 0.801 | 0.000 |
| Emotions | Q22 | 0.818 | 0.000 |
| | Q23 | 0.804 | 0.000 |
| | Q24 | 0.802 | 0.000 |
| Purchase Intention | Q25 | 0.936 | 0.000 |
| | Q26 | 0.815 | 0.000 |
| | Q27 | 0.874 | 0.000 |

# Annex F – Outer weights

| Dependent variable | Item Indicator | Outer weights | P values |
|---|---|---|---|
| Interaction | Q8 | 0.551 | 0.000 |
| | Q9 | 0.401 | 0.000 |
| | Q10 | 0.237 | 0.027 |
| Promotion Discount | Q11 | 0.395 | 0.000 |
| | Q12 | 0.154 | 0.004 |
| | Q13 | 0.326 | 0.000 |
| | Q14 | 0.336 | 0.000 |
| Attractiveness | Q15 | 0.407 | 0.000 |
| | Q16 | 0.262 | 0.000 |
| | Q17 | 0.285 | 0.000 |
| | Q18 | 0.267 | 0.000 |
| Social Presence | Q19 | 0.435 | 0.000 |
| | Q20 | 0.429 | 0.000 |
| | Q21 | 0.408 | 0.000 |
| Emotions | Q22 | 0.426 | 0.000 |
| | Q23 | 0.413 | 0.000 |
| | Q24 | 0.399 | 0.000 |
| Purchase Intention | Q25 | 0.421 | 0.000 |
| | Q26 | 0.307 | 0.000 |
| | Q27 | 0.407 | 0.000 |