

## A Study of Female Consumers' Intention to Repurchase in E-commerce Live Streaming

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### Abstract

The huge business potential of live e-commerce is receiving more and more widespread attention, and the repurchase intention of consumers has become an important factor affecting the sustainable development of live e-commerce. Drawing on the literature on retailing, communication and e-commerce, this paper proposes a comprehensive framework for examining the relationship between female consumers' perceived experience of live e-commerce, flow experience, consumer gratification, consumer satisfaction and repurchase intention. It is found that perceived experience (perceived usefulness, perceived interactivity, and perceived entertainment) and flow experience positively influence consumer repurchase intentions through consumer satisfaction, while consumer gratification does not mediate the effect at all. These findings shed light on the role of live streaming in increasing sales and loyalty, and suggest ways in which live e-commerce can build customer stickiness by improving consumer perceived experience and flow experience, together with consumer satisfaction as a mediator.

**Keywords:** E-commerce; Consumer Satisfaction; Perceived experience; Flow experience; Consumer gratification; Live streaming

### 1. Introduction

Over the last decade, online vendors have developed a strong interest in describing their products using text and image interactivity technology. Consumers have difficulty touching, testing, or trying on items and interacting with vendors in real time before making decisions

(Steinhoff et al. 2019). With the increase of Internet bandwidth and the popularity of smart phones, a new way to show products has been born, namely live streaming. With high-speed and stable 5G networks, users will be able to watch live streaming from a first-person perspective and have an flow experience. The consumer is introduced to a product through this approach, making her understand by listening to the description by the streamer, the looks, smell, and feel of the product. Society members are able to share and interact on information through the live-stream rooms, which have become crucial avenues of consumption online. In addition, due to the outbreak of COVID-19 in 2020, people's home quarantine due to lock down policies has boosted the boom of online entertainment and consumption industries, many offline stores suffered heavy losses. However, under such circumstances, the scale of live streaming users has grown rapidly, which has brought huge traffic support for live streaming shopping (Wongsunopparat and Deng 2021). In the post-epidemic era, live streaming commerce will become a new economic form.

As a new form of Internet economy, live streaming e-commerce has become one of the biggest growth points in China's e-commerce market. According to the 50th Statistical Report on the Development of the Internet in China, as of June 2022, China's online streaming e-commerce users reached a scale of 469 million, an increase of 5.33 million since December 2021, representing 44.6 percent of the total number of Internet users. Between 2017 and 2021, the transaction scale of China's live-streaming e-commerce market increased rapidly to 2,361.51 billion yuan by the year 2021.

Many studies are available on live streaming e-commerce, especially on repurchase intention. This is because, according to an earlier study by Gefen and Straub (2000), acquiring new customers involves higher costs than retaining the existing ones. Therefore, increasing the loyalty of old customers and motivating them to make repeat purchases is the key to expand the competition of online businesses. Previous studies have discussed the repurchase factors for different categories of products such as fresh produce, tourism app, online education etc. Other scholars have studied the intention to repurchase products based on different platforms such as O2O, B2C, group buying, C2C, etc.

As mentioned previously, consumer repurchase intentions have a significant impact on the success of e-commerce. However, few studies have looked at the repurchase intentions of female consumers, and most of them have focused on all consumers. Barletta (2003) decision spiral pathway for female states that male and female differ significantly in their consumption decision pathways, and that female's purchases do not really end once consumption is complete; they generate word-of-mouth publicity by recommending and spreading their experience of purchase to people around them. The loyalty of a female tends to be very high once a good relationship is established with a particular merchant. This shows that female consumers' intention to repurchase is different from that of male. To fill this research gap, this study aims to understand important dimensions of female consumers in e-commerce live streaming that lead to repurchase intention.

Drawing on expectation–confirmation theory (ECT), use and gratification, and flow theory, this study reveals that psychological mechanism of the influence of e-commerce live streaming feature on female consumers' satisfaction and repurchase intention. The characteristics of e-commerce live streaming are divided into four dimensions for measurement (perceived usefulness, perceived entertainment, perceived interactivity and flow experience). This study also introduces two mediating factors, satisfaction and satisfaction, to deepen the understanding of these two psychological mechanisms. Overall,

our study contributes to the literature by assessing the effectiveness of female consumers' perceived characteristics of e-commerce live streaming as an emerging business practice, revealing the underlying mechanisms in the unique context of live streaming commerce, and providing insights into the future development of e-commerce live streaming.

In the rapidly evolving landscape of e-commerce, characterized by the surge of live streaming as a compelling marketing and shopping channel, understanding consumer behavior is pivotal for the success of online businesses. While a substantial body of research has explored consumer repurchase intentions in e-commerce, there remains a notable research gap in comprehending the specific factors influencing the repurchase intentions of female consumers in the context of e-commerce live streaming. Acquiring new customers often involves higher costs than retaining existing ones (Gefen & Straub, 2000). Hence, nurturing customer loyalty and motivating repeat purchases among existing customers are critical strategies for enhancing the competitiveness of online businesses. However, existing studies predominantly focus on overall consumer behavior, overlooking the nuanced patterns of female consumers. Research by Barletta (2003) posits that the decision-making pathways of male and female consumers diverge significantly, with females often engaging in post-consumption activities that extend beyond the transaction, including sharing experiences and generating word-of-mouth publicity. This distinctive post-purchase engagement suggests that female consumers' intention to repurchase may differ from their male counterparts. Furthermore, once a strong rapport is established with a particular merchant, female consumers exhibit high levels of loyalty.

To address this research gap and capitalize on the unique attributes of e-commerce live streaming, this study aims to explore the multidimensional aspects of female consumers' experiences within this dynamic online shopping platform that contribute to their repurchase intentions. Drawing on established theories such as Expectation-Confirmation Theory (ECT), Use and Gratification, and Flow Theory, the study seeks to uncover the psychological mechanisms underlying the influence of e-commerce live streaming features on female consumers' satisfaction and, subsequently, their intention to repurchase. The characteristics of e-commerce live streaming, including perceived usefulness, perceived entertainment, perceived interactivity, and the flow experience, will serve as essential dimensions for measurement. Additionally, this study introduces two mediating factors, satisfaction and satisfaction, to provide deeper insights into the psychological mechanisms at play.

In summary, this study seeks to fill the existing research gap by shedding light on the unique factors driving the repurchase intentions of female consumers in the context of e-commerce live streaming. The findings hold the potential to inform marketing strategies, enhance customer loyalty, and facilitate the sustainable growth of businesses operating in this burgeoning domain.

## **2. Theoretical background**

### **2.1 *Uses and gratifications theory***

The study of "use and gratification" once had an important impact on the research history of mass communication effects. The theory of "use and gratification" starts from the psychological needs and motivations of the audience and combines the knowledge of sociology and psychology to explain people's behavior of using media to get gratification, and foregrounds the social reasons and psychological motivations for acceptance of the media by the audience. Leading to the ultimate satisfaction of personal needs and relevant

consequences eventually, the media was used initially to meet the psychological and social needs, as suggested by Katz et al. (1973). Social interaction, entertainment, personal identity, and information were the four dimensions of fundamental gratification, identified by the researchers. For example, Apaolaza et al. (2014) et al. found that information seeking motivation significantly affects adolescents' positive attitude towards Qzone use. Ifinedo (2016) believes that entertainment motivation significantly affects the behavioral intention of social media users.

Besides exploring their engagement with digital media, the intentions of individuals in watching of specific programmes on television (Stafford et al. 2004) were also examined extensively using the framework including internet technologies (Kaur et al. 2020) and social media usage on many platforms such as Twitter, MySpace, WeChat, TikTok (Chen, 2011; Raacke & Bonds-Raacke, 2008; Chai, & Fan, 2016), and purchase intention as well as user behaviors.

U&G theory has lately been adopted in the context of live streaming, for example, from the U&G theory to better understand the motivation of using online streaming media services (Camilleri and Falzon 2021). The viewing intentions in live-streaming were investigated by Sjöblom and Hamari (2017) applying the U&G theory. The shopping intentions to purchase through the live stream with regard to the orientation of shopping, perception of the digital celebrities, perception of the network size, along with usage and satisfaction of the Chinese consumers was studied by Ma (2021). Hence, in the pertinent study, to understand the live stream shopping motivations, the U&G theory was applied as the foundation.

## ***2.2 Expectation confirmation model***

Building on expectancy confirmation theory, Bhattacharjee (2001a, 2001b) proposed a ECM of IT continuation based on the congruence between individuals' ongoing decisions to use IT and consumers' repeated purchase decisions. The continued intentions of the users would be determined by their perceived utility and satisfaction with the continued usage of IS, as suggested by the results of the study. Consequently, the confirmation of their expectations and perceived usefulness from the earlier usage of IS would influence the satisfaction of the user (Bhattacharjee 2001a). Since it was proposed, expectation confirmation model has been widely used by scholars to explain and predict users' continuous use behavior of various information systems (technologies or services), and its effectiveness has been confirmed by numerous studies. For example, the service quality of the website and the satisfaction the customer derives from it impacts the repurchase intention of the customer positively by providing full mediating effect on the intentions for repurchase, as stated by Tandon et al. (2017).

With regard to the live stream, to examine the impact of the (ECM) and the perceived playfulness on the intent of continued usage of the e-commerce platform, some scholars explored the influencing factors of college students' continuous use of live stream platforms based on the theoretical model of expectation confirmation. Researchers extended the expectation confirmation model by introducing two variables: parasocial interaction and subjective well-being, and conducted studies on the continuous use and psychological benefits of live stream users. From the above research results, it can be found that ECM has good universality in the research of network information technology application system or consumer purchasing behavior. In view of this, this paper will also combine the expectation

confirmation model (ECM) to study the intention of female consumers to use e-commerce live streaming to repurchase.

### **2.3 Flow**

Flow theory (also known as "immersion theory") is a cognitive psychology theory first proposed by Csikszentmihalyi, a psychology professor at the University of Chicago, in 1975, which has been gradually improved. According to flow theory, the experience of flow occurs when individuals engage in attention and become immersed in an activity (Csikszentmihalyi 1975). The experience of flow or flux represents the 'state in which people are so engaged in an activity that nothing else seems to matter'. Csikszentmihalyi's characterisation of flow can be supported by studies of numerous diverse activities, such as reading, work, and sport, to name but a few of these.

According to Csikszentmihalyi and Csikszentmihalyi (1988), there are nine major characteristics of flow: autotelic experience, distortion of temporal experience, loss of reflective self-consciousness, potential control, intense and focused concentration, merged actions and awareness, personal skills to handle the challenges presented, immediate feedback, and clear goals. Csikszentmihalyi (1997) then divided it into eight, combining the characteristics of immediate feedback and awareness of action into one, which is actions merging with awareness and immediate feedback.

Flow was originally used to explain the holistic feeling of dancers and rock climbers in the midst of an optimal experience. Flow experiences are offered by the internet games, dancing, gambling, shopping, and such other sports, along with several activities of daily life. With the development of information technology, the experience of flow has been widely used in information technology (Novak et al. 2000). Online education, online games, instant messages, social networking sites, online shopping, and other online activities have been gradually drawing the attention of the researchers over the years. With the promotion of the consumption and information use behaviour, enhanced purchase and service usage intent, improved loyalty and product satisfaction, individuals with flow experience would display specific changes in their behaviour, intention, attitude, and other such aspects. From a consumer's perspective, As the perception of time gets distorted with the state of mind experiencing extreme pleasure, the self-awareness seems to disappear at this point, due to the high attention to the experience of shopping being very intense (Tamilmani et al., 2019). Resulting in positive outcomes produced by the actual usage behaviour, it is believed that the occurrence of the flow experience promotes loyalty and acceptance of the users towards the product.

For instance, the following studies were conducted on online shopping. Flow experience will positively affect his or her online purchasing behavior, including unplanned purchase and intention of repeat purchase (Cong, 2008). The e-customer satisfaction is highly impacted by the control dimensions, concentration, and telepresence, of the flow experience. Moreover, the dimensions of telepresence and concentration of the flow experience could change the repurchase intention. In addition, there exists a considerable body of literature on live streaming. For example, as the young derive a sense of flow from live-streaming, they tend to like it highly, whereas, the flow does not impact the elders, as claimed by Chen and Lin (2018). Wei et al. (2022) explored the mediating role of flow experience and perceived trust between streamer characteristics and consumers' impulse purchase intentions. Hence, live streaming has a crucial factor of flow experience.



### 3 Conceptual framework and hypothesis development

Including 4 mediations and 15 direct, a total of 19 hypotheses have been proposed in the model, based on the above theoretical discussions and theories (in the following sections). The hypotheses developed have been conceptualized in Figure 1.

#### 3.1 E-commerce living streaming

E-commerce live streaming is an organic integration of live streaming and e-commerce. As a new type of business, it is supported by cutting-edge technologies such as 5G network, cloud technology and big data, and uses the new media of live streaming to drive traffic. It is an upgrade and reform of communication e-commerce, which integrates the three elements of people, products and scenario. People are the subject, products are the foundation, and scenario is the dominant. In this study, e-commerce live streaming is operated as a way for consumers to purchase products. It is Taobao, an e-commerce website with live streaming function, or Douyin, a social network platform with e-commerce activities. The streamers will show the products to consumers synchronously through the Internet real-time live-streaming technology, so that consumers can place orders online and purchase products in time.

#### 3.2 Perceived usefulness

Perceived usefulness is summarized as the perceived benefits and sustainable advantages of shopping (Moslehpour et al. 2018). According to the expectation confirmation theory, Bhattacharjee (2001b) regards perceived usefulness as the expectation after adoption and believes that it plays a decisive role in users' continuous use behavior. It can not only directly affect users' willingness to repurchase technology, but also affect users' satisfaction with technology. It is about perceived necessary technological elements. Current studies on the continuous intention of social media also confirm that the perceived usefulness of social media significantly affects users' satisfaction with social media, and perceived usefulness of social media is also positively correlated with users' intentions to continue using social media (Kim, 2011). For example, Dai and Liu (2015) confirmed that the perceived usefulness of Wechat users is positively correlated with their satisfaction with the use of Wechat and their willingness to continue using Wechat. Zhang and Lu (2022) believes that perceived usefulness positively affected satisfaction and continued willingness to participate in live streaming. Satisfaction has an important positive impact on the continuous willingness to participate in e-commerce live streaming.

As a result, the following hypothesis is proposed:

H2a: The perceived usefulness of female consumers has a positive impact on consumers' satisfaction.

H3a: The perceived usefulness of female consumers has a positive impact on consumers' repurchase intention.

#### 3.3 Perceived entertainment

Davis et al. (1992) introduced perceived amusement into the technology acceptance model and defined it. Perceived entertainment refers to the degree to which an individual perceives that his or her interaction with information technology is enjoyable, excluding expected performance outcomes. The perceived entertainment refers to the level of pleasure that individuals feel during their IT interactions, excluding the expected performance outcomes. Thus, perceived entertainment is a reflection of users' intrinsic motivation and

positively influences their behavior (Lin et al., 2005), which affects consumers' continued willingness to use and satisfaction,, where entertainment has a positive impact on attitudes which influences willingness to recommend and intention to use a particular social platform. Chiu et al. (2009) is also considered to have a significant impact on customers on the network, such as increasing customers' willingness to use again. As live stream, Lin and Chen's (2017) survey of Taiwanese people's use of social networking sites to watch live streams found that entertainment was the main way to influence viewing attitudes and intention to watch in the main way. Based on SOR theory, Ren (2021) conducted an analysis of the impact of e-commerce live streaming on the repeated consumption behavior of a youth audience group and confirmed that entertainment positively influences consumers' purchase intentions, such as cognitive and emotional perceptions of goods, and thus has an impact on consumers' consumption behavior. Therefore, the following hypotheses are proposed in this study:

H2b: The perceived entertainment of female consumers has a positive impact on consumers' satisfaction.

H3b: The perceived entertainment of female consumers has a positive impact on consumers' repurchase intention.

### **3.4 Perceived interactivity**

Defining interactivity precisely would be highly difficult based upon the analysis of the earlier literature, as agreed by the researchers. However, for the successful marketing and communication online and on the mobile, interactivity has been considered as a significant construct. For example, besides creating dialogues between the streamers and users, the interactivity happens to be the degree to which the users could share their information and views in the live streaming room, as stated by Hsu and Lin (2021). Previous studies on interactivity mainly focus on online consumption in the traditional Internet shopping environment and an empirical study of landscape design and other offline services as scenes. With the development of technology, most researches on interactivity at the present stage are based on social media. For example, scholars concluded that perceived interactivity positively influences users' trust and attitudes toward travel websites, both in terms of human interaction and interaction with the system. Pan et al. (2019) found that perceived interactivity has a mediating role in expected interactivity and customer satisfaction and intention to continue using. Regarding the study of interactivity in live streaming, Gu (2020) conducted a study on the factors influencing consumer attitudes under live streaming of clothing and concluded that interactivity positively influences consumer attitudes. The interactivity influencing the behaviour and attitude has been verified by the earlier studies, and thus verifying the hypothesized relationships also stand verified from the context of the services of live streaming. Accordingly, certain hypotheses have been proposed as under:

H2c: The perceived interactivity of female consumers has a positive impact on consumers' repurchase intention.

H3c: The perceived interactivity of female consumers has a positive impact on consumers' satisfaction.

### **3.5 Flow**

The overall feeling people experience while being fully engaged in an activity has been defined as the flow experience by psychologist Csikszentmihalyi (1975). The integration of

inner pleasure, distortion of time, loss of self-consciousness, high concentration, and action are the characteristics of flow experience. Flow experience is a kind of autotelic experience, that is, flow experience itself can become an internal motivation to motivate people to repeatedly participate in a certain activity (Hoffman and Novak 1996). According to most of the research results, flow experience can trigger positive emotions of users, and then stimulate user satisfaction and loyalty, thus improving users' willingness to continue using to some extent. The behaviours, behavioural intentions, cognition, and attitudes of the internet users have been found to be impacted significantly by the flow experience, as confirmed by the studies during numerous activities on the internet by the scholars. Integrating theory of mind from Koufaris (2002), empirical results show that users' willingness to continue using a site is significantly positively affected by flow experiences. For example, Song and Shi (2013) research shows that flow experience significantly affects consumers' perceived usefulness and satisfaction with group-buying websites, and then affects users' loyalty to group-buying websites.

Therefore, the following hypothesis is proposed in this study:

H2d: The flow of female consumers has a positive impact on consumers' repurchase intention.

H3d: The flow of female consumers has a positive impact on consumers' satisfaction.

### **3.6 Gratification**

Rubin (1981) stated that UGT explains why people actively seek to use various media to satisfy their needs and how it motivates individuals to use innovative technologies to satisfy their specific needs and desires (Chen, 2011). As a result, subsequent studies have proposed various gratifications from media use that encompass information seeking gratification, social gratification, entertainment gratification, utilitarian gratification and technology gratification, stress release, and time passing. Currently, use and satisfaction theory is widely used in social media, and Gogan et al. (2018) concluded that hedonic satisfaction (entertainment value), social satisfaction (social engagement), and functional satisfaction (content engagement) have significant positive effects on user satisfaction, and user satisfaction and emotional response are important predictors of users' continued willingness. Yuan (2022) used Veya Live as a specific case and confirmed that the relationship between willingness to use and audience willingness to watch Veya Live was positively influenced. In addition, use and gratification theories have been applied to explain online shopping intentions. In Malaysia, entertainment gratification and informational gratification were positively related to attitudes toward online shopping. In China, With regard to the group buying networks, activities like seeking information, killing time, and entertainment significantly impact satisfaction, as claimed by Sun et al. (2022).

As the commerce of live streaming is a form of e-commerce including certain characteristics of streaming, with purchasing being the end goal of the users, pertinent to the e-commerce, we shall apply the satisfaction in online shopping domains primarily and combine the dimensions related to the streaming services and the social media partially. Application of the satisfaction and usage theory to the online shopping domains and the social media, would enable us to develop and adapt items suitable for the field of streaming commerce. For example, functional gratification is defined as perceived usefulness, entertainment gratification is defined as perceived entertainment (Gogan et al. 2018), social



gratification is defined as perceived interactivity (Gan and Li 2018), and time-wasting is defined as mind-flow. Therefore, the following hypotheses are proposed in this study:

H1a: The perceived usefulness of female consumers has a positive impact on gratification.

H1b: The perceived entertainment of female consumers has a positive impact on gratification.

H1c: The perceived interactivity of female consumers has a positive impact on gratification.

H1d: The flow of female consumers has a positive impact on gratification.

H4: Female gratification has a positive impact on consumer satisfaction.

H5: Female gratification has a positive impact on repurchase intention.

### **3.7 Consumer satisfaction and repurchase intention**

Consumer's satisfaction is an important factor to retain consumers repurchases intention in the future. Oliver (1980) found in his study that a high level of satisfaction can increase customers' preferred attitude towards the brand and thus increase their repeated purchase intention for the products of the brand. Pappas (2016) found evidence of a correlation between satisfaction and repurchase intention through the UTAUT2 model. From the perspective of retail, consumer satisfaction is a key driver of loyalty, and is also considered to be the premise of repurchase intention. Customers who are satisfied are more likely to buy back from a firm that has satisfied them from their previous purchases via the Internet (Shankar et al. 2003). Most research in this area focuses on satisfaction as the primary factor in loyalty formation. A satisfied customer will buy again and bring long term benefits to firms (Tsai and Huang 2007). Therefore, the following hypotheses are proposed in this study:

H6: Female consumer satisfaction has a positive impact on repurchase intention.

## **4 Methodology**

For the development of an integrated model capable of predicting the consumer satisfaction and repurchase intents with live streaming e-commerce, the flow theory, ECM, and the UGT were combined in the study. With the support of the AMOS software package, the Structural Equation Modelling (SEM) approach was applied for evaluating the empirical strength of the relationship in the proposed model. The questionnaire design and the procedure of sample collection have been focused in this section.

### **4.1 Sample**

Female consumers of e-commerce livestreaming products were studied as a whole. The reason why we choose Chinese female consumers is that according to Accenture, close to the retail markets of the UK, France, and Germany put together, almost 10 trillion yuan of spending by consumers every year, constituting the third largest consumer market, is controlled by around 400 million the female consumers in China, between the ages of 20 and 60. To ensure the representativeness of the samples, the network selection and judgemental methodology were adopted. Moreover, for a confidence level of 95.5%, the maximum sampling error permitted was 7%. Additional units are then obtained based on the information provided by the initial sample unit. The judgmental sampling is based on two parameters: (1) The respondents must be watch the e-commerce live streaming has three months above (contain three months) had consumption experience of consumers, live of the electricity suppliers have a deeper understanding and awareness; (2) The subjects of the

questionnaire were randomly distributed among women with educational backgrounds and regions, so as to minimize the alienation of respondents. In the formal questionnaire survey, the larger the sample size, the more reliable the validity of the inference will be. However, researchers should also take time, energy and financial factors into consideration and select representative samples to estimate the total body. There was a definite relation between the number of samples of the theory and the question items, and he believed that the relation between the number of samples and the question items should be maintained at 5:1. According to the above requirements, there are 41 measurement items at different levels in this study, and a reasonable sample selection should be at least 205 items, in order to conform to the real operation of the survey.

#### **4.2 Measures**

Seeking to combine the economy in procedure with the relevance of the purpose of the research, the arrangement of the analysis conditions and data collection in a specific manner, is referred to as research design (Selltiz et al., 1962, p.50). Consequently, following a review of different literature on data collection methods (Parlinska & Parlinski, 2003), the quantitative research method will be employed in the present study, which is better suited for solving the objectives and questions of this study compared to other research methods, because this method allows survey forms to be distributed to large numbers of respondents in different geographic locations at relatively lower cost, a shorter period of time and with less effort compared to the qualitative research approach through in-depth interviews with key respondents. As noted by Huang and Suo (2021) clearly revealed that this method is widely used in the area of research on live streaming of e-commerce and consumer behavior. This study has constructed a structured questionnaire design as a means of data collection because the use of questionnaires as a research instrument is an efficient way to collect data from large samples. All items were used a five-point Likert scale (1=totally disagree; 5=totally agree), because the 5-point Likert scale is more accurate and more appropriate (Finstad, 2010). In addition, a large number of Likert scales have been used in marketing research (Garland 1991), the researcher can identify their level of agreement to a subject.

#### **4.3 Descriptive statistics**

The questionnaires were distributed from February 5 to March 4, 2017. A total of 276 copies were distributed and collected. After preliminary screening, 226 valid questionnaires were obtained (recovery rate 81.8%). The sample structure is shown in Table 1. The interviewees in this sample are all female (due to the exclusion of the questionnaire with male options), and the interviewees are aged 20-30 (24.78%), and 40-50 years old (26.11). Most of the respondents (44.69%) have a bachelor's degree, and about 30.97% of them are employees of enterprises. Nearly half of the respondents (48.67 percent) have a monthly disposable income of 2,000 to 5,000 yuan. Among the respondents, the majority (33.63%) watch live streaming 3-5 times a week, and 38.05% watch live streaming of e-commerce for 30 minutes to 1 hour each time. Nearly half of the respondents (48.23 %) choose to shop on Douyin platform, and one third (33.19 %) buy food products, and about half of the respondents (51.32%) spend less than 500 yuan. 68.14% of respondents will be influenced by streamers to buy products.

#### **4.4 Reliability and validity**

According to Nunnally (1978), Cronbach's  $\alpha$  value should be greater than 0.7 to meet the reliability criteria. In this study, spss26 was used for analysis (Table 2), and it was concluded that the reliability value exceeded the threshold, indicating good internal consistency. The validity analysis showed that the KMO value was 0.988, exceeding the Kaiser (1974) recommendation value of at least 0.8. As shown in Table 2, the extracted AVE is greater than the threshold of 0.6, CR of each dimension is greater than 0.7, and the factor loading of each latitude is greater than the threshold of 0.5, which is consistent with the opinion put forward by Fornell and Larcker (1981), ensuring the validity of the structure and indicating the ideal convergence validity.

In addition, spss26 was used to analyze the correlation coefficient matrix of the measured variables in this paper. There are significant correlations among perceived usefulness, perceived entertainment, perceived interactivity, flow experience, consumer satisfaction, satisfaction and repurchase intention ( $P < 0.01$ ), and the square root of AVE on the diagonal is greater than the data below the diagonal, indicating that each variable has a certain correlation and a certain degree of differentiation between each other, proving that the scale has ideal discrimination validity (Table 3).

#### **4.5 Model goodness of fit**

In this paper, AMOS26.0 software tested the hypothesis model, and obtained the solution of standardized coefficients among observed variables and each fit index of the model (Table 3). All indexes reached the absolute standard fit value, so the fit degree of the model was ideal (Mulaik et al., 1989; Hair et al., 2010, p.758).

#### **4.6 Test of hypotheses**

The results of theoretical model calculated by Amos26.0 are summarized, and the path coefficients of structural equation are shown in Figure 2. Perceived usefulness of female consumers under live streaming e-commerce (0.238,  $P < 0.05$ ), perceived entertainment (0.21,  $P < 0.05$ ), perceptual interactivity (0.224,  $P < 0.05$ ), flow experience (0.206,  $P < 0.05$ ) has a positive effect on consumer satisfaction. Therefore, the hypothesis of H3a-d is verified. Perceived usefulness of female consumers under live streaming e-commerce (0.305,  $P < 0.001$ ), perceived entertainment (0.171,  $P < 0.05$ ), perceptual interactivity (0.213,  $P < 0.05$ ), flow experience (0.199,  $P < 0.05$ ), consumer satisfaction (0.158,  $P < 0.05$ ) has a positive impact on consumer satisfaction, so the H2a-d and H4 hypotheses are verified. Perceived usefulness of female consumers under live streaming e-commerce (0.208,  $P < 0.001$ ), perceived entertainment (0.322,  $P < 0.001$ ), perceived interactivity (0.122,  $P < 0.05$ ), flow experience (0.2,  $P < 0.05$ ), satisfaction (0.118,  $P < 0.05$ ), consumer satisfaction (0.313,  $P < 0.001$ ) has a positive impact on consumers' repurchase intention, so H1a-d, H5, H6 hypothesis is verified.

#### **4.7 Mediation effect test**

The Bootstrap analysis of Amos 24 was used, the sample iteration size was 5000, and the confidence interval of 95% was set to analyze the intermediary variables of consumers' perceived usefulness, perceived entertainment, perceived interaction and flow experience on consumers' repeated purchase intention under e-commerce live streaming. The Specific Indirect Effect operation results are shown in Table 6. As can be seen from Table 6, the confidence interval of consumer satisfaction among perceived usefulness, perceived entertainment, perceived interactivity, flow experience and repeated purchase intention

does not include 0, and P values are all less than 0.05, indicating that the mediating effect of consumer satisfaction among perceived usefulness, perceived entertainment, perceived interactivity, flow experience and repeated purchase intention is valid. In addition, the confidence interval between perceived interactivity and consumer satisfaction does not include 0, and the P value is less than 0.001, indicating that the mediating effect of gratification between perceived interactivity and consumer satisfaction is valid.

## **5 Research Conclusions And Implications**

### **5.1 Research Conclusion**

Starting from the perceived experience of female consumers under e-commerce live broadcasting, this study studied the influence of female consumers' perceived experience in e-commerce live broadcasting on customers' repeated purchase intention and the mediating role of consumer satisfaction and satisfaction in this process. On the basis of literature review, relevant research models and hypotheses are proposed based on UGT theory and ECM model. In addition, the questionnaire was designed by referring to the existing maturity scale and combining with the typical characteristics of e-commerce live broadcasting. After a series of empirical tests, the research conclusions are as follows:

The empirical results of correlation analysis and structural equation model show that: first, the perceived experience of female consumers under live streaming e-commerce has a positive impact on repeat purchase intention, but the performance intensity of different dimensions is different. According to the significance and magnitude of regression coefficient of path analysis, the influence intensity was ranked as perceived entertainment, perceived usefulness, flow experience and perceived interactivity in descending order. Second, the perceived experience of female consumers under live streaming e-commerce has a positive impact on consumer satisfaction and satisfaction. However, different dimensions of customer experience have different degrees of influence. According to the size of the standard regression coefficient, consumers' perceived usefulness has the greatest impact on satisfaction and satisfaction. Thirdly, according to the mediating effect test procedure, satisfaction has a mediating effect on consumers' perceived usefulness, perceived interactivity, perceived entertainment and flow experience, while the mediating effect of satisfaction is not valid. Studies by Bhattacharjee (2001a), Establishing long-term relationships through satisfaction with consumers, the merchants would influence the purchase decisions of the consumers significantly, as indicated by Bai et al. (2008). Thus, it can be seen that the repeated purchase intention of consumers under live streaming e-commerce is also achieved.

### **5.2 Implications**

Live streaming has a strong ability to bring goods, and many merchants choose to use this new marketing way to improve their sales performance. However, rather than stimulating the first purchase intention of customers and bringing one-off sales, continuous mining of customer demand, maximizing customer experience, improving customer repeat purchase intention and loyalty is the key to maintain the competitive advantage of the enterprise's own brand, ensure survival and profit. Therefore, how to retain users for merchants and professional anchors and make old customers who have participated in live shopping become loyal shoppers of the broadcast room is a problem that needs to be treated with emphasis. This research is of great practical significance to improve customer experience and promote customer loyalty.

First, businesses can attract conscious people by adding simple and practical functions in the purchase process, such as convenient ordering, convenient payment, saving time and money, and humanized Settings on the live broadcast page. Second, empirical research results show that perceived entertainment has the greatest impact on consumers' repeated purchase intention. The young generation of consumers have increasingly higher requirements for perceived entertainment. When merchants make marketing strategies, adding certain interest can effectively stimulate consumers' purchase. For example, setting up appropriate live broadcast scenes, creating a cheerful live broadcast atmosphere, adding random red envelopes, points, cash back for good reviews, random free order and other activities, so that consumers can enjoy the pleasant process of mobile purchase. Good experience can improve the desire to buy and stimulate consumption. Thirdly, in the live broadcast room, users can express their preferences to anchors and other consumers in real time and share their shopping experiences of products. This shows that each broadcast room should effectively control and guide the interaction between users and anchors as well as between different users, and try its best to suppress negative user interaction and promote positive communication and interaction. Broadcasting room smooth customer communication channels, enhance customer interaction experience, can effectively promote the transformation of users to loyal customers. Fourth, pay attention to the flow experience of consumers, so that consumers focus on watching live broadcast and enjoy it. Merchants can establish active response mechanisms, such as new product trial push, coupon issuance and product communication group, to continuously attract consumers' attention and stimulate consumers' flow experience, so as to purchase again. Fifth, improve consumer satisfaction and meet the diversified needs of consumers. For example, quality and packaging should be considered to improve product satisfaction. Product quality is the core of sales. Using high-quality raw materials, improving product quality and improving packaging beauty at a reasonable cost can improve consumer satisfaction to a certain extent and encourage consumers to make more active shopping decisions. Improve the logistics system, strengthen after-sales satisfaction, and maintain business integrity, increase consumer stickiness, etc.

### ***5.3 Research Limitations and Future Research***

Every effort has been made in this study to reduce the limitations of the study, but there are still some issues that need to be resolved. First of all, the survey sample of this study is not enough, and the number and scope of questionnaires are insufficient. The research on consumer purchasing behavior covers a wide range, has a large amount of data, and is updated quickly. Based on the above characteristics, researchers in the later stage can make a comprehensive dynamic analysis with the help of enterprise big data technology. Secondly, there is a lack of differentiation analysis for consumers. The object of this study is female consumers, who have a large group of consumers with strong diversity. Subsequent studies can be conducted by combining age, occupation, income and other variables.

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1 **Table 1** Statistics of sample structure.

Measure	Item	Frequency	Percent (%) <sup>①</sup>
Gender	Female	226	100.00
	20-30	56	24.78
	<20	31	13.72
Age	30-40	51	22.57
	40-50	59	26.11
	>50	29	12.83
Educational level	Phd	27	11.95
	Junior College	56	24.78

	Bachelor	101	44.69
	Master	17	7.52
	Senior High School and below	25	11.06
	Professional (e.g. doctor/teacher/journalist)	30	13.27
Occupation	Enterprise Employee	70	30.97
	Student	50	22.12
	Worker	40	17.70
	Freelancer	36	15.93
Monthly disposable income	<2000	50	22.12
	2000-5000	110	48.67
	5000-8000	35	15.49
	>8000	31	13.72
Average weekly watching e-commerce live streaming frequency	<3	65	28.76
	3-5	76	33.63
	5-7	58	25.66
	>7	27	11.95
Average time spent watching e-commerce live streaming	1hour-2hour	36	15.93
	>2hour	31	13.72
	30min-1hour	86	38.05
	<30min	73	32.30
Purchase an e-commerce live streaming platform	Kuai shou	40	17.70
	Douyin	109	48.23
	Taobao	77	34.07
Kinds of products to buy	Cosmetics	37	16.37
	Clothing (shoes, bags, accessories)	57	25.22
	Life FMCG	57	25.22
	Food	75	33.19
Amount spent each time	<100yuan	50	22.12
	100-500yuan	66	29.2
	500-1000yuan	55	24.34
	1000-3000yuan	38	16.81
	>3000yuan	38	7.52
Will you buy the products he recommends because you like the streamer?	Yes	72	31.86
	No	154	68.14
Online shopping years	>10years	25	11.06
	3years-5years	86	38.05
	<3years	68	30.09
	5years-10years	47	20.80
Total		226	100.0

2

3 **Table 2** Results of reliability and validity analysis

Constructs and Items	Cronbach's $\alpha$	Factor loading	AVE	CR
Perceived Usefulness	PU4	0.922	0.845	0.600
	PU3	0.689		
	PU2	0.564		
	PU1	0.868		
Perceived Entertainment	PE3	0.821	0.856	0.666
	PE2	0.821		
	PE1	0.806		
Perceived Interactivity	PI4	0.914	0.824	0.573
	PI3	0.59		
	PI2	0.891		

	PI1	0.562			
	FL5	0.953			
	FL4	0.723			
Flow	FL3	0.683	0.871	0.6	0.879
	FL2	0.872			
	FL1	0.585			
	GI4	0.816			
Gratification	GI3	0.606	0.858	0.615	0.863
	GI2	0.82			
	GI1	0.868			
	CS4	0.805			
Consumer Satisfaction	CS3	0.84	0.864	0.614	0.864
	CS2	0.718			
	CS1	0.767			
	RI4	0.833			
Repurchase Intention	RI3	0.787	0.867	0.622	0.868
	RI2	0.771			
	RI1	0.761			

4

**Table 3** Analysis of discriminant validity.

Variables	PU	PE	PI	FL	GI	CS	RI
PU	0.774						
PE	0.295**	0.816					
PI	1.295**	0.314**	0.757				
FL	2.295**	0.167*	0.371**	0.775			
GI	3.295**	0.385**	0.451**	0.414**	0.784		
CS	4.295**	0.422**	0.52**	0.487**	0.542**	0.784	
RI	5.295**	0.633**	0.587**	0.579**	0.644**	0.794**	0.789

6

**Table 4** Test of model fit.

Indexes	Items	Suggested	Actual	Result
Absolute Fit Measures	X2/df	<3	1.321	Satisfied
	RMSEA	<0.08	0.038	Satisfied
	AGFI	>0.8	0.853	Satisfied
	GFI	>0.8	0.881	Satisfied
Incremental Fit Measures	CFI	>0.9	0.971	Satisfied
	TLI	>0.9	0.967	Satisfied
Parsimonious Fit Measures	PGFI	>0.5	0.714	Satisfied

8

**Table 5** Results of the hypotheses.

SEM path	Path value	P value	Hypotheses	Testing result
GI <--- PU	0.238	0.001	H3a	Tenable
GI <--- PE	0.21	0.003	H3b	Tenable
GI <--- PI	0.224	0.002	H3c	Tenable
GI <--- FL	0.206	0.003	H3d	Tenable
CS <--- PU	0.305	***	H2a	Tenable
CS <--- PE	0.171	0.009	H2b	Tenable

9

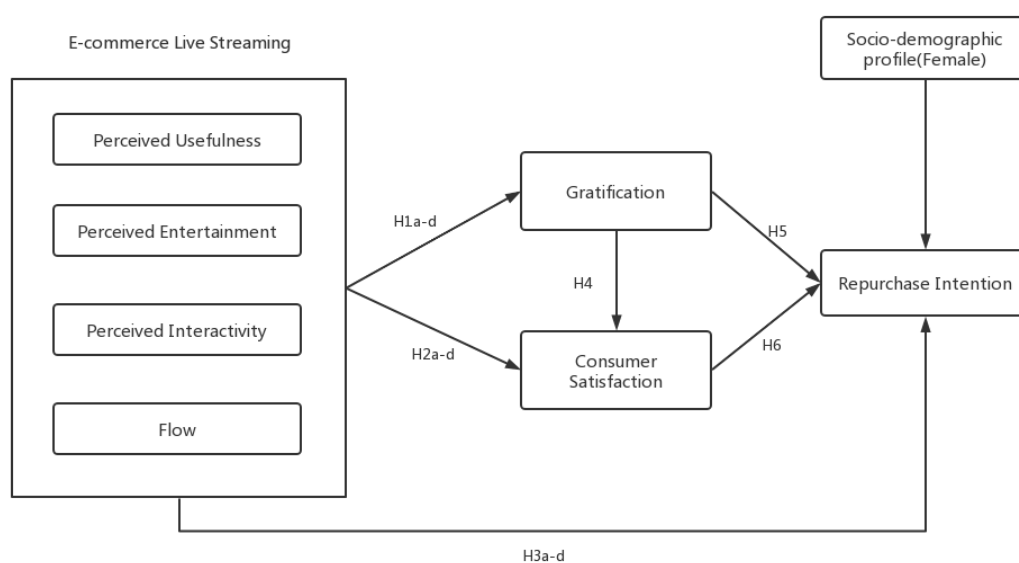
CS	<---	PI	0.213	0.002	H2c	Tenable
CS	<---	FL	0.199	0.002	H2d	Tenable
CS	<---	GI	0.158	0.036	H4	Tenable
RI	<---	PU	0.208	***	H1a	Tenable
RI	<---	PE	0.322	***	H1b	Tenable
RI	<---	PI	0.122	0.018	H1c	Tenable
RI	<---	FL	0.2	***	H1d	Tenable
RI	<---	GI	0.118	0.036	H5	Tenable
RI	<---	CS	0.313	***	H6	Tenable

10

11 **Table 6** Results of mediation effect

Path	Standardized estimates	indirect effect	95% confidence interval		Intermediary effect
			Lower	Upper	
PU-GI-RI	0.019		-.003	.056	Untenable
PE-GI-RI	0.019		-.002	.061	Untenable
PI-GI-RI	0.019		-.002	.059	Untenable
FL-GI-RI	0.018		-.003	.059	Untenable
PU-GI-CS	0.039		-.001	.111	Untenable
PE-GI-CS	0.038		-.001	.124	Untenable
PI-GI-CS	0.037		.000	.112	Mediation
FL-GI-CS	0.036		-.001	.107	Untenable
PU-CS-RI	0.066		.024	.142	Mediation
PE-CS-RI	0.042		.007	.116	Mediation
PI-CS-RI	0.047		.017	.099	Mediation
FL-CS-RI	.047		.010	.116	Mediation

12



**Figure 1** Theoretical model



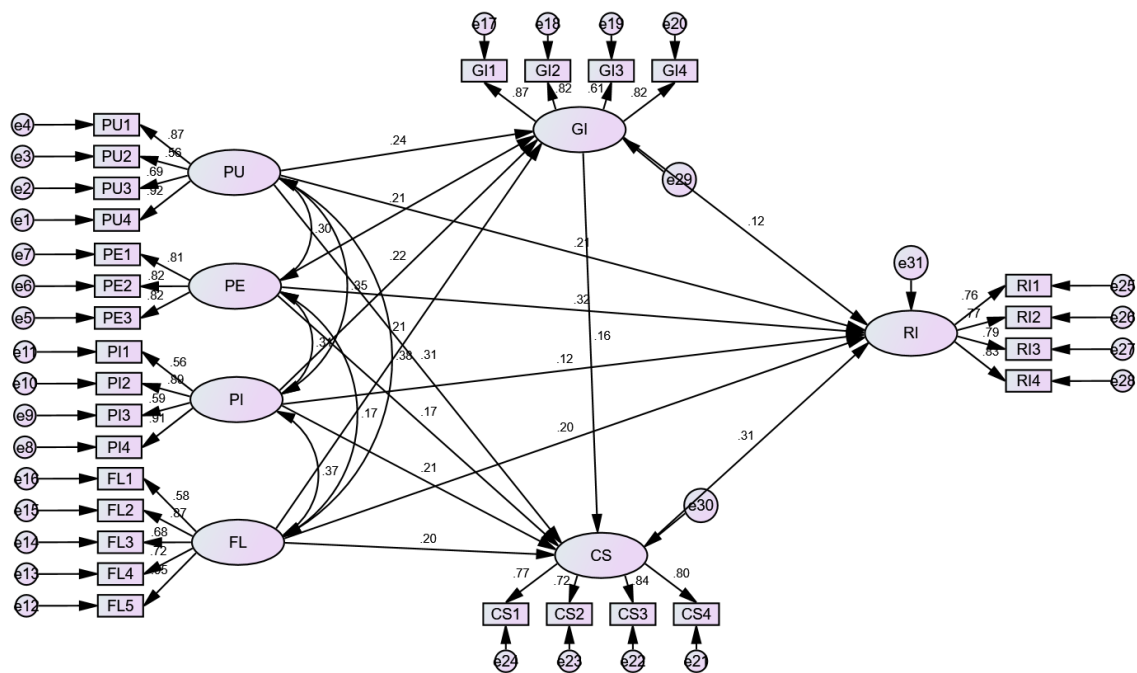


Figure 2 Structural equation model