

The Study on the Influencing Factors of Consumer Purchase Intention in Live-Streaming Sales

-- Based on the mediating role of perceived value

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Abstract: This study focuses on the influencing factors of user purchase intention in e-commerce live streaming. Based on the SOR theory model, a research model is constructed from the perspective of consumer perception. The results show that the popularity, professionalism, and homogeneity of e-commerce streamers, as well as the price discounts and content quality in e-commerce live streaming product features, and the spatial and social presence in e-commerce live streaming presence features, can directly and positively affect users' purchase intention. At the same time, they can significantly and positively affect perceived value, and perceived value has a significant indirect mediating effect between e-commerce live streaming features and users' purchase intention.

Keywords: Purchase intention, Perceived value, E-commerce, Live streaming.

1. Introduction

With the increasing popularity of live streaming sales, more and more anchors are flocking to relatively few and unchanged top live streaming platforms, leading to an increasingly homogenized phenomenon and intensifying competition. Live streamers, live streaming platforms, and brand owners all need to establish their own competitive advantages to attract more consumers in the competition, stimulate their willingness to purchase, and thus increase the sales volume of products during live streaming. Based on reviewing existing literature, this article explores the impact mechanism of internet celebrity live streaming sales on consumer online shopping based on the SOR model and various theories.

2. Theoretical Basis

2.1. Purchase Intention

Intention is the subjective possibility of an individual engaging in a certain behavior, and derived from the same concept, purchase intention is the possibility of consumers taking actual purchasing behavior. Fishbein & Ajzen (1975) emphasized the role of the external environment in the formation of purchase intention, while Mullet & Karson (1985) found that purchase intention is a prelude to purchasing behavior and is influenced by both internal and external factors. Hellier (2003) suggests that purchase intention is formed by consumers in specific current or future contexts.

2.2. Factors Influencing Purchase Intention

2.2.1. Product Features

Hui & Zhou (2002) believed that product quality can affect consumers' perceived value and thus influence their purchase intention. Flanagin & Metzger (2014) et al. proposed that product quality plays a mediating role between user ratings and purchase intention. Liat & Fei (2015) argued that price, personalization, and fast order processing, without considering shopping location, can save time.

2.2.2. Opinion Leaders

Early research on opinion leaders originated from some active individuals in the US election who are susceptible to media influence and then transmit the received information to less active groups. They defined these active individuals as opinion leaders. Rogers' (1995) study on innovation diffusion further pointed out the important role of opinion leaders in the diffusion of innovation (new information is also a form of innovation).

2.2.3. Presence Features

The concept of "presence" originated from the field of communication studies. Ijsselstein (2020) divides the sense of presence into two categories. The first category is physical presence, which refers to the degree of interaction perceived by users in an environment constructed by virtual information technology. It reflects the user's feelings in that context; The second type is social presence, which emphasizes the user's perception of the presence of others.

2.3. Perceived Value

Zeithaml (1988) defined perceived value as "the overall evaluation of gains and losses by customers", where the greater the ratio of "gains" to "losses" perceived by customers, the greater the perceived value. Entering the Internet era, Chang & Wang (2011) pointed out that perceived value is the product of the combination of perceptual value and rational value, and network service providers should focus on meeting consumers' needs for perceptual value. The three-dimensional division method of perceived value dimension, represented by Holbrook (1999), divides the dimensions of perceived value into functional dimension, emotional dimension, and social dimension.

2.4. SOR Theory

Mehrabian et al. (1974) began to focus on the impact of external stimuli and proposed the SOR theory, which includes Stimulus, Organism, and Response, by influencing the subjective initiative and inner consciousness of the recipient to produce corresponding behavior. The SOR theory has been proven to be applicable in studying user purchasing behavior,

including their shopping behavior in e-commerce live streaming rooms.

2.5. Research Hypothesis

2.5.1. The Relationship between the Characteristics of E-commerce Streamers and Perceived Value

The characteristics of e-commerce live streamers mainly include popularity, professionalism, and homogeneity. Agrawal and Kamakura's (1995) study showed that the influence of celebrities makes information recipients more aware of the effectiveness of information, and therefore celebrities with a certain level of popularity are more likely to be reliable sources of information, influencing the perception and behavior of recipients. Agag & El-masry (2016) found in their study of online tourism community users' purchase intention that the popularity, professionalism, and reputation of opinion leaders have a direct impact on users' perceived usefulness. We propose the following hypothesis:

H1: In the context of live streamers' promotion, the characteristics of e-commerce streamers have a significant impact on users' perceived value.

H1a: The popularity of e-commerce streamers has a significant impact on users' perceived value.

H1b: The level of professionalism of e-commerce streamers has a significant impact on users' perceived value.

H1c: The degree of homogeneity between e-commerce streamers and users has a significant impact on the perceived value of users.

2.5.2. The Relationship between the Characteristics of E-commerce Products and Perceived Value

In the study of price discounts and purchase intention, Biseas and Burton (1993) pointed out that customers will calculate the saved monetary costs based on the merchant's promotional activities, and then make different purchasing decisions. Chandon et al. (2000) proposed that price discounts can enable users to perceive functional benefits and hedonic benefits, but the specific degree of perception will vary depending on the promotion method. We propose the following hypothesis:

H2: In the context of live streamers' promotion, product features have a significant impact on users' perceived value.

H2a: Price discounts have a significant impact on users' perceived value.

H2b: The quality of product content has a significant impact on consumers' perceived value.

2.5.3. The Relationship between Perceived Value and the Sense of Presence of E-commerce Live Streaming

The sense of spatial presence is one of the important factors affecting consumer decisions in online shopping transactions. Song et al. (2007) found through empirical research that the sense of presence felt by users during the shopping process can affect their imagination and promote the generation of pleasure. Wang et al. (2014) found that using virtual 3D cartoon characters in managing online stores can increase the frequency of communication with users and enhance the sense of social presence, which is beneficial for users to generate hedonic value and positive impressions of the store. Therefore, we propose the following hypothesis:

H3: The Sense of Presence of e-commerce live streaming have a significant impact on users' perceived value.

H3a: Spatial presence has a significant impact on users'

perceived value.

H3b: Social presence has a significant impact on consumers' perceived value.

2.5.4. The Relationship between Consumer Perceived Value and Purchase Intention

Perceived benefits include emotional value, functional value, and social value, among which functional value is composed of quality value and price value. Zeithaml (1988) pointed out that consumers' perceived value has a significant positive impact on their purchase intention. Neal (1999) found that even if consumers feel dissatisfied with the product, it will have a negative impact on their subsequent repurchase behavior. However, perceived value will continue to make purchasing decisions, so compared to customer satisfaction, value perception has a greater impact on consumers' purchasing decisions. Based on the above analysis, we propose the following hypotheses:

H4: In the context of live streamers' promotion, consumers' perceived value has a significant impact on their purchase intention.

2.5.5. The Mediating Role of Perceived Value

(1) The mediating effect of perceived value between live streamers' characteristics and purchase intention

Monree and Krishnan (1985) found that whether users make purchasing decisions is determined by the degree of perceived value brought by the product or service. Kwon & Trail & James (2007) studied the mediating role of perceived value in team identification and team approval of clothing purchase intention. The professionalism of the live streamer and the homogeneity between the live streamer and the audience will affect users' trust and value perception, which in turn will affect their purchase intention. Therefore, we propose the following hypothesis:

H5: In the context of live streamers' promotion, perceived value plays a mediating role in the live streamers' characteristics on user purchase intention.

H5a: The perceived value of users plays a mediating role in the popularity of live streamers and the users' purchase intention.

H5b: The perceived value of users plays a mediating role in the professionalism of the live streamers and the users' purchase intention.

H5c: The perceived value of users plays a mediating role in the homogeneity of hosts and the users' purchase intention.

(2) The Mediating Role of Perceived Value between Product Features and Purchase Intention

The quality of service content in mobile value-added services will indirectly affect purchase intention through customer perceived value, with perceived value playing a mediating role. Perceived value plays a mediating role in the live streamers' trust and live streaming promotion prices on purchasing behavior. Therefore, we propose the following hypothesis:

H6: In the context of live streamers' promotion, perceived value plays a mediating role in the influence of e-commerce product features on user purchase intention

H6a: The perceived value of users plays a mediating role in the price discounts of goods and the user's purchase intention.

H6b: User-perceived value plays a mediating role in the quality of product content and user purchase intention.

(3) The Mediating Role of Perceived Value between the Sense of Presence and Purchase Intention

Agheshloue et al. (2014) found that perceived value and perceived risk play a mediating role in the relationship between store image and consumer purchase intention. Consumers have a perceived value system towards the store when purchasing goods, which directly affects their dependence on the store and thus influences their purchase intention and decision-making. Therefore, we propose the following hypothesis:

H7: In the context of live streamers' promotion, perceived value plays a mediating role in the influence of scene features

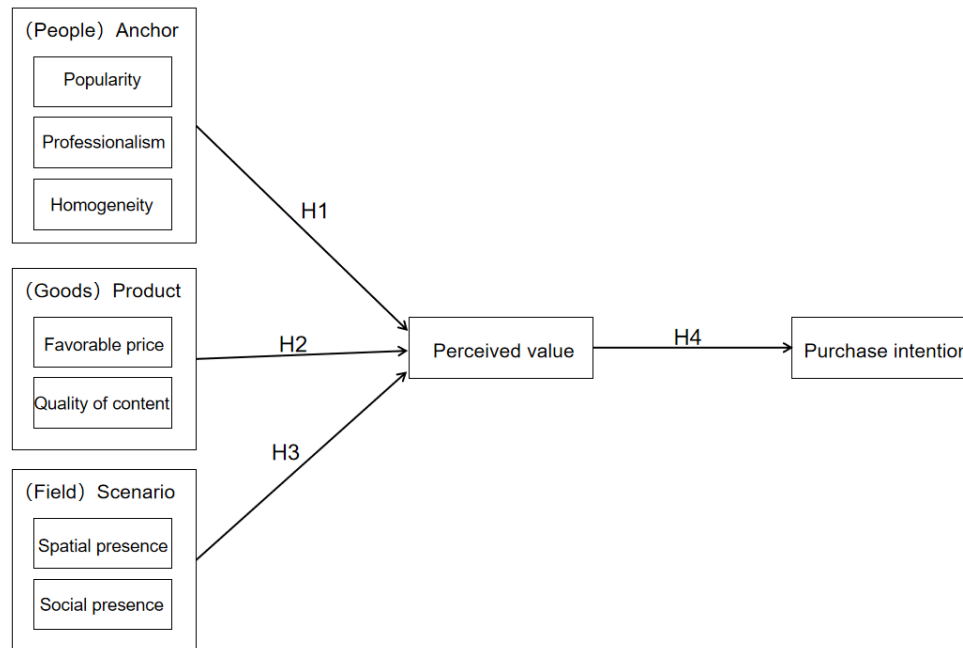


Figure 1. Research model

3. Research Design

3.1. Questionnaire Design and Scale Measurement

The study takes the popularity, professionalism, and homogeneity of the live streamers, product price discounts, content quality, and social and spatial presence in the live streaming scene as independent variables, perceived value as the intermediate variable, and customer purchase intention as the dependent variable. Draw on domestic and foreign research results to develop a suitable scale. The questionnaire items use Likert's 5-point scale, with "1=strongly disagree, 5=strongly agree".

3.2. Questionnaire survey and Sample Collection

The questionnaire will be distributed on social media platforms such as WeChat, Weibo, and Xiaohongshu. A total of 303 questionnaires were distributed in this study. After processing and removing 67 invalid questionnaires, the final number of valid questionnaires was 236, with an effective rate of 77.9%.

on user purchase intention

H7a: User perceived value plays a mediating role in spatial presence and user purchase intention

H7b: User perceived value plays a mediating role in social presence and user purchase intention

Based on the previous analysis of the purchase intention model, S-O-R (Stimulus Organism Behavior) theory model, and related model construction and theoretical research, as well as the review of research content related to e-commerce live streaming, this paper proposes the following research models:

4. Data analysis

4.1. Sample Descriptive Analysis

Descriptive statistics were performed on the questionnaire data using SPSS at 27.0. Among all the samples, there were 175 female respondents, accounting for 74.2%, which is similar to the gender distribution of live-streaming e-commerce streamers and consumers. There were 228 respondents aged 19-25, accounting for 96.6%. The undergraduate group has the highest proportion, reaching 92.4%. Students and enterprise employees have the highest proportion, reaching 89.4% and 8.5% respectively. There are 185 people with a monthly income of 1000-4000 yuan, accounting for 78.4%. The highest number of people watching live e-commerce for 0-5 hours per week is 229, accounting for 88.42%.

4.2. Reliability Testing

The Cronbach's Alpha coefficients for popularity, professionalism, homogeneity, price discounts, content quality, spatial presence, social presence, perceived value, and purchase intention are 0.906, 0.775, 0.882, 0.842, 0.849, 0.858, 0.801, 0.804, and 0.826, respectively, all of which meet the criteria of being above 0.7. Therefore, it can be considered that the reliability of the scale is good.

4.3. Validity Testing

The KMO value and Bartlett sphericity test results showed that the KMO value was 0.894 (>0.7), and the significance of Bartlett sphericity test was 0.000 (far less than 0.05). Using Amos software to analyze the convergent validity of the sample data, the standardized factor loadings of the 9 variables were mostly greater than 0.600, and the average

extracted variance (AVE) was greater than 0.500. The combined reliability CR values were all greater than 0.700, indicating that all variables in the questionnaire have good convergent validity. The root mean square of AVE for 9 variables is greater than 0.707, and the discriminant validity between variables is less than the root mean square of AVE, indicating that each variable has a certain degree of discrimination and the discriminant validity is relatively ideal.

Table 1. Construct correlations and square roots of AVE

	Perceived value	Purchase intention	Social presence	Spatial presence	Quality of content	Favorable price	Homogeneity	Professionalism	Popularity
Perceived value	0.725								
Purchase intention	0.396	0.820							
Social presence	0.549	0.464	0.764						
Spatial presence	0.647	0.430	0.704	0.815					
Quality of content	0.553	0.489	0.647	0.626	0.736				
Favorable price	0.505	0.465	0.592	0.534	0.689	0.760			
Homogeneity	0.443	0.403	0.393	0.514	0.396	0.412	0.846		
Professionalism	0.351	0.325	0.448	0.475	0.501	0.458	0.355	0.750	
Popularity	0.220	0.274	0.455	0.373	0.339	0.230	0.348	0.353	0.875

Notes: Boldface numbers on the diagonal are the square root of the average variance extracted.

4.4. Main Effect Test

4.4.1. Characteristics and Perceived Value of E-commerce Live Streamers

The characteristics of e-commerce live streamers have a significant positive impact on perceived value (B=0.375; p<0.001). Among the three dimensions of e-commerce live

streamers' characteristics, popularity (B=0.131; p=0.002) significantly affects user perceived value, professionalism significantly has a positive impact on perceived value (B=0.269; p<0.001), and homogeneity also significantly has a positive impact on perceived value (B=0.234; p<0.001). In summary, popularity, professionalism, and homogeneity among the characteristics of e-commerce live streamers can significantly and positively affect perceived value. Thus, H1, H1a, H1b, and H1c are all supported.

Table 2. Regression analysis of the main effect of e-commerce live streamers' characteristics on perceived value

Variant	Unstandardized coefficient		Standardized coefficient Beta	t	p	Hypothesis testing
	B	Standard error				
E-commerce live streamers' characteristics	0.375	0.057	0.396	6.593	<0.001	H1 supported
Popularity	0.131	0.042	0.198	3.096	0.002	H1a supported
Professionalism	0.269	0.055	0.303	4.868	<0.001	H1b supported
Homogeneity	0.234	0.037	0.378	6.254	<0.001	H1c supported

Dependent variable: Perceived value

4.4.2. Product Features and Perceived Value

Product features have a significant positive impact on perceived value (B=0.561; p<0.001). Among the two dimensions of product features, content quality has a significant positive impact on perceived value (B=0.404;

p<0.001), and price discounts have a significant positive impact on perceived value (B=0.482; p<0.001). In summary, both content quality and price discounts in product features can significantly positively affect perceived value. Thus, H2, H2a and H2b are supported.

Table 3. Regression analysis of the main effect of e-commerce product characteristics on perceived value

Variant	Unstandardized coefficient		Standardized coefficient Beta	t	p	Hypothesis testing
	B	standard error				
E-commerce product features	0.561	0.061	0.516	9.207	<0.001	H2 supported
Favorable price	0.404	0.053	0.446	7.627	<0.001	H2a supported
Quality of content	0.482	0.059	0.471	8.164	<0.001	H2b supported

Dependent variable: Perceived value

4.4.3. Presence Features and Perceived Value

According to Table 4, presence features have a significant positive impact on perceived value (B=0.462; p<0.001). Among the two dimensions of scene features, spatial presence has a significant positive impact on perceived value (B=0.379;

p<0.001), and social presence has a significant positive impact on perceived value (B=0.360; p<0.001). In summary, both spatial presence and social presence in scene features can significantly positively affect perceived value. Thus, H3, H3a and H3b are supported.

Table 4. Regression analysis of the main effect of e-commerce live streaming scene characteristics on perceived value

Variant	Unstandardized coefficient		Standardized coefficient Beta	t	p	Hypothesis testing
	B	Standard error				
E-commerce scenario characteristics	0.462	0.043	0.572	10.666	<0.001	H3 supported
Spatial presence	0.379	0.038	0.550	10.084	<0.001	H3a supported
Social presence	0.360	0.044	0.471	8.162	<0.001	H3b supported
Dependent variable: Perceived value						

4.4.4. Perceived Value and Purchase Intention

Continue to use regression analysis to test the relationship between perceived value and purchase intention. According to Table 5, perceived value has a significant positive impact

on purchase intention ($B=0.431$; $p<0.001$). Overall, perceived value has a significant impact on user purchase intention, specifically, the stronger the perceived value, the more likely it is to arouse consumer purchase intention. Thus, H4 is supported.

Table 5. Regression analysis of the main effect of perceived value on purchase intention

Variant	Unstandardized coefficient		Standardized coefficient Beta	t	p	Hypothesis testing
	B	Standard error				
Perceived value	0.431	0.075	0.351	5.736	<0.001	H4 established
Dependent variable: Purchase intention						

4.5. Mediating Effect Test

For the relationship between e-commerce live streamers' characteristics and user purchase intention, the direct effect is 0.3486 ($p<0.0001$), the indirect effect is 0.1068 ($SE=0.0341$), and the 95% confidence interval is ($LLCI=0.3178$,

$ULCI=0.5930$), excluding 0. This indicates that the mediating effect of perceived value between e-commerce live streamers' characteristics and user purchase intention is significant, and perceived value plays a partial mediating role. Thus, H5 is supported. Similarly, according to the table, H5a, H5b, H5c, H6, H6a, H6b, H7, H7a, and H7b are also supported.

Table 6. Perceived value mediating effect test

Independent variable	Direct effect				Indirect effect				Test Conclusion
	Effect	SE	t	p	Effect	BootSE	BootLLCI	BootULCI	
Live streamer Characteristics	0.3486	0.0741	4.7022	0.0000	0.1068	0.0339	0.0450	0.1803	H5 supported
Popularity	0.1447	0.0500	2.8930	0.0042	0.0510	0.0191	0.0176	0.0917	H5a supported
Professionalism	0.1969	0.0688	2.8611	0.0046	0.0977	0.0298	0.0459	0.1624	H5b supported
Homogeneity	0.1959	0.0485	4.0381	0.0001	0.0726	0.0216	0.0337	0.1179	H5c supported
Product Characteristics	0.5041	0.0896	5.6242	0.0000	0.1075	0.0520	0.0056	0.2106	H6 supported
Favorable price	0.3504	0.0726	4.8258	0.0000	0.1043	0.0390	0.0325	0.1876	H6a supported
Quality of content	0.3907	0.0836	4.6737	0.0000	0.1212	0.0442	0.0413	0.2142	H6b supported
Scene Characteristics	0.3236	0.0711	4.5537	0.0000	0.0933	0.0409	0.0164	0.1774	H7 supported
Spatial presence	0.2121	0.0605	3.5039	0.0005	0.0991	0.0360	0.0338	0.1762	H7a supported
Social presence	0.2663	0.0628	4.2401	0.0000	0.0959	0.0306	0.0401	0.1596	H7b supported
Dependent variable: Purchase intention									

5. Discussion

When the live streamers have comprehensive and rich theoretical and practical experience, as well as professional skills, it will enhance consumers' willingness to purchase. E-commerce live streamers also need to showcase their unique personal charm as comprehensively as possible. Merchants should continue to leverage the price advantage of their products on e-commerce live streaming platforms, and ensure the high quality of the products displayed in the live streaming room. In addition, live-streaming e-commerce platforms should increase investment in the live-streaming field, and reduce the distance between products and consumers. Furthermore, streaming platforms should also design and improve more functions that facilitate interaction between users and live streamers.

6. Limitations and Prospects

This study only considers the impact of various dimensional features of e-commerce live streaming on the intermediate variable of perceived value, as well as the impact of intermediate variables on the outcome variable of purchase intention. In addition, the sample size is not large enough.

In future research, it is considered to expand the sample size so that the survey data can more comprehensively and reasonably cover the consumer group of live streaming sales. Other mediating variables can be considered to mediate the impact of live-streaming e-commerce characteristics on purchase intention.

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