



A study of the factors influencing customer stickiness in the context of live e-commerce

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Abstract. The specific factors influencing customer stickiness in e-commerce live streaming were explored from the perspective of customer experience. A theoretical model of factors influencing customer stickiness in e-commerce live streaming was established by drawing on the SOR model, 360 valid questionnaires were collected by questionnaire method, and data analysis was conducted using SmartPLS3.3.3. The results found that anchor characteristics (Attractiveness, Expertise) and platform environment (ease of use, sociality) influence mind flow and gratification; flow and gratification significantly influence customer stickiness and play a mediating role in it.

Keywords: live e-commerce; customer stickiness; SOR model; flow;

1 Introduction

With the development of cloud computing, big data and 5G, e-commerce live streaming is rapidly developing as a new mode of consumption, and the market size is increasing year by year, bringing huge dividends of the times.

As there is also more and more competition without differentiation in the live streaming industry, the lower switching cost allows customers to easily switch between live streams. Under such circumstances, how to carry out customer retention has become an important issue in live marketing. From the existing research, there are "persona" as the entry point to study the influence of anchor traits on consumers' purchase intention [1]; there are "live mode" as the entry point to study the influence of live shopping scene atmosphere on consumers' purchase intention [2]; there are There is a study on the impact of the consistency of anchor and content on consumers' purchase intention by taking "matching degree" as the entry point [3]. Compared with the purchase behavior in the live broadcast, customer stickiness is a more lagging behavioral response, and how to attract users' continuous participation is always the core issue.

Based on this, this paper explores the factors influencing customer stickiness in e-commerce live streaming by focusing on customer experience, and constructs a theoretical model based on the SOR framework in order to provide practical insights for the sustainable development of the live streaming industry.

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2 Research hypothesis

The SOR model has been widely used to measure the impact of environmental factor stimuli on individual behaviour [4]. In this paper, a model was constructed using anchor (attractiveness and Expertise) and platform (ease of use and sociality) as stimulus variables, mind flow and gratification as organism variables, and customer stickiness as response variables. The research hypothesis are as follows.

Attractiveness refers to the overall personal qualities displayed by e-commerce anchors. li et al [1] found that good audio-visual effects and a good anchor image when watching live broadcasts can give users an immersive experience and a sense of gratification. At the same time, when the Expertise of the anchor is high, it helps consumers to process and analyse relevant information, reducing customer uncertainty and enhancing the gratification experience. Based on this, the following hypothesis is proposed:

H1: Attractiveness and Expertise influence the customer flow experience.

H2: Attractiveness and Expertise influence customer gratification experience.

Ease of use is an important indicator; a friendly interface environment and high operability are conducive to user mind flow as well as gratification generation. Sociality refers to the ability of users to establish new social relationships, as evidenced by communication, commenting, and sharing, and Wang et al [5] found that sociality influenced learners' gratification and mind-flow experiences. Based on this, the following hypothesis was proposed:

H3: Ease of use and sociality influence the customer flow experience.

H4: Ease of use and sociality influence customer gratification experience.

Flow experience, proposed by Csikzentmihalyi [6], has been used in several research contexts. Flow is generated when watching a live e-commerce stream, increasing visit duration as well as stickiness. Use and gratification theory suggests that users in need gratification situations will favour continued use, and Kim [7] suggests that user harvest gratification significantly influences the willingness to continue using. Based on this, the following hypothesis is proposed:

H5: Flow experience significantly influences live customer stickiness.

H6: Gratification experience significantly affects live customer stickiness.

3 Empirical analysis

3.1 Data collection

Most of the questions in the questionnaire for this study were formed by referring to previous classical scales, which based on a 7-point Likert scale. The variables were derived from modifications to the scales of Li et al [1], Netemeyer et al [8], Davis et al [9], and Nemzow et al [10]. We collected the questionnaire from the Questionnaire Star website, which has the obvious advantages of being fast, easy to use, and social, and has been widely used by a large number of survey, excluding the repetitive IP, short answer time, no live shopping experience and regular answers. The remaining 360 questionnaires were valid, with a return rate of 87.3%. The demographic characteristics

of the valid sample of the survey are shown in Table 1. The basic characteristics of the sample group (gender, age and education) are basically in line with the current live e-commerce users, proving that the survey group in this paper is well represented.

Table 1. Basic Information of the Survey

Item	Category	Frequency	Percentage
Gender	Male	111	31%
	Female	249	69%
Age	Under 25 years old	262	73%
	26-35 years old	82	23%
	36-45 years old	10	3%
	46 years old and above	6	2%
Education level	High School	21	6%
	Specialist	38	11%
	Bachelor's degree	189	53%
	Master	112	31%

3.2 Confidence and validity analysis

Cronbach's alpha was used for the reliability analysis and values for each variable were greater than 0.8, indicating good reliability. CR was greater than 0.7 and AVE was greater than 0.6, indicating good convergent validity. In addition, the square root of the AVE was compared with the correlation coefficient between the variables to test for discriminant validity, and as shown in Table 2, the scale had good discriminant validity.

Table 2. Validity analysis

	AT	EX	US	SO	FE	GE	CS
AT	0.907						
EX	0.736	0.759					
US	0.529	0.597	0.887				
SO	0.543	0.662	0.529	0.822			
FE	0.476	0.637	0.551	0.641	0.894		
GE	0.418	0.488	0.669	0.336	0.365	0.870	
CS	0.357	0.519	0.516	0.401	0.573	0.621	0.908

3.3 Path analysis and hypothesis testing

The research hypotheses were tested by means of structural equation modelling. The path coefficients and regression variance results are shown in Figure 1.

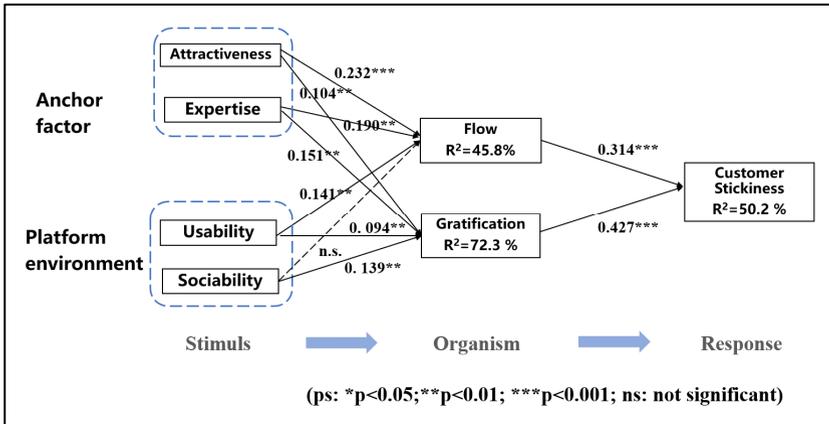


Fig. 1. Path coefficients

The SRMR value of this model is 0.073 (less than 0.08) as well as the error of the saturated model is less than that of the estimated model, which indicates that the model is well fitted. The calculation of path coefficients and regression variance in the model was carried out using SmartPLS 3.3.3 software, and the assumptions in the model were supported except for H6a assumptions which were not valid. In addition, the variance values of heart flow experience, fulfillment experience and customer stickiness explained by the independent variables are 46.4%, 72.6% and 50.4%, respectively, which indicates that the model is better explained.

4 Conclusion and future research

4.1 Conclusion

In the dimension of anchor characteristics, the charisma of the anchor ($\beta = 0.233$, $P < 0.001$; $\beta = 0.104$, $P < 0.01$) has a significant positive effect on the heart flow and satisfaction experience, and charisma has the greatest influence, followed by professionalism. The special charisma of the anchor to the consumer will make the consumer feel comfortable and happy, and obtain entertainment satisfaction; at the same time, under the influence of the halo effect, it produces the psychology of "love the house and the crows", and believes that the products recommended by the charismatic anchor are also good, and devotes itself to the live broadcast to produce a sense of immersion; at the same time, the professionalism ($\beta = 0.19$) of the anchor ($P < 0.01$) has a significant positive effect on the heart flow and satisfaction experience. At the same time, the anchor's professionalism ($\beta = 0.19$, $P < 0.01$; $\beta = 0.151$, $P < 0.001$) also has a significant positive effect on the heart flow and satisfaction experience.

In the platform environment dimension, platform ease of use ($\beta = 0.141$, $P < 0.01$; $\beta = 0.094$, $P < 0.05$) has a positive impact on the customer's mindstreaming experience and fulfillment experience, which is consistent with the results in previous hypotheses. At this stage, the rapid development of e-commerce live broadcasting, homogenization

effect is obvious, in this case, if part of the operation is too cumbersome, redundant, poor interaction logic, is not conducive to the cultivation of customer adhesion, so the research in this paper suggests that the construction of platforms with clear, beautiful and easy-to-operate interactions can reduce the user's learning costs, thus attracting more potential consumers. Meanwhile, platform sociality ($\beta=0.514$, $P<0.001$) has a significant positive effect on customer satisfaction experience. With the development of technologies such as big data and artificial intelligence, we have stepped into a new consumer era that focuses on the consumer as the core and reconstructs the relationship between consumers and merchants, with more emphasis on experience and interaction. The more powerful the social function of the e-commerce live platform, the more it can make customers feel a sense of belonging and satisfaction. While the social nature of the platform does not have a significant impact on the experience of heart flow, the author believes that customers in the live broadcast room may be shopping, sharing or browsing product information for the purpose of shopping, rather than immersing themselves in the social scene of conversation and communication, as in other professional social software (e.g., WeChat).

4.2 Implication and Limitation

A comprehensive study of this paper brings some practical insights.

First, to enhance the personal charisma and professionalism of e-commerce anchors. The results of the study show that anchor charisma has a significant positive effect on mindstreaming and fulfillment experience and has the highest degree of influence. In live streaming marketing, the anchor's personal charisma and personality traits will make it stand out in the competitive live streaming industry. The anchor's professionalism refers to the anchor's knowledge in a certain field of characteristics, the stronger the professionalism of the anchor of the product involved in the higher, the more likely to become the object of user consultation. The existence of e-commerce anchors is to help consumers in the redundant information to collect and organize the specific information of the product, according to their own buying experience and use of feelings, for consumers to select a cost-effective product. Therefore, the e-commerce anchor in the live broadcast before, first of all, to practice their own basic skills, in the product on the effort to cultivate and enrich the relevant areas of product knowledge reserves, will be the product of professional knowledge in mind.

Secondly, improve the platform functional ease of use and social availability. Research results show that platform ease of use has a significant positive impact on the heart flow and satisfaction experience. The ease of use of the live broadcasting platform significantly affects consumer attitudes. Users feel easy to operate and optimize the operation process, so that customers can gain a potential sense of control, and then achieve the state of mindflow in the process of browsing or purchasing products. Based on the full consideration of the impact of the interaction between the customer and the live stream, the interface design should be optimized in terms of simplicity, ease of recognition, ease of understanding, ease of operation, etc., so as to enhance the ease of use and usability of the platform. The research results show that platform sociality has a significant positive impact on customer mindstream and satisfaction experience. Live

broadcasting should enrich its social features to provide good conditions for realizing higher anchor attraction and scene atmosphere, and empower anchors to enhance consumer immersion and satisfaction experience during live broadcasting.

This study also has some limitations. the questionnaire data may be biased compared to the actual situation, future studies can try to crawl objective data to improve the accuracy and persuasiveness of the data.

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