

Research on the Influencing Factors of User Purchase Intention in Live Streaming E-commerce

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ABSTRACT

Live e-commerce has completely changed the way of online shopping through real-time interaction and immersive experience, but the psychological mechanism to promote consumer decision-making needs further study. In this study, we established a comprehensive model, and put perceived usefulness and perceived trust into the framework of planned behavior theory to explore the formation mechanism of live audience's purchase intention. Based on 410 valid questionnaires collected, we made a rigorous empirical analysis with structural equation model. The empirical test results show that although the overall theoretical model fits well, the direct positive influence paths of the five core antecedents (perceived usefulness, perceived trust, purchasing attitude, subjective norms and perceived behavior control) failed to pass the statistical significance test. This discovery is different from the expectation of traditional theory, which shows that the framework of rational behavior analysis has objective limitations in the scene of live consumption, which is dominated by sensory emotions and has strong immediacy. Therefore, we suggest that practitioners should use the characteristics of product categories to break the dilemma of homogeneous marketing, and indirectly stimulate the audience's willingness to buy by strengthening the deep interaction between live broadcasts and consolidating the trust foundation. These conclusions provide a cautious practical reference for the refined operation of the industry, and also point out the direction for future research-to broaden the understanding of the user behavior mechanism in specific live e-commerce scenarios.

Keywords: Live streaming e-commerce; Theory of planned behavior; Perceived trust; Purchase intention

1. INTRODUCTION

Live e-commerce has become an important business model in the digital economy, which is mainly due to the continuous expansion of such platforms as Douyin(TikTok), Kuaishou, Taobao Live and WeChat Video Accounts. This development has deeply integrated users' viewing habits and consumption behaviors, making live broadcast one of the mainstream consumption modes in the current market. Despite the rapid development of this industry, the existing research often only analyzes the influence of individual factors on the purchase behavior in live broadcast, lacking a systematic analysis of the complete chain from the initial attracting attention to psychological perception and motivation, and then to the actual purchase behavior. Specifically, there is no clear conclusion about the intermediary role of internal psychological factors between the external characteristics of live broadcast content and the final behavior of users, which leads to the lack of accurate theoretical basis for the industry's operation strategy. According to the current development of the industry and the research gaps we found, our research mainly focuses on the specific field of live streaming e-commerce. We want to find out how consumers' attitudes, subjective norms and perceived behavioral control affect their purchase intentions together. Through this study, we hope to find out what are the core factors that affect users' shopping in the environment of live streaming e-commerce, and what are the basic rules of their decision to buy.

2. LITERATURE REVIEW

2.1 Related Research on Live Streaming E-commerce and User Purchasing Behavior

In the current research field, Wu and Huang described live e-commerce as a new business way in 2023^[1], which combined the convenience and real-time interaction of traditional e-commerce well. In 2024^[2], Aulia and Erdiansyah further believed that it was an online shopping tool that was highly dependent on technology. Regarding the influence of specific characteristics, Ma et al.'s research in 2022^[3] shows that interactivity and visualization play a key role in stimulating purchase intention; Lee and others found in 2025^[4] that the highly stimulating and real-time social environment is

particularly easy for consumers to make irrational purchase decisions. As for the influencing factors behind it, Jiang et al. in 2024^[5] It is emphasized that the characteristics of the anchor and the characteristics of the product are the key foundations for building the trust of our consumers. Generally speaking, although the existing research has confirmed that the unique characteristics of live broadcast can greatly shorten the decision-making process of users, we still need a systematic framework to fully understand how these different factors affect our shopping behavior together.

2.2 The Theory of Planned Behavior and the Construction of the Extended Model

The Theory of Planned Behavior, which we usually call TPB, is a basic theoretical model to study how a person moves from having an idea to actually acting. Recently, Li and Kang's research in 2024^[6] and Long's research in 2024^[7] confirmed that in the scene of live shopping, people's attitudes, people's views around them (subjective norms) and whether they can do it (perceived behavior control) will have a significant positive impact on the purchase intention. Because live e-commerce has both social and technical attributes, it is felt that adding some new dimensions to the traditional TPB model is becoming more and more important to better explain people's behavior. Regarding the perceived usefulness, Aulia and Erdiansyah pointed out in 2024^[2] that those special functions of live broadcast can effectively reduce information inequality, which makes people feel more useful and want to buy things. This discovery was further confirmed by Lin and Lee in 2024^[8], who verified that this feeling of being useful would also make consumers more willing to pay. In addition, regarding perceived trust, Kasuma and others emphasized in 2025^[9] that adding trust into the TPB framework can greatly improve its forecasting ability. In 2023^[1], Wu and Huang emphasized that trust plays a key role as a bridge in the key transition from feeling valuable to finally deciding to buy something.

2.3 Research Hypotheses and Conceptual Model

Based on the extended Theory of Planned Behavior and the unique consumption characteristics of live broadcast e-commerce, we built a complete conceptual model with five core antecedents. In this theoretical framework, we believe that attitude, subjective norms, perceived behavior control, perceived usefulness and perceived trust will have a positive impact on the actual purchase behavior through the intermediate link of purchase intention. According to the logical structure established by this model, the research formally puts forward the following core assumptions:

H1: Perceived usefulness positively influences purchase intention

H2: Perceived trust positively influences purchase intention

H3: Attitude positively influences purchase intention

H4: Subjective norms positively influence purchase intention

H5: Perceived behavioral control positively influences purchase intention

3. RESEARCH METHODS

3.1 Questionnaire Design and Data Collection

Our questionnaire design this time is very close to the real scene of live shopping, which contains eight main measurement aspects, such as the basic information of people filling in, whether they think things are useful or not, and so on. All the questions were scored with a five-point Likert scale. Among them, attitude, subjective norms and perceived behavioral control refer to the classic scale proposed by Ajzen in 1991. Perceived usefulness uses the mature scale developed by Davis in 1989; Other extended dimensions also refer to authoritative literature in related fields. In order to ensure the scientificity of the questionnaire, before the formal investigation, we first asked 50 target users to make a pre-test, and carefully revised some unclear questions according to Cronbach's alpha coefficient and feedback from domain experts. When collecting data, we used online and offline methods together. Online mainly through professional questionnaire platforms such as Wenjuanxing, which are distributed randomly according to the age and regional characteristics of the filling people, and are also promoted on social networks. Offline, you go directly to universities, busy business districts, and ordinary communities to find people to do questionnaires at random. At the same time, we set some logical jumps in the questionnaire, so that we can automatically screen out those who do not meet the requirements and ensure that all the people we find are what we want to study. We received a total of 413 questionnaires in this survey. According to some rules, the researchers removed the invalid answers with low quality, such as the completion time is less than 120 seconds, the answers to the reverse scoring questions are contradictory, and more than 80% of the questions have chosen the same

option. After strict preliminary screening and systematic data cleaning, we finally removed 3 invalid answers and left 410 valid samples. This laid a solid data foundation for us to do structural equation modeling test next.

3.2 Data Analysis Methods

After collecting and screening effective questionnaires, we mainly used SPSS (that is, the social science statistical software package) and structural equation modeling software AMOS to make a systematic quantitative analysis of the data, with the aim of comprehensively verifying our theoretical model and related assumptions. In the most basic data processing stage, the study first used SPSS software to make descriptive statistical analysis of the samples, so as to clearly show the basic information and distribution of the participants. Then, in order to ensure the scientificity and accuracy of the measurement tools, the research has done in-depth reliability and validity tests to ensure that all the latent variables are internally consistent and the structure is reasonable. Furthermore, independent sample T test and one-way ANOVA are used to examine the similarities and differences between consumers with different backgrounds in the core research variables. In the advanced stage of verifying causality, AMOS software is introduced to construct structural equation model, and the degree of matching between theoretical model and actual data is evaluated by calculating various goodness-of-fit indexes, and then the direct influence path between latent variables is strictly tested for coefficient significance. In order to deeply analyze the mechanism behind it, this study also focuses on the intermediary effect test with bootstrapping resampling technology, so as to accurately measure the indirect effect transmitted between independent variables and dependent variables through related variables. These progressive data analysis steps are interlocking, which together provide solid and reliable data support for the empirical conclusion of this study.

4. RESULTS AND EMPIRICAL ANALYSIS

4.1 Sample Characteristics and Descriptive Statistics

In the survey sample of our research, female respondents are the main group, accounting for 62.4% of the total participants. The demographic characteristics show an obvious trend of youthfulness, and people aged 19 to 35 are the core population. Most of the respondents have a moderate monthly income, and users who watch live broadcasts three or more times a week are the main part of the sample. Descriptive statistics of core variables show that the average value of all latent variables is basically in the middle and high level; Specifically, the average values of Perceived Usability and perceived trust are 4.12 and 4.05, respectively, indicating that users have a positive evaluation of the practicality of live broadcast and the reliability of anchor. In addition, the average purchase intention reached 4.08, reflecting the participants' strong willingness to spend. The standard deviation of all measured variables is between 0.75 and 0.82, which proves that the respondents' cognitive evaluation is highly concentrated and consistent.

4.2 Reliability and Validity Testing

In this study, SPSS software was used to test the reliability and validity of the collected data. From the results of reliability analysis in Table 1, it can be seen that the standardized factor load of all items exceeds the threshold of 0.7, indicating that the observed variables can explain the latent variables well. The Cronbach's alpha value of the whole questionnaire is 0.920, which shows that there is a strong correlation between variables and meets the conditions of factor analysis. In addition, Cronbach's alpha value and combined reliability of each variable are greater than 0.8, which proves that the questionnaire has good internal consistency and high reliability. Next, we did an effectiveness test to see if the measuring tool works well. This includes checking convergence validity (see the value of Average Variance Extracted) and discrimination validity (comparing the square root of Average Variance Extracted of each variable with their correlation coefficients). As can be seen from Table 2, the Average Variance Extracted values of all variables are greater than 0.5, and the square roots of these values are obviously greater than the corresponding correlation coefficients. This shows that our questionnaire is very effective and different variables can be clearly distinguished.

Table 1. Results of reliability test related indicators

Variable	Code	Standardized Factor Loading	Cronbach's α	CR
PU	A1	1.001	0.904	0.909
	A2	0.84		
	A3	0.797		
PT	B1	0.814	0.848	0.897
	B2	0.836		
	B3	0.768		
ATT	C1	0.762	0.848	0.893
	C2	0.827		
	C3	0.827		
SN	D1	0.794	0.833	0.886
	D2	0.791		
	D3	0.785		
PBC	E1	0.794	0.845	0.891
	E2	0.825		
	E3	0.793		
PI	G1	0.813	0.847	0.895
	G2	0.825		
	G3	0.776		

Table 2. Discriminant validity analysis

Variable	F1	F2	F3	F4	F5	F6
F1	0.940					
F2	0.873	0.816				
F3	0.880	0.824	0.825			
F4	0.882	0.846	0.843	0.806		
F5	0.871	0.836	0.850	0.822	0.794	
F6	0.866	0.839	0.838	0.843	0.831	0.778
$\sqrt{\text{AVE}}$	0.940	0.816	0.825	0.806	0.794	0.778

4.3 Empirical Analysis Based on Structural Equation Modeling

Structural equation modeling shows the relationship between different variables intuitively with path diagram, so that we can see measured variables such as perceived usefulness, perceived trust, attitude, subjective norms, perceived behavioral control and dependent variable purchase intention at the same time. This analysis method can also help us to comprehensively evaluate the quality of the whole model. In this study, we first build the theoretical model in Figure 1 with AMOS version 31.0 software. The specific indexes of model fitting are shown in Table 3, and the results of path

coefficient test are summarized in Table 4. We found that the chi-square value, the degree of freedom and the root mean square of approximate error all met the minimum requirements of statistics. Moreover, key indexes such as goodness of fit index, adjusted goodness of fit index, incremental fitting index, relative fitting index, canonical fitting index and non-canonical fitting index all exceed the ideal standard of 0.9. This shows that the theoretical model proposed in our research is very consistent with the actual data. Such a strong matching degree has laid a reliable foundation for us to further understand the complex relationship of consumer behavior in live e-commerce.

Figure 1. Model test results

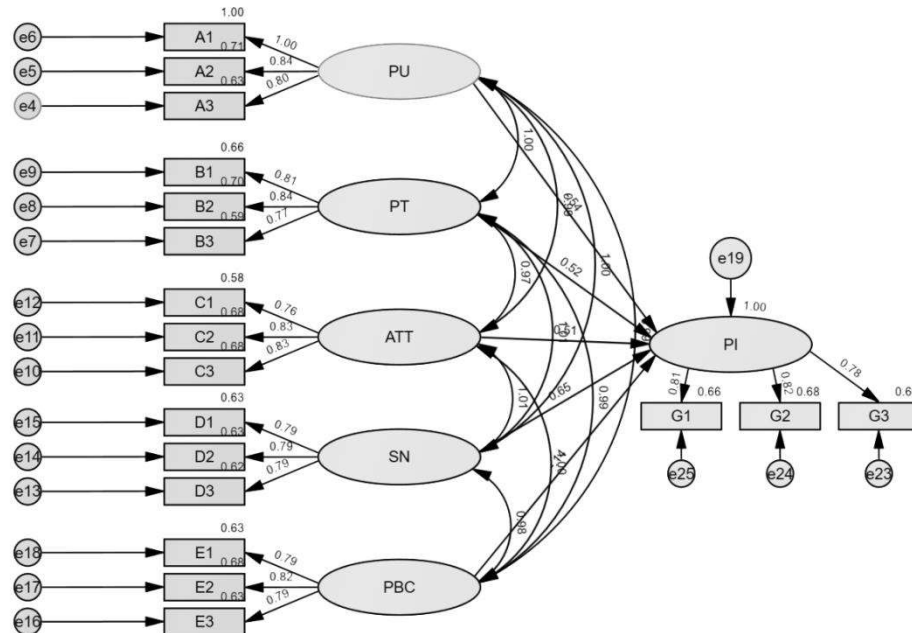


Table 3. Model fitting results

Index	χ^2/df	RMSEA	GFI	AGFI	IFI	CFI	NFI	NNFI
Criterion	<3	<0.08	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90
Measured	1.005	0.004	0.969	0.955	1.000	0.983	1.000	1.000

Table 4. Path coefficients of the model

Hypothesis	Path Relationship	Estimate	S.E.	C.R.	P
H1	PU→PI	-0.543	-0.519	-0.248	0.804
H2	PT→PI	0.518	0.519	0.369	0.712
H3	ATT→PI	0.509	0.473	0.985	0.325
H4	SN→PI	0.652	0.635	1.025	0.305
H5	PBC→PI	-0.140	-0.135	0.108	0.914

As shown in Table 4, the five hypothetical paths proposed in this study-including the influence of perceived usefulness, perceived trust, attitude, subjective norms and perceived behavioral control on purchase intention-all have p values greater than the significance standard of 0.05, so they failed the significance test.

According to the analysis results of structural equation model, the fitting degree of the whole model is not bad, which shows that the theoretical framework we constructed has good adaptability to the actual sample data. However, the direct influence of each external variable on purchase intention has not reached a statistically significant level, that is to say, our hypotheses H1 to H5 are not supported by the collected data.

Experimental analysis shows that in this scene of live shopping, we feel that “perceived usefulness” has not obviously made people want to buy more, so we can’t accept the initial assumption H1. This may be because our research is aimed at a relatively common live shopping situation, and when designing the questionnaire, we did not fully consider that different kinds of things (such as clothes, snacks and electrical appliances) have different standards for “usefulness”. In this way, the factor of “usefulness” is unclear, which is quite similar to the previous research results-whether “usefulness” is important or not depends on the specific situation.

Similarly, perceived trust has no obvious positive influence on purchase intention, so it is assumed that H2 is not valid. This shows that in live shopping, simple trust will not directly make people want to buy things, because consumers may think that trust is the most basic requirement, not the main driving force, and its influence may be indirectly transmitted through intermediate factors such as attitude and interaction. This conclusion is consistent with previous studies-the direct effect of trust on purchase intention is usually not obvious.

Attitude has no obvious positive influence on purchase intention, which leads to the assumption that H3 is not established, which may be because the marketing strategies of e-commerce live broadcast industry are too similar now. This environment makes consumers less sensitive to anchor recommendation and content promotion, so the transformation path from positive attitude to actual purchase intention is weakened, which is consistent with previous research-the influence of attitude will be adjusted by the whole industry environment.

Regarding the subjective norms, H4 hypothesis is not valid, which means that this group of people in our study may not care much about other people’s opinions, and prefer to buy things according to their own needs, rather than listen to the recommendation of friends or anchors, so the subjective norms did not play a positive role in promoting.

Finally, the H5 hypothesis is overturned, which shows that perceived behavioral control has little influence on purchase intention. In the Internet age, consumers usually use spare time to watch live broadcasts, and the shopping process on the platform is designed more and more conveniently. These factors, such as tight time or difficult operation, will hardly affect their decision, so perceived behavioral control has not become a key factor that directly affects their purchase intention.

In short, businesses should increase interactive links in the live broadcast room to stimulate consumers’ interest and make them more willing to buy things. As the main guide, the anchor should take the initiative to show everyone the advantages of the product, actively answer questions and improve the sense of participation. The platform should provide convenient interactive tools so that users can communicate easily and enhance user stickiness. Merchants should also focus on optimizing products and services and consolidating the trust base of consumers, which can indirectly enhance the willingness to buy and provide strong support for the sustainable development of the live broadcast e-commerce industry.

5. LIMITATIONS AND FUTURE PROSPECTS

Although this study strictly abides by academic norms and tries to systematically analyze the purchase decision-making mechanism of live e-commerce audience, there are still some shortcomings due to the limitations of subjective and objective research conditions, which need to be further deepened and improved in future research. First of all, the acquisition and representativeness of sample data are flawed. Although the number of valid samples collected in this questionnaire survey has reached the minimum requirement of basic structural equation model analysis, the demographic characteristics of the respondents are highly concentrated, and most of them are young women with average income level. The sample structure is similar, which brings some problems. When we want to extend the research results to a wider age group, different income groups and different gender groups, people will worry about whether the conclusions are really so universal. In addition, the data we got in this study was collected at a specific time point, just like taking a snapshot, and we didn’t use the long-term tracking method to continuously observe how consumers’ psychological thoughts and actual purchase behaviors changed at different times and different consumption stages. Therefore, this study is a little insufficient in revealing the long-term change law of consumers’ purchasing intention. At the same time, we only use the self-filled questionnaire as a measurement method, because the respondents may want to give socially recognized answers, or they may not remember clearly, which may lead to data deviation. In future research, it is urgent to combine the objective

background transaction data of e-commerce platform with real user interaction records and verify each other with data from multiple sources, so as to make the research conclusion more objective and reliable.

Secondly, we also found some shortcomings in the depth of theoretical model construction and the fine setting of specific research scenes. Because our five core causal hypotheses based on the extended Theory of Planned Behavior failed to pass the statistical significance test in the empirical stage, it profoundly reflects that the traditional rational behavior analysis framework is limited in explaining the highly complex and instantaneous new sensory consumption scene like live streaming e-commerce. When building the model and designing the questionnaire in the early stage, our research mainly focused on the background of generalized live shopping, and failed to carefully consider the characteristics of different product categories and the differences between different content ecological platforms. When consumers are faced with durable goods with high participation and fast-moving goods with low decision-making threshold, their basic psychological evaluation logic and risk prevention mechanism are fundamentally different. Moreover, the unique traffic distribution rules and community interaction atmosphere of different live broadcast platforms also have different shaping effects on consumer perceived behavior control. Future research should further break through the limitation of the traditional “rational person” hypothesis and introduce situational variables with the characteristics of the live broadcast scene, such as the time pressure caused by limited flash shopping, the immersion created by visual elements in the live broadcast room, and the emotional fluctuation caused by anchor speech. Scholars also need to deeply explore the complex adjustment function of various subdivided product forms and diversified platform attributes in the transformation chain from users’ psychological cognition to actual purchase, so as to gradually build a refined theoretical explanation model that is more suitable for the frontier development trend of live e-commerce and can truly reflect the audience’s psychology.

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