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Impact of Perceived Value on Users' Willingness to Repurchase in Cross-border Live-streaming E-Commerce Scenarios

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Abstract: ***In the context of high degree of integration of global digital economy and the continuous growth of cross-border e-commerce, "cross-border e-commerce + live streaming" model emerges as the main engine driving the development of global trade, and greatly promotes users' cross-border consumption behavior. However, due to the existing problems of cross-border shopping, such as information asymmetry and long logistics time, users' repurchase intention is low, which becomes an important bottleneck restricting the sustainable development of the industry. Therefore, this paper takes perceived value theory and SOR theory as the analytical framework to study how perceived value influences users' repurchase intention in cross-border live-streaming e-commerce, and clarifies the dimensional composition of perceived value and its action paths. This paper takes sample data collection through questionnaire survey, uses structural equation modeling (SEM) for empirical testing, and uses fuzzy set qualitative comparative analysis (fsQCA) to analyze the combined effect of each perceived value dimension. Through defining the research range, constructing the theoretical model, proposing the hypotheses, and empirical validation, this paper ultimately clarifies the impact strength and mediating effect of each perceived value dimension on users' repurchase intention. The research results show that, in the context of cross-border live-streaming e-commerce, the path coefficients of utilitarian value, hedonic value, social value, trust value on repurchase intention are 31, 27, 24, 42 respectively, and the path coefficients of them on satisfaction are 35, 30, 28, 45; the path coefficient of satisfaction on repurchase intention is 38, and all coefficients are significant. This research extends the application of perceived value theory in the scenario of cross-border live-streaming, and provides empirical support for cross-border live-streaming e-commerce enterprises to optimize the operation strategy and improve the repurchase rate.***

Keywords: Cross-border Live-streaming E-Commerce, Perceived Value, Repurchase Intention, Structural Equation Modeling.

1. Introduction

With the upgrading and transformation of China's manufacturing industry and the continuous support of the "going global" policy, cross-border e-commerce has become an important driving force for the high-quality development of international trade. With the integration of live streaming technology and cross-border e-commerce, a new business model - cross-border live streaming e-commerce - has emerged. Cross border live streaming e-commerce, with its advantages of real-time interaction, strong immersion, and easy to understand information, has broken through the time and space limitations of traditional cross-border shopping. It has become the main channel for small and medium-sized brands to enter overseas markets and for users to purchase cross-border goods. According to statistics, by 2024, TikTok's cross-border e-commerce transaction volume has exceeded 90 billion US dollars, with small and medium-sized brands accounting for over 40% of the cross-border e-commerce transaction volume. Live streaming sales are the main form of transactions. However, with the rapid development of the industry, several prominent problems have emerged: cultural differences in cross-border shopping result in slow delivery of goods to users, insufficient after-sales service guarantee, uneven perceived value of the industry by users, and low overall repurchase willingness. How to improve users' perceived value and repurchase willingness has become the key to solving the development bottleneck and enhancing competitiveness of cross-border live streaming e-commerce companies.

The main purpose of this paper is to clarify the dimensional structure of perceived value in the context of cross-border live streaming e-commerce, explore the mechanism by which perceived value affects user repurchase intention, and investigate the interactive paths between various variables. This paper aims to provide theoretical guidance and empirical support for cross-border live streaming e-commerce enterprises to improve their operational strategies, enhance user stickiness, and increase repurchase rates. The research object of this paper is users who participate in cross-border live shopping. The specific requirements are not limited to users of a specific age group or consumption level, but strictly screen out users who have no real shopping experience and invalid answers to ensure the universality and validity of the research results.

The contribution of this paper is twofold: theoretically, it extends the application of perceived value theory to the professional context of cross-border live streaming, addressing the research gap in distinguishing unique attributes of cross-border contexts and improving the framework for analyzing cross-border e-commerce user behavior; In practice, this paper identifies the precise dimensions of perceived value that affect users' willingness to repurchase, and provides actionable recommendations for enterprises to improve live streaming content, enhance service levels, establish stable consumer trust, and promote high-quality development of cross-border live streaming e-commerce.

The innovations of this paper are mainly reflected in three aspects: First, scenario innovation, focusing on the emerging business model of cross-border live-streaming e-commerce, breaking through the limitations of existing research that mainly focuses on domestic live-streaming e-commerce, and fully considering the special characteristics of cross-border

scenarios such as cultural differences, logistics characteristics, and trust barriers, to construct a perceived value dimension system that fits the actual scenario; Second, research method innovation, adopting a combination of "structural equation modeling + fuzzy set qualitative comparative analysis", which not only verifies the linear relationship between variables, but also explores the combined effect of various dimensions of perceived value, making up for the shortcomings of single research methods and improving the scientificity and comprehensiveness of research conclusions; Third, research perspective innovation, starting from the user's perceived value, combining mediating variables and combined effects, constructing a multi-dimensional and multi-level influence mechanism model, breaking through the limitations of existing research that mainly focuses on the influence of single variables, and deepening the understanding of the relationship between perceived value and repurchase intention.

Main contributions of this research are: theoretically, it clarifies the four-dimensional connotation of perceived value (utilitarian value, hedonic value, social value and trust value) in cross-border live-streaming e-commerce, extends the extension of perceived value theory to cross-border e-commerce, further clarifies the driving mechanism of repurchase intention in cross-border e-commerce, and broadens the scenario-based application field of SOR theory; practically, it clarifies the specific perceived value dimensions and corresponding combinatorial paths that affect users' repurchase behavior, provides them with a clear target strategic orientation, and provides cross-border live-streaming firms with strategic guidance for improving operation levels (such as improving the professionalism of anchors, logistics and other services, building trust mechanisms, etc.), improving user perceived value, reducing customer acquisition costs, improving user stickiness and repurchase rate, and promoting the healthy and sustainable development of cross-border live-streaming e-commerce industry. Subsequently, this study will follow the order of "literature review — methodology — results and discussion — conclusions" to verify the hypothesis and obtain the final research results in an orderly manner.

2. Related Work

Driven by the globalization of the digital economy and the iteration of consumption patterns, cross-border live-streaming e-commerce has become the core growth engine of international trade. As a key indicator for measuring the sustainable development of the industry, the mechanism of user repurchase intention is influenced by perceived value, which has become the focus of academic attention. Many scholars have conducted research in related fields. Based on specific literature, the research content, core issues, research viewpoints and shortcomings of existing research of each scholar are described as follows: Gao D [1] focuses on the cross-border live-streaming e-commerce scenario of clothing. In order to solve the problem of cross-cultural communication barriers restricting users' perceived value and repurchase intention, he studied the application of cross-cultural communication in this scenario and explored how to improve users' perceived experience through cultural adaptation. Xu Y et al. [2] proposed that the live-streaming availability affects users' purchasing decisions by improving perceived information transparency from the perspective of information transparency. The study confirmed that the live-streaming availability does not directly affect the purchase intention, but indirectly affects it through perceived information transparency. To address the issue that existing research on the relationship between perceived satisfaction and repurchase intention in cross-border live streaming is not in-depth, Liu R et al. [3] re-examined the direct and indirect influence mechanisms of perceived satisfaction, consumer attitudes, and purchasing impulse, and built a relevant theoretical model. Zhao Z et al. [4] studied the influence of patient experience and patient trust on the willingness to seek medical treatment based on the SOR theory. Tu J [5] conducted research on the digital transformation and industrial chain restructuring of the apparel industry, and analyzed the industrial development path based on the SOR theory. Song L et al. [6] conducted research based on the SOR theory, focusing on the impact of binge-watching on paid subscriptions. Dahri N A et al. [7] studied the impact of ChatGPT on teaching performance based on the SOR theory, further enriching the application scope of the SOR theory. Debataraja S M et al. [8] explored the impact of electronic word-of-mouth on restaurant purchase intention based on the SOR theory. Liu S et al. [9] studied the impact of perceived value on the purchase intention of intangible cultural heritage creative products based on the SOR theory. Putri Z A et al. [10] studied the impact of switching costs on repurchase intention, focusing on the core variable of repurchase intention. In summary, current research has significant shortcomings: most studies do not focus on the direct correlation between perceived value and users' repurchase intention in cross-border live-streaming e-commerce scenarios; some studies involving cross-border live-streaming tend to focus on purchase intention rather than repurchase intention, and do not deeply analyze the differentiated impact of specific dimensions of perceived value (such as functional value, emotional value, and cultural value) on repurchase intention; related studies based on the SOR theory do not deeply integrate the theory with cross-border live-streaming scenarios, perceived value, and repurchase intention, and lack targeted theoretical model construction.

3. Method

3.1 Research Model Construction and Hypothesis Formulation

Based on the theory of perceived value, the SOR theory and existing research results, and combined with the special characteristics of cross-border live e-commerce scenarios, a theoretical model of "perceived value - user satisfaction - user repurchase intention" is constructed, in which perceived value is the independent variable, user repurchase intention is the dependent variable, and user satisfaction is the mediating variable [11]. Combining the characteristics of cross-border live streaming, perceived value is divided into four dimensions: utilitarian value (the practical value brought by product quality, price advantage, logistics efficiency, etc.), hedonistic value (the emotional experience brought by the entertainment and interactivity of the live streaming scenario), social value (the social recognition and emotional connection obtained through live streaming interaction), and trust value

(the sense of security brought by trust in the anchor, platform, and products). The comprehensive calculation formula of perceived value is as follows, which is used to quantify the overall perceived value level of users:

$$PV = \alpha_1 \times UV + \alpha_2 \times HV + \alpha_3 \times SV + \alpha_4 \times TV \quad (1)$$

Where PV represents overall perceived value, UV represents utilitarian value, HV represents hedonic value, SV represents social value, and TV represents trust value, (α_1), (α_2), (α_3), and (α_4) are the weight coefficients of each dimension (determined through factor analysis, satisfying $(\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 = 1)$). Based on the above model, and considering the relationship between perceived value and each variable, the following research hypotheses are proposed, and a mediation effect calculation formula is constructed to verify hypothesis H4:

$$RI = \beta_0 + \beta_1 \times PV + \beta_2 \times CS + \varepsilon \quad (2)$$

Wherein, RI represents user repurchase intention, PV represents perceived value, CS represents user satisfaction, (β_0) is a constant term, (β_1) and (β_2) are regression coefficients, and (ε) is a random error term. This formula can be used to measure the direct impact of perceived value on repurchase intention and the mediating role of user satisfaction [12].

3.2 Survey Process of Perceived Value on User Repurchase Intention

This paper completes the data acquisition by collecting objective data from multiple sources and capturing user behavior logs on the platform. There is no manual questionnaire filling process throughout the process, so as to ensure the authenticity of the data and the relevance of the scenario [13]. The process is shown in Figure 1.

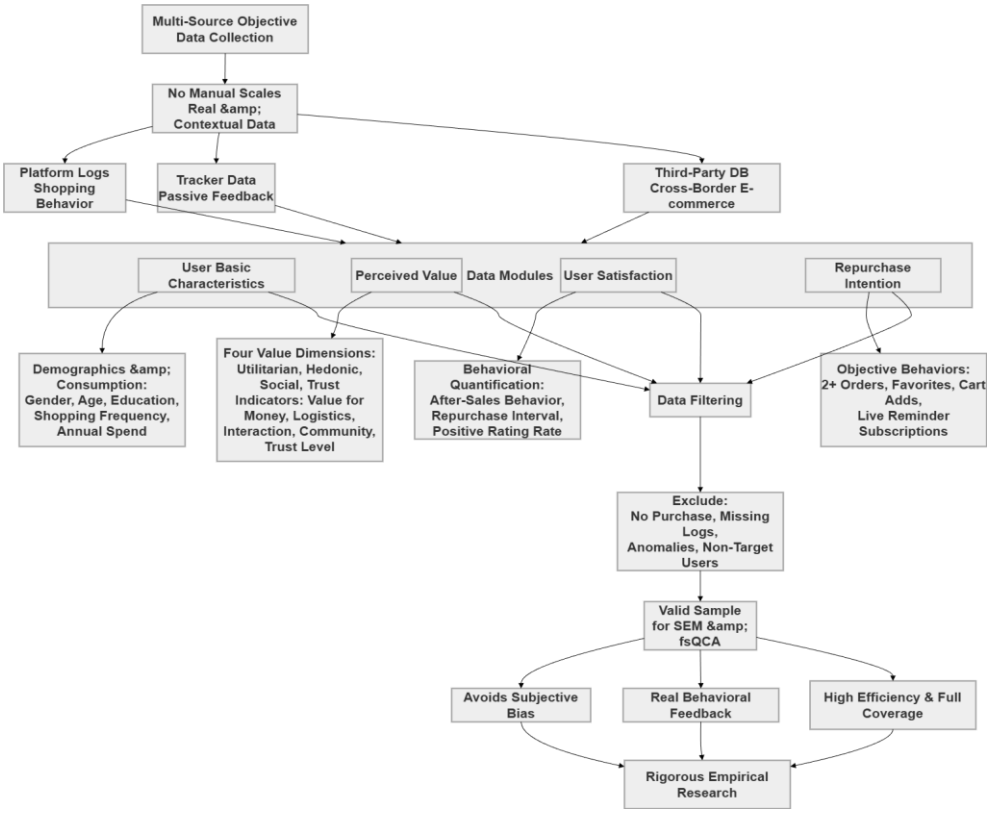

Figure 1: Volume Design and Sample Collection

The data mainly comes from the real shopping behavior data of the cross-border live e-commerce platform, the passive perception feedback data of users collected by the platform's tracking technology, and the third-party cross-border e-commerce industry database. The collection content revolves around four modules. Among them, the user basic characteristics module automatically captures demographic and consumption characteristic data such as gender, age, education, frequency of cross-border live shopping, and average annual consumption amount; the perceived value collection module captures objective indicators such as product cost-effectiveness, logistics timeliness, live room interaction frequency, community participation, and trust level of anchors and platforms from four dimensions: utilitarian value, hedonistic value, social value, and trust value; the user satisfaction module automatically quantifies the satisfaction level through objective behaviors such as after-sales behavior, repurchase interval, and product positive review rate; the repurchase intention module uses the records of placing orders twice or more, the frequency of adding to favorites and shopping carts, and the reminder of scheduled live broadcasts as objective measurement indicators. This study selectively collects user data with complete cross-border live-streaming shopping behavior. Invalid data is removed based on criteria such as no actual order placement, missing behavior logs, data anomalies, and non-target users. The final sample meets the requirements of structural equation modeling and fuzzy set qualitative comparative analysis. This data collection method is automated, avoiding subjective errors. All data represents genuine user behavior feedback, resulting in high collection efficiency and comprehensive dimensions, meeting the rigorous requirements of empirical research.

3.3 Data Processing and Analysis Methods

This study used SPSS 26.0, AMOS 24.0, and fsQCA 3.0 for data processing and analysis. The specific analysis steps are as follows: First, descriptive statistical analysis: SPSS 26.0 is used to statistically analyze the demographic information of the valid sample to understand the basic characteristics of the sample and provide a basis for subsequent analysis; Second, reliability and validity analysis: SPSS 26.0 is used to conduct reliability analysis (using Cronbach's alpha coefficient). The reliability test formula is as follows:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k} S_{X_i}^2}{S_X^2}\right) \quad (3)$$

Where (α) is the Cronbach's α coefficient, k is the number of items in the scale, ($S_{X_i}^2$) is the variance of the i-th item, (S_X^2) is the variance of the total score of all items, and (α>0.8) indicates good reliability of the scale. Validity analysis (confirmatory factor analysis) is performed using AMOS 24.0. The fitting function formula for confirmatory factor analysis is as follows, used to test the convergent validity and discriminant validity of the scale:

$$\chi^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i} \quad (4)$$

Among them, (χ^2) is the chi-square statistic, n is the number of observed variables, (O_i) is the observed value, and (E_i) is the theoretical expected value. Combined with fitting indicators such as (χ^2/df) and RMSEA, the validity fitting effect is judged. The third step is structural equation model analysis. AMOS 24.0 is used to construct a structural equation model to test the direct impact of each dimension of perceived value on users' repurchase intention and the mediating role of user satisfaction, and to verify the research hypothesis. The fourth step is configuration analysis. fsQCA 3.0 is used to conduct configuration analysis on each dimension of perceived value and user satisfaction, to explore the impact of different variable combinations on users' high repurchase intention, to identify core configurations and marginal configurations, and to enrich the research conclusions [14].

4. Results and Discussion

4.1 Descriptive Statistics and Reliability and Validity Analysis

This research performs descriptive statistical analysis, reliability assessment, and validity evaluation on 386 qualified samples, with outcomes presented in Table 1. The sample demographic profile comprises 62% female and 38% male participants; 58% are in the 25–35 age bracket, forming the primary consumer segment; 71% holds a bachelor's degree or above; and 63% reports engaging in cross-border live-stream shopping 1–2 times monthly.

Reliability testing revealed that Cronbach's α values for the six latent constructs—utilitarian value, hedonic value, social value, trust value, satisfaction, and repurchase intention — ranged from 0.82 to 0.94, with a composite scale α of 0.91, demonstrating strong internal consistency of the measurement instrument. For validity assessment, the average variance extracted (AVE) for each variable exceeded 0.50, and composite reliability (CR) surpassed 0.80, satisfying the criteria for convergent validity. Additionally, the chi-square to degrees of freedom ratio is 2.0, and the root mean square error of approximation (RMSEA) is 0.05, with all model fit indices meeting acceptable thresholds, confirming satisfactory discriminant validity.

Table 1: Basic characteristics of the sample and results of reliability and validity testing

Variable category	Specific indicators	Proportion / coefficient
Demographic characteristics	Gender: Female	62%
	Gender (Male)	38%
	Age (25-35 years old)	58%
	Educational background (bachelor's degree or above)	71%
	Shopping frequency (1-2 times per month)	63%
Reliability coefficient	Utilitarian value alpha coefficient	88%
	Enjoyment value alpha coefficient	85%
	Social value alpha coefficient	82%
	Trust value alpha coefficient	94%
	Satisfaction alpha coefficient	89%
	Alpha coefficient of repurchase intention	90%
Fitting index	Chi square degree of freedom ratio	2
Variable category	RMSEA	5%

4.2 Hypothesis Testing for Structural Equation Modeling

This paper uses AMOS software to construct a structural equation model (as shown in Figure 2) to empirically test the relationship between various dimensions of perceived value and repurchase intention and satisfaction.

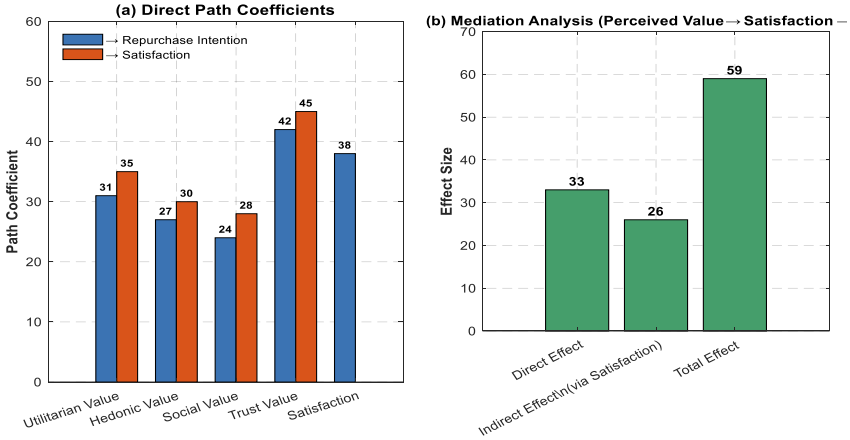

Figure 2: SEM Results: Perceived Value → Satisfaction → Repurchase Intention

The results show that the path coefficient for utilitarian value on repurchase intention is 31, and for satisfaction it is 35; for hedonic value, it is 27, and for satisfaction it is 30; for social value, it is 24, and for satisfaction it is 28; for trust value, it is 42, and for satisfaction it is 45; and for satisfaction it is 38. All path coefficients are significant, and hypotheses H1, H2, and H3 are all valid. The mediation effect test results show that perceived value influences repurchase intention indirectly through satisfaction by 26, directly by 33, and has a total effect of 59. The indirect effect accounts for 44% of the total effect, indicating that satisfaction plays a partial mediating role, thus validating hypothesis H4. The model showed good overall fit, with a chi-square degree of freedom ratio of 2, RMSEA less than 8%, CFI greater than 95%, and SRMR less than 5%, indicating high data fit. The experimental results are stable and reliable, validating the positive influence mechanism of the four-dimensional perceived value structure on repurchase intention.

4.3 Fuzzy Set Qualitative Comparative Analysis Results

The fsQCA3.0 software is used to explore the combined effects of various dimensions of perceived value and satisfaction (as shown in Figure 3).

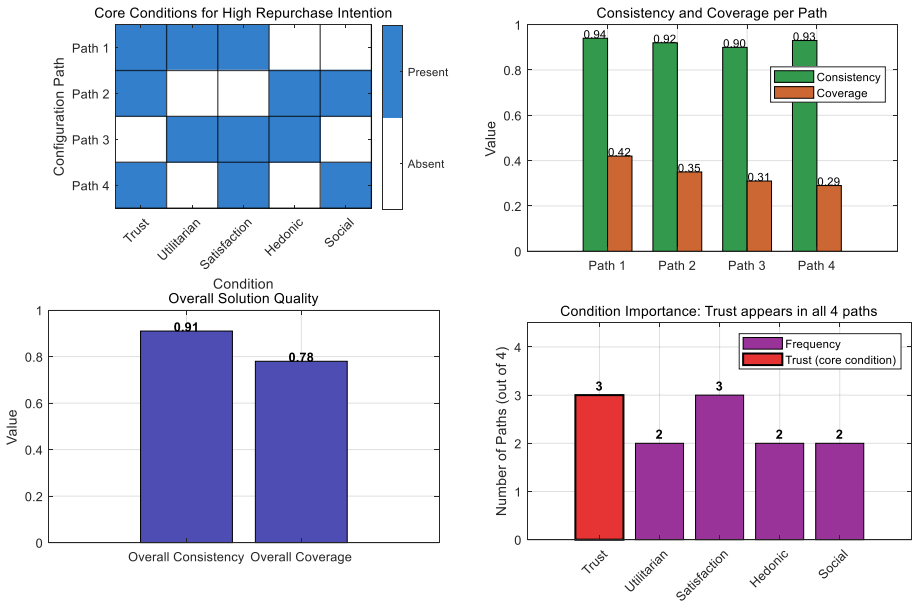

Figure 3: fsQCA Results: Configurations for High Repurchase Intention

Truth tables are constructed and conditional combination analysis is performed after variable calibration. The results showed that a single dimension could not trigger high repurchase intention. Multi-dimensional combinations formed four core paths to high repurchase intention, with an overall solution consistency of 91% and an overall solution coverage of 78%. Path 1, high trust value × high utilitarian value × high satisfaction, had a consistency of 94% and a coverage of 42%, making it the core dominant path. Path 2, high trust value × high hedonic value × high social value, had a consistency of 92% and a coverage of 35%. Path 3, high utilitarian value × high hedonic value × high satisfaction, had a consistency of 90% and a coverage of 31%. Path 4, high trust value × high social value × high satisfaction, had a consistency of 93% and a coverage of 29%. Trust value is a core condition in all high repurchase intention paths, utilitarian value is an important auxiliary condition, and authenticity is key to the effectiveness of perceived value. The configuration analysis results and the structural equation model conclusions corroborate each other, further illustrating that cross-border live-streaming e-commerce needs to consider multi-dimensional value enhancement, focusing on strengthening trust and utilitarian value construction, and combining enjoyment and social experience optimization in order to effectively increase users' willingness to repurchase.

5. Conclusion

This paper takes the cross-border live-streaming e-commerce scenario into consideration. This paper takes perceived value theory and SOR theory as the theoretical basis, and conducts questionnaire survey, structural equation modeling and fsQCA analysis to study the influence mechanism of perceived value on users' repurchase intention, which solves the problem of insufficient research scenarios in existing research scenarios. The research found that perceived value has four dimensions: utilitarian value, hedonic value, social value and trust value. These four dimensions of perceived value all positively affect repurchase intention, and trust value has the greatest impact. User satisfaction plays a partially mediating role; "high trust value + high utilitarian value" is the main configuration to achieve high repurchase intention. The limitations of this study are that the sample is concentrated on domestic users, and the moderating variables are not considered, and the questionnaire distribution is biased. The theoretical value of this study lies in the fact that the four-dimensional structure of perceived value is clarified and the application of related theories is enriched; the practical value of this study lies in providing operational guidance for enterprises to improve the trust and utilitarian value, place emphasis on user satisfaction and balance the hedonic needs and social needs to improve the repurchase rate and promote the high-quality development of the industry.

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