

# User Experience Evaluation of B2C E-Commerce Website Based on Fuzzy Information

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In recent years, with the rapid development of information and communication technology, e-commerce has also developed offering unique advantages, enabling buyers and sellers to conduct online transactions on B2C type e-commerce platforms. Evaluating the user experience when using a B2C e-commerce website has become an urgent problem. This study evaluates the user experience of e-commerce websites based on fuzzy information and shows that the evaluation indicators are affected by multi-dimensional psychological factors which are affected by the subjective initiative of the affected people. They have a certain degree of ambiguity and use a certain user experience, especially based on the prototype of fine information in information evaluation and experiments, such an e-commerce website evaluation system, to improve and implement this type of e-commerce website enterprises to design a fuzzy information-based e-commerce website evaluation system website more in line with users Experience, provide better services. The product weight, visual design, interactive design, and purchase process were transformed into consistency test index weights, which were combined with 867 questionnaires from users, showing that 87% of the respondents believed that the fuzzy evaluation results changed this to a certain extent. The user experience status of this kind of e-commerce website has resulted in improvements to the shortcomings and helped owners of B2C e-commerce platforms.

Keywords: E-Commerce Website, Fuzzy Information, User Experience, Evaluating Indicator

## 1. INTRODUCTION

With the popularity of smart devices and the continuous development of the Internet over the past 30 years, the unique advantages offered by e-commerce has been well recognized. Buyers and sellers trade online on e-commerce platforms such as B2C which is extremely helpful for enterprises to successfully carry out trade activities. Designing an e-commerce website evaluation system based on fuzzy information is in line with the interests of large e-commerce companies like JD and Tianmao. Therefore, the user experience directly affects the user's perception of product quality and even the desire to purchase. Over 50% of netizens in China use B2C e-commerce websites so the user experience needs to be

continuously improved, which imposes higher requirements on the operation team of B2C e-commerce websites.

Currently, large e-commerce companies usually evaluate customer experience. However, many e-commerce companies have conducted an overall evaluation of the customer experience, but the evaluation method is not perfect and is too general and abstract. To conduct a qualitative evaluation, managers usually determine the weight of the evaluation indicators at various levels based on experience, which can distort the evaluation results and affect the enthusiasm of stores and customers [1]. Therefore, a fair, reasonable and scientific evaluation method is needed to evaluate an e-commerce website in order to fully reflect the real user experience [2]. Using fuzzy information to build such an e-commerce website evaluation system can effectively improve the user experience of e-commerce websites [3]. Therefore, it is of great significance to devise a systematic

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**Table 1** Comprehensive Evaluation Index of Business Website Quality.

<b>Indicators</b>					
<b>First Level</b>	<b>1 Business Utility</b>	<b>2 Business Information</b>	<b>3 Website Design</b>	<b>4 System Availability</b>	<b>5 System Efficiency</b>
Secondary Level	1.1 Service Personalization	2.1 Information Comprehensiveness	3.1 Column Novelty	4.1 Stability	
	1.2 Commercial Credit	2.2 Version Internationalization	3.2 Website Structure Clarity	4.2 Safety	5.1 Rapidity
			3.3 Color Coordination		

B2C e-commerce website user experience evaluation method to evaluate the user experience [4–5].

In recent years, research on user experience evaluation of B2C e-commerce websites has received increasing attention. Cai and He and others have studied B2B and 2C e-commerce websites based on user experience, summarized the results of their survey and compiled data by preparing a questionnaire, drawing conclusions and proposing the concept of "user-centric" [6]. Zhou studied the application of B2C e-commerce websites based on big data and designed a B2C e-commerce management module, which has been well received [7]. In order to use fuzzy information granulation (FIG) and optimal support vector machines (SVMs) to predict the change trend and space of aero-engine parameters, Li et al. used a FIG algorithm to refine the algorithm and model the SVM used for the nonlinear prediction of fuzzy particles. Their results show that the optimal window size is three data and the prediction error within three steps is less than 10%, which is very effective [8]. Wei studied some of the ideal properties of the linguistic mixed order weighted aggregation (LHOWA) operator and proposed a multi-attribute decision-making method for fuzzy information aggregation. The superiority of this method was verified by a coal mine safety evaluation example [9]. The above literature search shows that domestic and foreign scholars have made positive progress in user experience research, but there are still many flaws that need improvement.

The main goal of this article is to explore methods to evaluate the user experience of e-commerce websites using ambiguity on the basis of the research on a B2C e-commerce website quality evaluation index system and evaluation model. Secondly, according to the characteristics of technical developers of e-commerce companies, they provide evidence for identification, diagnosis and improvement to continuously improve the quality of business websites and improve the performance of the entire B2C e-commerce company.

## 2. REVIEW OF THE THEORY OF USER EXPERIENCE OF E-COMMERCE WEBSITES

### 2.1 User Experience

A computer engineer and professional cognitive psychologist proposed the concept of user experience, which refers

to the subjective feeling and satisfaction of users when using products and interacting with a company [10]. User experience is the expression of products in the real world. An evaluation of user experience should include product function, content, brand characteristics and usability [11]. This real-world user experience is at the front, middle and later stages of users' use of products [12]. In addition, visual experience, interactive experience, immersion, pleasure and social relations will affect the virtual user experience to some extent [13].

This article examines e-commerce website user experience research. The user experience of B2C e-commerce website refers to all users who believe that users directly or indirectly contact e-commerce to obtain products and services. User experience will differ with more complex human-computer interaction. In addition, customer satisfaction is affected by multi-dimensional psychological factors, and these factors are affected by human subjective initiative, which has a certain degree of ambiguity and is difficult to directly observe.

### 2.2 Evaluating Indicator

This paper establishes a comprehensive evaluation index system of business website quality, especially for a B2C e-commerce service quality evaluation system, which generally evolves on the basis of an e-commerce service quality evaluation system [14]. In the initial stage, we first determined five first-class indicators, namely, business utility, business information, website design, system availability and system efficiency, and determined 10 second-class indicators using R-type system cluster analysis. Table 1 details the indicators at all levels [15].

From Table 1, it can be seen that there are still limitations in the research on an e-commerce service quality evaluation system [16]. Therefore, a universal e-commerce service quality evaluation index has not yet been devised.

### 2.3 Characteristics of E-Commerce

- (1) Virtuality of commodities. Traditional commercial enterprises rely on physical product displays and sales, while for B2C e-commerce, commodity information, including product appearance, price, description, parameters and performance etc. is provided through a website, to facilitate online transactions.

- (2) A large number of users. Online shopping is different from traditional business which is limited by time and space. Online shopping is available 24 hours a day, so customers can shop anytime and anywhere. Therefore, the number of online shopping users continues to increase, and the following studies can also draw conclusions.
- (3) There are many types of goods. B2C e-commerce websites offer commodities that may be difficult or impossible to purchase in physical stores. Furthermore, products from various suppliers can be compared.
- (4) Reasonable quality and reasonable price. The management cost of online stores is lower than the management cost of physical stores, so e-commerce products have a price advantage and commodity prices are generally lower.
- (5) The shopping process is convenient and fast. When engaging in online shopping, consumers can retrieve information using the Web interface through the Internet to find products in which they are interested. As long as you use the mouse to click "submit order" and other words, the payment method of the online payment function is recovered and then wait express delivery.

There are many other advantages of online shopping, such as reducing the obstacles for users to find and retrieve product information, and providing a good user experience to users. Research shows that information construction is the most important factor affecting the user experience of B2C e-commerce websites. The construction of information on B2C e-commerce websites can be improved based on user characteristics, needs, behaviors, and cognition to ensure it is organized, standardized and consistent in the use of logos, which will help users search for and retrieve information. Academic research on an e-commerce service quality evaluation system is constantly advancing.

### 3. EVALUATION MODEL

#### 3.1 Refine User Experience Elements and Evaluation Models

- (1) Statistical Features of Language Texts

In relation to discourse statistics, this study selects two representative features: comment length and sentence number. Generally speaking, consumer evaluation on goods purchased on e-commerce websites such as Taobao Tmall and Jingdong is brief, sometimes only comprising one sentence or even only a few words. Longer comments tend to be more useful because they may contain more effective information [17]. Statements can be regarded as the smallest semantic unit for consumers to express their opinions on commodities. In addition, both comment length and sentence number can be covered by the average sentence length of the comment:

$$ASL(r) = \frac{len(r)}{sc(r)} \quad (1)$$

where  $len(r)$  represents the length of the note  $r$ , and  $sc(r)$  represents the number of statements contained in  $r$  [18].

- (2) Subjective Degree of Comment

Online consumers often express their feelings about the characteristics of commodities by publishing subjective opinions or objective statements or both. When evaluating the usefulness of online consumer reviews, we can consider the subjectivity of the reviews [19]. For commodity evaluation  $r = \{s_1 s_2 \dots S_n\}$ , among  $(s_i | i = 1, 2 \dots n)$  the mean subjective probability of  $r$  is defined as follows:

$$AvgProb(r) = \frac{1}{n} \sum_{i=1}^n Pr_{subj}(s_i) \quad (2)$$

where  $Pr_{subj}(s_i)$  is the probability that the clause  $S_i$  in  $R$  is subjective. If  $S_i$  is completely objective, then  $Pr_{subj}(s_i) = 0$ ; if it is completely subjective, then  $Pr_{subj}(s_i) = 1$ . Furthermore, the standard deviation of  $R$  is expressed as [20]:

$$DevProb(r) = \sqrt{\frac{1}{n} \sum_{i=1}^n (Pr_{subj}(s_i) - AvgProb(r))^2} \quad (3)$$

- (3) Brand

Brand is an intangible asset which can add value to e-commerce businesses such as Jingdong Mall and Tmall due to the impression of the brand formed in the minds of consumers. Once such an e-commerce website becomes a strong brand in its field, its unique brand image, distinctive brand personality and wide popularity can result in a high-quality user experience. At the same time, the strength of a brand can result in increased customer loyalty which also adds value to B2C e-commerce website. This paper will measure the brand the brand strength of B2C e-commerce websites from the evaluation indexes of brand awareness, popularity and attraction [21].

- (4) Information Construction

The information structure was first proposed by an architect who pointed out that IA is the structure of information structure [22]. Since its introduction, IA has been mainly used for website construction. This kind of e-commerce website is also the basic framework of these four systems. Therefore, the user experience of a B2C e-commerce website needs to be analyzed from the four systems of information construction elements. This paper evaluates the information construction of a B2C e-commerce website from the aspects of organization rationality, logo standardization, logo consistency, search convenience and navigation accuracy.

- (5) Visual Experience

Visual experience relates to the initial experience of users. Page design includes the matching of graphics, colors, text and parts. The page design effect of B2C e-commerce websites directly affects the user’s visual experience. A website which has a beautiful tone enhances the users’ visual enjoyment increases their visual attraction; element matching makes it easy for users to understand the functions of the website and feel comfortable. However, because different devices cannot be truly unified, page problems may occur when a user connects to a B2C e-commerce website using a mobile phone. The visual experience is generated before the user interacts with the website which affects their other experiences.

(6) User Comments

Some e-commerce sites allow users to comment in the comments section. To simplify the problem, this study does not directly analyze the content of these comments, but simply records the number of user comments and takes the number of comments as the eigenvalue. There is a certain relationship between the number of user comments and usability voting: if a comment attracts more comments, this means that other users have noticed the comment. The situation of usability voting is similar to this [23].

**3.2 Fuzzy Comprehensive Evaluation and Evaluation Model**

Fuzzy comprehensive evaluation is built on the basis of fuzzy mathematics, and qualitative evaluation is quantified using the fuzzy relation synthesis principle. Fuzzy comprehensive evaluation is proposed in this paper because customer satisfaction is affected by multi-dimensional psychological factors, and these factors are affected by human subjective initiative which has a certain degree of ambiguity and is difficult to directly observe. To be able to carry out a scientific evaluation, it is necessary to build a hierarchical index structure system based on the analytic hierarchy process for each generalized index and apply a professional fuzzy comprehensive evaluation method.

In the evaluation model, the basic idea of the fuzzy comprehensive evaluation method is that, based on the weight value of the comprehensive evaluation index, the principle of the fuzzy set is used, and the membership degree is used to describe the fuzzy boundary of each evaluation index. We construct a fuzzy evaluation matrix and determine the comprehensive score of the rating object through a multi-layer compound operation [24].

(1) Building the Hierarchy Model

Applying analytic hierarchy process, B2C e-commerce website satisfaction establishes the hierarchical structure model according to the principle of customer-oriented. The problems to be solved, the factors to be considered and the criteria to be considered, the alternative scheme to be established and the structure chart of the corresponding B2C e-commerce to be established.

Construct the first-level index judgment matrix A

The elements of the first-level evaluation index are compared in pairs, in which the element  $A_{ij}$  represents the relative importance of the element  $A_i$  to  $A_j$ , and the judgment matrix A is established:

$$A = \begin{pmatrix} a_{11} & a_{12} & a_{13} & a_{14} & a_{15} \\ a_{21} & a_{22} & a_{23} & a_{24} & a_{25} \\ a_{31} & a_{32} & a_{33} & a_{34} & a_{35} \\ a_{41} & a_{42} & a_{43} & a_{44} & a_{45} \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} \end{pmatrix} \quad (4)$$

In this paper, the square root method is used to calculate the maximum eigenvalue of judgment matrix A and its corresponding weight vector W. To describe the first-level evaluation index, this paper proposes a comprehensive evaluation method of a B2C e-commerce website user experience based on fuzzy mathematics theory. The steps are as follows: multiply the elements of judgment matrix A by rows, and increase the product to the  $n$ th power. Finally, the square root vector is normalized to the weight vector W.

(2) Building fuzzy sets

Determine the evaluation index set  $Q = \{Q_1, Q_2, \dots, Q_n\}$ . Taking a Likert scale as the quantitative method, the evaluation criteria of each index are divided into five grades, and the evaluation grade set  $V = V = \{V_1, V_2, V_3, V_4, V_5\} = \{\text{very satisfied, relatively satisfied, general, dissatisfied, very dissatisfied}\} = \{5, 4, 3, 2, 1\}$ . If the weight of the weight distribution set  $Q_i$  to  $q$  is  $A_i$ , then the weight sets of all levels of indicators are  $a = \{A_1, A_2, \dots, A_n\}$ .

Single factor evaluation is carried out after constructing a hierarchical fuzzy subset. That is, from each factor  $u_i (i = 1, 2, \dots)$  quantify the evaluated objects one by one, and then get the fuzzy relation matrix:

$$R = \begin{pmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ \vdots & \dots & \dots & \dots \\ r_{m1} & r_{m2} & & r_{mn} \end{pmatrix} \quad (5)$$

where  $r_{ij} (i = 1, 2, \dots, m; j = 1, 2, \dots, n)$  represents the degree of membership of the  $v_j$ -level fuzzy subset from the perspective of factor  $u_i$ .  $R_i = (r_{i1}, r_{i2}, \dots, r_{in})$  is a fuzzy vector, indicating the performance of the evaluated object in terms of factor  $u_i$ .

In addition, frequency statistics can be used to determine the weight  $A = (a_1, a_2, a_3, a_4, a_5)$  of the five first-level indicators  $u_1, u_2, \dots, u_5$ , and the second-level indicators in  $u_i$  Weight  $A_i = (a_{i1}, a_{i2}, \dots, a_{ini})$ . Taking  $A = (a_1, a_2, a_3, a_4, a_5)$  as an example, the steps are as follows: for the distribution of the weights of the first-level indicators,  $k$  (at least 30) experts are invited to propose personal distribution opinions, the organizer. By analyzing the recovered weight distribution questionnaire, for each index  $u_i (i = 1, 2, \dots, 5)$ , the weight statistical test is carried out, and the following steps are taken:

For the first-level index  $ui (i = 1, 2, \dots, 5)$ , search for the maximum weight value  $Mi$  and the minimum weight value  $Mi$  in the corresponding  $k$  weights  $aij (j = 1, 2, \dots, k)$  [25].

#### 4. TESTING THE EVALUATION MODEL USING EXPERIMENTS

##### 4.1 Experimental Data Set

To verify whether the user experience evaluation model of B2C e-commerce websites proposed in this paper is reasonable and effective, a questionnaire is designed. A total of 867 questionnaires were collected and 45 invalid questionnaires with regular or incomplete responses were eliminated, hence 822 valid questionnaires were obtained. The questionnaire items are designed using a five-point Likert scale, from strongly disagree to strongly agree. After the questionnaire was designed, a small-scale pilot test was conducted and the questionnaire was modified according to the pilot test results, resulting in the development of a formal questionnaire.

##### 4.2 Fuzzy Comprehensive Evaluation

We establish a fuzzy comprehensive evaluation model from the above 7 indicators and use the evaluation indicator system to obtain a set of factors  $U = \{U1, U2, U3, U4, U5, U6, U7\}$ . The evaluation level is excellent, good, general, and poor. The set is  $V = \{v1, v2, v3, v4\}$ ; the weight of each index is determined by the expert scoring method, the weight set  $A = \{Ai\} = \{a1, a2, \dots, a5\}$ ;  $Ai = \{ai1, ai2, \dots, aik\}$ .

##### 4.3 Determine Evaluation Factor Set

In many evaluation models, the first step is to determine the evaluation index set  $u$  in the evaluation system. To ensure a comprehensive and accurate construction and to avoid lengthy and complex articles in the research, we select as few factors as possible to summarize the research topic and choose a triangular function to express the membership function. The membership function determined for the corresponding evaluation set is as follows:

$$u_1(x) = \begin{cases} 0 & \text{OTHER} \\ \frac{75-x}{5} & 65 \leq x \leq 75 \\ 1 & < 65 \end{cases} \quad (6)$$

$$u_2(x) = \begin{cases} 0 & \text{OTHER} \\ \frac{85-x}{10} & 75 \leq x \leq 85 \\ \frac{x-65}{10} & 65 \leq x \leq 75 \end{cases} \quad (7)$$

$$u_3(x) = \begin{cases} 0 & \text{OTHER} \\ \frac{90-x}{5} & 85 \leq x \leq 90 \\ \frac{x-75}{10} & 75 \leq x \leq 85 \end{cases} \quad (8)$$

$$u_2(x) = \begin{cases} 0 & \text{OTHER} \\ \frac{x-85}{5} & 85 \leq x \leq 90 \\ 1 & x \geq 90 \end{cases} \quad (9)$$

corresponding to excellent, good, general and poor respectively, i.e. evaluation set  $u = \{\text{poor, general, medium, good, excellent}\}$ .

##### 4.4 Calculate Membership

By considering the degree of membership of each evaluation level  $rikj$  separately from each second-level evaluation index  $uik$ , a single-factor evaluation matrix  $Ri = \{rik1, rik2, rik3, rik4\}$  is obtained.

$$R_1 = \begin{bmatrix} R_{11} \\ R_{12} \end{bmatrix} \quad (10)$$

where  $R_{11} = \{r_{111}, r_{112}, r_{113}, r_{114}\} = \{0.3491, 0.3031, 0.23160, 0.0231\}$ ,  $R_{12} = \{0.5610, 0.4589, 0.2146, 0\}$ , and the same for  $R_2, R_3, R_4$  and  $R_5$ .

##### 4.5 Confirmatory Factor Analysis

Through the above calculations, the objective weights based on the structural equations are compared with the subjective weights based on the analytic hierarchy process. It is found that the calculated weights of the two are the same, the weights are sorted in basically the same way, and they have good consistency. The rationality of the determination of the index weight is discussed. Although the objective weights obtained from the structural equation analysis of the B2C e-commerce website are objectively and quantitatively calculated, the results are still affected by the scientific rationality of the collected sample data, and to a certain extent are one-sided. Furthermore, through the analytic hierarchy process based on B2C e-commerce website professionals' decision-making, the subjective weights are obtained from the subjective experience judgment of B2C e-commerce website professionals, sometimes lacking certain objectivity due to insufficient consideration. Due to the limited time for research, this paper considers that subjective weight and objective weight are equally important to comprehensive weight, so the subjective preference coefficient and objective preference coefficient are both 0.5. The determination of the subjective preference coefficient and the objective preference coefficient can be further studied in the future, so that the determination of the two is more reasonable and accurate.

#### 5. ANALYSIS AND DISCUSSION OF EXPERIMENT RESULTS

##### 5.1 Sample Data Analysis

This paper analyzes B2C e-commerce websites, online shopping frequency, online shopping age, education background, gender and so on.

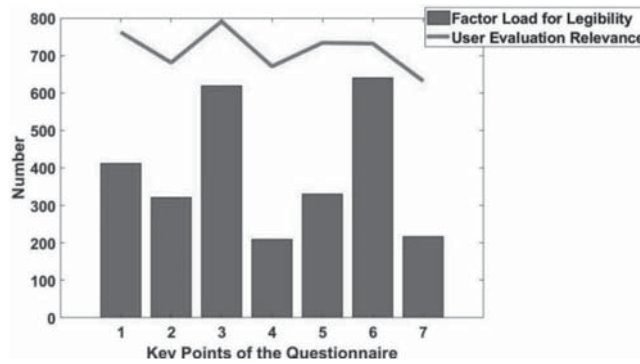


Figure 1 The Correlation Between Each Dimension and the Overall Evaluation of User Experience.

Table 2 Basic Information of Sample.

Basic Information		Number of People	Percentage
Gender	Male	399	48.5%
	Female	423	51.5%
Online Shopping Frequency	Once a Month	554	67.4%
	Once a Week	101	12.3%
	Other	167	20.3%
E-commerce Website	TaoBao	526	64%
	Jingdong Mall	173	21%
	Other	123	15%
Online Shopping Age	Less Than 1 Year	85	10.4%
	1–2 Years	83	10.1%
	2–3 Years	301	36.6%
	More Than 3 Years	353	42.9%

Distribution of commonly used B2C e-commerce websites: Taobao (64%) is the most commonly used B2C e-commerce website used by the respondents, followed by Jingdong Mall (21%), Vipshop, Suning e-commerce, Pinduoduo and other e-commerce websites. The frequency distribution of online shopping: once a month (67.4%), once a week (12.3%) and others (20.3%). The time distribution of online shopping: 10.1% in 1-2 years, 36.6% in 2-3 years, 42.9% in more than 3 years and 10.4% in less than 1 year. Education distribution: of the respondents, 64.2% have a bachelor degree or above, 32.9% have a master's degree or above, and 2.9% have a high school degree or below, as shown in Figure 1. Gender distribution: of the 822 respondents, 48.5% are male and 51.5% are female. The data are shown in Table 2.

As shown in Table 2, it is clear that the sample meets the needs of our research and can provide a certain reference for the improvement of B2C e-commerce service quality. Because they are the main group of online shopping, highly educated people are still the main force of online shopping and are representative. In this study, the majority of respondents are those who are more highly educated.

## 5.2 Questionnaire Model Analysis

The questionnaire commenced with multiple choice questions on brand, visual design, interaction design, shopping process, information construction, security and personalized services. The correlation between the information collection and the user evaluation is shown in Figure 1:

Items 1-7 relate to brand, visual design, interaction design, shopping process, information construction, security and personalized services. It is clear that there is a moderate correlation between items 2, 4, 5 and 7 and the overall evaluation of the user experience and there is a strong correlation between items 1, 3 and 6 and the overall evaluation of the user experience, indicating that the user experience of B2C e-commerce sites can be evaluated from these 7 dimensions. The data obtained in the 7 dimensions is shown in Figure 2.

It can be seen from Figure 2 that the data are relatively good overall. This means that the evaluation problem of online consumer reviews can be attributed to a binary classification, which divides online consumer reviews into useful and useless categories. When each annotation is labeled with a classification label, it is assigned a classification value (or classification probability). The useful annotations under the head classification are further sorted according to the classification probability value. A larger probability value means that the annotation is more useful. Therefore, this study uses support vector machines to perform the binary classification of reviews and divides the reviews in the data set into positive (useful) and negative (useless) categories.

## 5.3 First-level Fuzzy Comprehensive Evaluation

From  $B_i = A_i \cdot R_i$ , each single factor evaluation vector is obtained:

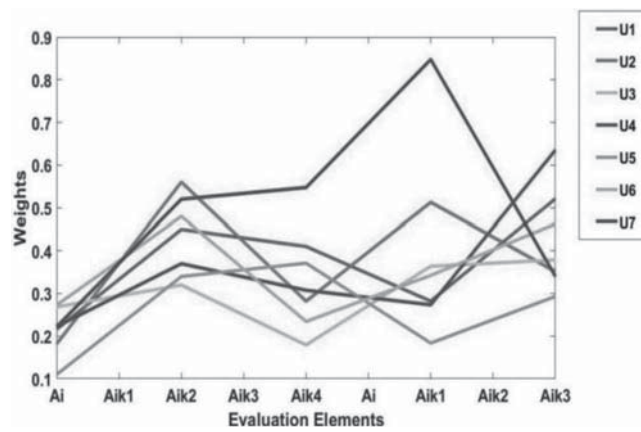


Figure 2 Fuzzy Comprehensive Evaluation Data.

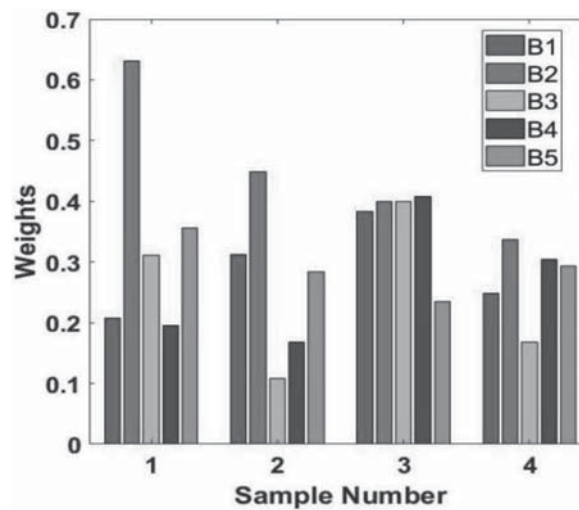


Figure 3 Single Factor Evaluation Vector.

The results are shown in Figure 3.

As illustrated in Figure 3, the first-order factor analysis of the user experience shows that there is no negative number of standard path coefficients in the model, indicating that the model and the sample data are ideally fitted, and the model's fitness index values achieve good adaptation effects. The adaptability of this model is good.

### 5.4 Calculation of Fuzzy Comprehensive Evaluation Value

By assigning values to the aforementioned five-level evaluation indicators, experts can obtain the fuzzy evaluation value of the B2C e-commerce website customer evaluation. Since the values calculated above are still in the form of vectors, which is not convenient for a direct comparison, the five-level indicators are weighted separately. Let  $H = (h_1, h_2, \dots, h_5) = (95, 85, 75, 60, 50)$ , then the comprehensive judgment result is  $D = BH$ .  $T = (0.671, 0.329, 0, 0, 0) (95, 85, 75, 60, 50)T = 93.61$ . Therefore, in the comprehensive evaluation of B2C e-commerce website service quality, this research combines subjective and objective, qualitative and quantitative, and gives the

subjective and objective weights a certain weight coefficient when calculating the weighted average. Therefore, it is necessary to analyze user experience and determine the fit of the overall model. Through exploratory factor analysis, the user experience of the B2C e-commerce website is evaluated in terms of brand, visual design, interaction design, shopping process, information construction, security and personalized services. Finally, a more comprehensive and objective evaluation model of B2C shopping center service quality was obtained. The comprehensive weight calculation method of B2C e-commerce website service quality is: the subjective preference coefficient and the objective preference coefficient respectively reflect the importance of the subjective weight and the objective weight, and add up to  $\beta$ . Then,  $1-\beta$  is the ratio of the subjective preference coefficient to the total weight, and  $1 - \beta$  is the ratio of the objective preference coefficient and the total weight, as shown in Figure 4:

It can be seen from Figure 4 that there is no negative number for the standard path coefficient of the model, indicating that the model fits the sample data ideally. The path coefficient between information construction is the largest, indicating that information construction has the greatest impact on the user experience of B2C e-commerce websites. It can be seen that most customers are satisfied with the customer evaluation of the B2C e-commerce websites under



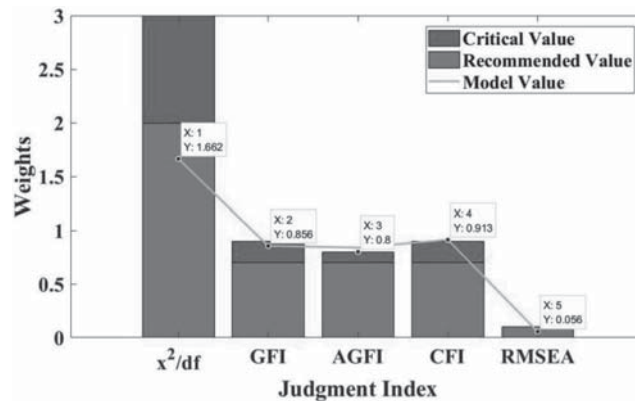


Figure 4 Overall Model Fit.

investigation. This calculation method is more objective, scientific and reasonable.

## 6. CONCLUSIONS

The purpose of this article is to study the user experience evaluation of B2C e-commerce sites based on fuzzy information. Therefore, based on the evaluation indicators, some user experiences are combined to build a B2C e-commerce site evaluation system based on fuzzy information to provide better services. The above research shows that information construction is the most important factor affecting the user experience of B2C e-commerce websites. It is concluded that the user satisfaction of customers shopping in a physical store is the same as their satisfaction with online shopping, their goal being to meet their various needs and pursue a high-quality life. Therefore, when consumers select and purchase commodities on an e-commerce platform, they will evaluate them comprehensively from five perspectives: function, safety, interest, perceived cost, and society. It is important that e-commerce businesses reduce the number of obstacles which may prevent users from finding and obtaining information on commodities to ensure users have a good experience.

Further, the connotation of customer perceived value is redefined. Under the B2C e-commerce model, the perceived value of customers is based on the premise that the shopping process and the results meet the basic needs of customers. According to the correlation between the first-level dimension and overall satisfaction, the B2C e-commerce website customer satisfaction quality house forms a first-level dimension and overall satisfaction quality house; then according to the correlation between the second-level indicators and the first-order dimension, Establish a second-level indicator and a first-dimension quality house, so this article is divided into two stages to build a quality house and weigh the gains and losses, online shopping customers on the B2C e-commerce platform before shopping, during shopping, after shopping perception.

Finally, based on the effect of fuzzy information on user experience evaluation of B2C e-commerce websites, this article makes the following suggestions: (1) continuously improve users to improve information construction continuously improve users continuously improve informa-

tion construction to improve the user experience; (2) ensure customer service communication is friendly as customer service is the communication bridge between e-commerce enterprises and customers and represents the corporate image; (3) ensure a high-quality user experience to attract users to B2C e-commerce websites; (4) provide personalized services, for example, in a physical store, shopping guides recommend products based on consumers' taste or physical characteristics, based on the estimation of model parameters. In general, the research on the service quality of B2C e-commerce enterprises is only the tip of the iceberg.

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