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Research Article

A Method for Adjusting the Semantic Acceptability of English Corpora Based on the Kano Model

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The Semantic Accessibility Scale (SAS) is one of the criteria for systematically assessing the semantic readability of corpus texts. With the advent of the Internet, English language content has been widely distributed. This constitutes an adequate corpus for corpus research. However, how to assign and evaluate the semantic acceptability of English literary texts with the aid of corpus has become a hot topic of study for academics around the world. In this paper, we propose an analysis method for corpus semantic acceptance based on the Kano model. This method combines the Kano model with corpus semantic acceptance. Initially, the method identifies the initial corpus semantic acceptance demand items using the initial corpus semantic acceptance identification questionnaire. The Kano categories of each requirement item are then identified and filtered based on the second Kano questionnaire. In this paper, we propose a Kano-based method for corpus semantic acceptance requirement analysis and apply Kano theory to corpus semantic acceptance requirement analysis. First, the corpus semantic acceptance requirements are classified into corresponding Kano categories and filtered using a Kano survey; second, the initial weights of the corpus semantic acceptance requirements are determined using the coarse number method; and finally, the initial weights of the requirements are adjusted using the corresponding Kano adjustment coefficients to obtain the final weights of the corpus semantic acceptance requirements.

1. Introduction

The reform of vocabulary instruction, which is of crucial importance to the reform of the English curriculum, is the most difficult and crucial aspect of the English curriculum reform. As educators investigate the incorporation of corpora into English classrooms, vocabulary instruction within the context of corpora has evolved into a new model in this field. This research has dual purpose: first, corpus-based teaching models are more prevalent in higher education than in secondary schools; the second objective is to apply the functions and theories of the corpus to secondary-level English vocabulary instruction and to investigate the practicability and efficacy of the corpus teaching model.

The new English curriculum reform is currently being implemented in the education sector, which advocates student-centeredness, the improvement of students' comprehensive literacy and differentiation, and the integration of curriculum and modern information technology. The corpus approach exemplifies the connection between curriculum and practice advocated by the new curriculum reform, and its computer and corpus-assisted design satisfies the new requirement for integrating curriculum and modern technology.

Semantic Accessibility Scale (SAS) is a quantitative criterion used to measure the comprehensibility of a text; the study of how to analyze literary texts from a stylistic perspective has received attention from scholars at home and abroad [1, 2]. In natural language text analysis, the Automatic Text Summarization System (ATSS) is similar to this. The SAS of stylistics emphasizes the point-based approach to summarize the writing style of a writer by formally analyzing the content of randomly selected English texts. ATSS for natural language focuses on generalizing from the primary to the secondary, using a computer to automatically extract the main content of a text and generate a semantically coherent digest to cover the original text. Although SAS

source data are selected from literary texts and ATSS is selected from web texts, both emphasize the use of form to analyze and summarize texts and are comparable. With the development of the web, large amounts of literary texts have become electronic [3]. How to analyze and evaluate literary texts online with the help of research results in the field of natural language processing has become a new direction for computational linguistics research. In this paper, the electronic English literary texts are collectively referred to as natural language texts, and the evaluation of their comprehensibility can be carried out by the evaluation model of automatic digest system. At the same time, we try to build an online evaluation system of English text SAS and quantify it by using formulas, so that literary critics can analyze the acceptability of English text formally by computer.

Second, the corpus approach optimizes teaching resources and fosters the growth of teachers' instructional abilities. Traditional teaching resources include syllabi, textbooks, and exercise books. Language learning requires a large number of resources for reference and support. The limited number of resources available to teachers for lesson planning limits their ability to instruct. The corpus provides teachers and students with a substantial amount of authentic corpus, which complements and enhances the teaching resources of teachers. In accordance with their cognitive development, students acquire language knowledge and develop language skills in authentic corpus-generated contexts. The result is not only that learning becomes easier for students but also that teachers' instructional abilities are elevated to a new level. Again, the corpus approach enhances the learning styles of students [4]. Students find traditional vocabulary instruction dull and uninteresting, and they lack motivation to learn. Students are motivated to explore and acquire knowledge because the corpus-based vocabulary teaching method is intuitive and draws their attention. This study focuses on the combination of new methods, new theories, and new practices and emphasizes the feasibility and practicability of the corpus teaching method, which not only provides a new perspective for high school English vocabulary instruction but also serves as a useful reference.

In this paper, we apply Kano theory to the process of analyzing corpus semantic acceptance requirements. Additionally, we propose a method that is based on Kano for analyzing corpus semantic acceptance requirements. First, the corpus semantic acceptance requirements are categorized into corresponding Kano categories and filtered using Kano survey; second, the initial weights of the corpus semantic acceptance requirements are obtained by using the coarse number method; third, the initial weights of the requirements are adjusted according to the corresponding Kano adjustment coefficients to obtain the final weights of the corpus semantic acceptance requirements; and finally, the final weights of the corpus semantic acceptance requirements are presented. The most acceptable corpus is obtained through the utilization of a method known as joint analysis.

2. Related Work

2.1. Corpus and Corpus Linguistics

2.1.1. Definition of Corpus. The term "corpus" is derived from the Latin word "body," which usually refers to any segment or chapter in spoken or written language. The definition of "corpus" has been widely debated by linguists, and there is no unified definition in the linguistic community. There are several definitions given by early foreign linguists who have studied this area, and they have been accepted by the profession at various times. For example, Sinclair defines a corpus as "a collection of linguistic materials selected, classified, and ordered by special rules for use as a sample of language" [5]. Kennedy defines a corpus as "a collection of materials that can be used to analyze and describe a language. Kennedy defines a corpus as "any written text or speech transcription that can be used to analyze and describe language." The famous linguist Henou, in his book, also gives a unique insight into the use of a corpus for linguistic research, which contains a large number of written and spoken texts that are stored and processed with the help of computers for the purpose of application.

This branch in the field of applied linguistics started late in China, but some senior linguists in China have given their own views on the definition of corpus. The definition of corpus given by Saaty "refers to the combination of a large amount of linguistic materials existing in a computer and location retrieval management software [6]." A corpus is an electronic database with a certain capacity built according to the prescribed linguistic principles, using random sampling to gather continuous language usage texts and conversation fragments that occur in daily life.

2.1.2. Classification of Corpora. Nowadays, corpora are rapidly evolving, and different types of corpora are being developed to meet a variety of needs, making corpora classification difficult.

Corpora can be divided into two types based on their specialization: general-purpose corpora and specialized corpora. The general corpus is distinguished by its large capacity, broad range of topics, and high utility. The American National Corpus, the American Contemporary English Corpus, and other general corpora are commonly used. Specialized corpora reflect a specific field of language. For example, if we are studying business negotiation and contract signing in English, we will not be able to find relatively specialized knowledge in a general corpus but will need to use a specialized corpus of business English.

A parallel corpus is a bilingual or multilingual corpus that includes both the original and translated text. According to the translation direction, parallel corpus can be divided into one-way parallel corpus, two-way parallel corpus, and multiway parallel corpus [7]; analogical corpus refers to two or more corpora composed of different forms of variants of the same language or texts of different languages, which can be divided into monolingual analogical corpus and bilingual

or multilingual analogical corpus, for example, ECC (English Comparable Corpus), and so on.

With the application of corpora in language teaching in recent years, a family of corpora has gradually emerged as a learner corpus, i.e., a corpus composed of learners' own acquired works, e.g., the Chinese English Learner Corpus, the Chinese Student English Oral and Written Corpus, and so on.

2.1.3. History of the Corpus. The development of corpora can be divided into two stages in terms of the research on the corpus itself and the application of the corpus. The first stage is the traditional corpus stage. Between the nineteenth and twentieth centuries, a large number of dialect surveys were conducted in the United Kingdom and the United States for language collection, and the results of these surveys were gathered into a dialect corpus, which is the early traditional corpus. In China, evidence of the use of corpus as a research method emerged during the Ze-Shui [8], when the Western Han philosopher and linguist Hu and Zhang [9] used actual surveys to study language in a new way and produced the first monograph on the study of dialect vocabulary in China, "Trifling Xuan Emissary Jedi Language Explaining Dialects of Other Countries." The second stage of modern corpus began in the 1950s [10], when Brown University in the United States began to develop the first machine-readable corpus, and in 1964, Francis and Kucera completed the world's first machine-readable corpus, the Brown Corpus. All these corpora belong to the first generation of corpora. In the 1970s and 1980s, the second and third generation corpora such as the British National Corpus and the Longman English Corpus were rapidly established in the world. In China, the research on corpus started in the late 1970s and early 1980s, and the modern Chinese corpus in China also developed with the application of computers, and some large corpora such as the Chinese Language Resources Consortium and the International Chinese Language Resources Consortium were established. Nowadays, the construction and research of Chinese corpus is still going on in China [11].

2.1.4. Introduction to the COCA Corpus. Professor Mark of Brigham Young University pioneered the Corpus of Contemporary American English (COCA) at the beginning of the twenty-first century and successfully launched the platform in 2008. As one of the largest balanced corpora to date, it has made it possible for more English educators and learners to have access to original English knowledge and has generated a lot of buzz in the corpus academic and language education communities. In terms of size, the COCA corpus has about 360 million words (lexical entries), which makes it more competitive in terms of online corpus size; in terms of speed, the number of processing chips in COCA's servers is 8, each at 2.4 GHz, which ensures that users can find and extract the information they want within seconds. The obvious advantage of COCA is that all the corpus contained in the database are taken from the latest corpus in the past 20 years and updated twice a year, which truly guarantees the timeliness of the corpus. In the rapidly developing world of Internet, the free and universal nature of COCA is its important mark; traditional users are unable to search on the corpus according to their individual needs, such as querying word spacing, difficulty in determining the type of corpus and doing synonym analysis, and so on. The corpus perfectly solves a series of confusions and pioneeringly combines with Google or Yahoo search engines to provide users with more valuable data information.

2.2. Kano Model

2.2.1. Fundamentals of the Kano Model

(1) Theory of Kano Model. The Kano model was first proposed by Professor Noriaki Kano and his colleague Fumio in 1979. In 1984, Noriaki Kano formally proposed the complete structure of the Kano model, which defines three levels of customer needs: basic needs, desired needs, and arousal needs [12]. Traditionally, customer satisfaction varies with the degree of satisfaction of quality characteristics, i.e., customers are satisfied when quality characteristics are satisfied. However, there are some quality characteristics that will not only make customers feel satisfied but even dissatisfied when they are satisfied. Therefore, with the passage of time and more and more scholars' research on the Kano model, according to the relationship between the satisfaction of quality characteristics and customer satisfaction, scholars added two new quality characteristics to the original Kano model and classified the quality characteristics of products into a total of five types, which are charm quality, one-dimensional quality, essential quality, undifferentiated quality, and inverse quality [13]. Since customer needs are satisfied by certain quality characteristics, quality characteristics and customer needs are said to correspond to each other. Similarly, customer needs can be divided into charm needs, one-dimensional needs, essential needs, non-differentiated needs, and inverse needs, as shown in Figure 1.

As shown in Figure 1, the horizontal coordinate indicates the adequacy of the provided product attributes, and the more the axis moves to the right, the more the product attributes are adequate and exceed customer expectations, and the more the axis moves to the left, the more the product attributes are lacking; the vertical coordinate represents customer satisfaction, and customer satisfaction increases and decreases as the vertical coordinate increases and decreases. The following are the specific requirements for the five distinct needs depicted in Figure 1.

(a) *Attractive Requirement.* It is an unexpected requirement of the customer, which is a quality characteristic requirement that can bring surprise to the customer. This kind of requirement is not expected by customers, and providing such requirement can greatly enhance customer satisfaction. When this demand is not satisfied, customers will not feel dissatisfied; when this demand is satisfied, customers will feel very surprised. This kind of demand is generally obtained after market research and in-depth analysis of customer use of the product.

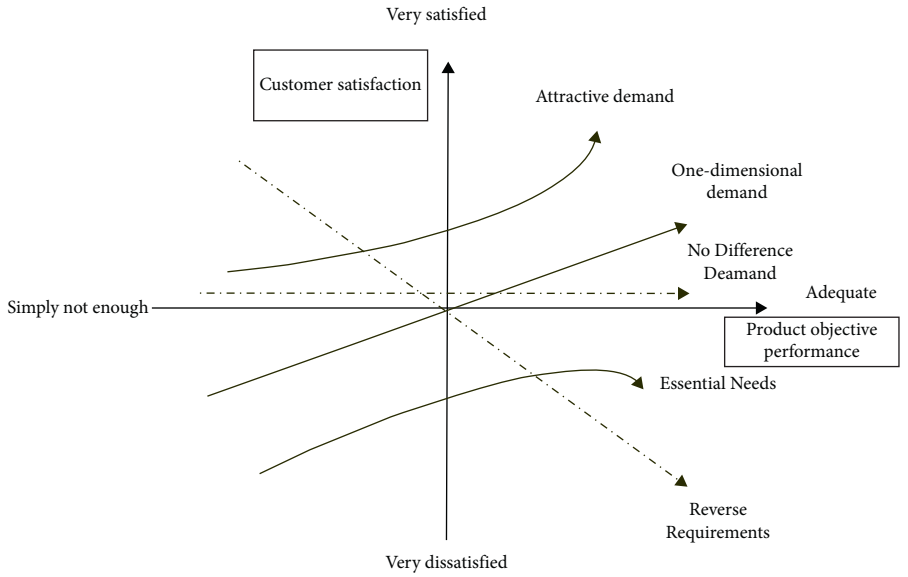

Figure 1: Kano model.

(b) *One-Dimensional Requirement*. The customer's requirement for the quality characteristics of the desired product is the definition of one-dimensional requirement, and the degree of customer satisfaction varies linearly with the degree of satisfaction of this requirement. When this requirement is not satisfied, the customer feels dissatisfied; when this requirement is satisfied, the customer feels satisfied, and the higher the degree of satisfaction is, the greater the customer's satisfaction will be. The questionnaire can be used to get the one-dimensional needs.

(c) *Must-Be Requirement*. It is a quality characteristic requirement that customers think the product should provide. When this requirement of the product is not satisfied, the customer will be extremely dissatisfied, but when this requirement is satisfied, the customer will not be very satisfied because the customer feels that the satisfaction of this requirement is the basic functional characteristic of the product. Essential needs are more basic needs that are invisible, and generally customers do not actively mention these types of needs.

(d) *Indifference Requirement*. It is a requirement that customers do not pay attention to. The satisfaction or non-fulfillment of such requirements and the degree of satisfaction do not affect the level of customer satisfaction.

(e) *Reverse Requirement*. The requirement that customers do not want to appear in the product is reverse requirement, and this requirement is inversely proportional to customer satisfaction.

(2) Advantages of Kano Model. The traditional method of measuring customer preference is to see how satisfied customers are with the quality characteristics. In the measurement, customer satisfaction is usually divided into 5–7 intervals from "very dissatisfied" to "very satisfied," and customers are asked to evaluate such quality characteristics to determine the level of customer satisfaction with the quality characteristics. One problem here is that the relationship between quality characteristics and customer satisfaction is not necessarily linear but may sometimes be non-linear. It is possible that the really important quality characteristics cannot be derived by the traditional linear way of thinking.

The Kano model can express the customer needs dynamically. While the general theory focuses on the analysis of customer preferences, the Kano model focuses on the analysis of the factors affecting customer satisfaction.

(a) By distinguishing the needs of different types of customers, the Kano model can find the quality characteristics that best improve customer satisfaction, which in turn allows companies to gain a detailed understanding of customer needs. It helps companies to find the focus of development before developing products and to know which quality features should be developed first with limited resources.

(b) The Kano model provides criteria for trade-offs between quality characteristics. If a company cannot satisfy all the needs of customers at the same time with limited technology or capital, it can make trade-offs between quality features in terms of their impact on customer satisfaction and customize the quality features that have a high impact on customer satisfaction first.

(c) The Kano model can be used to segment the market more clearly by the different demands of customers for product quality characteristics. For each market segment, the product is designed separately to produce the product that best meets each segment's needs.

(d) The Kano model enables companies to find attractive needs and highlight the highlights of their products, so that they can produce more attractive products and stand out from similar products.

2.2.2. Current Status of Kano Model Research. Zhao et al. [14] incorporated the Kano model in designing the robustness of products and combined the Kano model and Taguchi test to readjust the initial weights of product quality characteristics, and then combined with gray theory, the optimal combination of product design parameters was derived while considering customer satisfaction, making customers have a higher satisfaction with the designed products. Cecilia Garibay [15] chose to combine the Kano model and the QFD approach when evaluating digital books. In order to improve the service quality more effectively, the key factors affecting the improvement of the service quality of digital libraries were identified. Kano et al. [16], with the idea of classifying products and their service quality characteristics, proposed the idea of combining the Kano model with IPA (Importance-Performance Analysis), which can be used to analyze and identify the success factors of the company. In particular, the management strategies are effectively tailored to the success factors, allowing the improvement of the service quality of the company. Kurt Matzler et al. [17] combined Kano model and ANOVA for better market segmentation. The analysis is used to derive the evaluation of different key service quality attributes in various market segments, which helps companies to evaluate the service quality in a more targeted way, and the whole process is illustrated in detail with a case study. Requel [18] integrated the Kano model, fuzzy theory, and 2-element fuzzy-linguistic model to manage after-sales service and make it more effective. Vasilash [19] combined the fuzzy Kano model with QFD to incorporate customer emotions into the product design and to classify customer needs more accurately into the appropriate Kano types and applied this approach to the study of the attributes of the car form. Matzler and Hinterhuber [20] combined the Kano model with QFD and applied it to human environmental modification science. The questionnaire method was used to finally fit the prioritization of methods and applied to the design of workbenches to address the comfort of workbenches. Tan and Pawitra [21] combined the regression design approach with the Kano model to obtain the most desirable combination of design factors. The Kano model works better in reconciling the relationship between performance criteria and customer satisfaction, while identifying the key factors that affect customer satisfaction. Carmen [22] applied the Kano model to perceptual engineering using regression analysis and the Kano model to determine the relative importance of each emotional attribute that influences the purchase behavior of customers.

3. Kano Model-Based Approach to Customer Requirement Analysis

It has a recurrent neural network (RNN), which is developed from artificial neural network. Due to its special structural characteristics, it has a short-term memory function for time series. The recurrent unit of the neural network with feedback is very different from the feedforward neural network. In addition to receiving external input, it also receives the hidden state information of the previous moment, which can be regarded as a temporary memory, while previously due to the limitation of its structure, the feed-in neural network could only receive external input. Therefore, it cannot be used to process speech and other time-sequence signals closely related to the signal before and after. Recurrent neural networks have been widely used in video, speech, text, and other time-sequence related problems [22].

3.1. Process of Customer Demand Analysis Based on Kano Model. In this paper, we propose a Kano model-based customer demand analysis method; firstly, we use the Kano model to determine the category of customer demand and filter the customer demand items, then we combine the coarse number method to get the initial weight of customer demand items, then we assign different adjustment coefficients according to different Kano categories of customer demand items, and finally we get the final weight of customer demand items and its importance ranking; for the multiple level characteristics of key customer demand items, using the joint analysis method, we can finally get the combination of the most popular product parameters. The flow of this method is as follows (Figure 2).

Figure 2 shows the total number of questionnaires distributed in this study and their names on the left, the method applied in this paper on the right, and the main steps of this method in the middle.

(1) Identifying the product's initial customer needs: the product's initial customer needs were identified by reviewing relevant literature, conducting customer interviews, and disseminating the first initial customer needs identification questionnaire.

(2) Determining the Kano categories of customer demand items: the first questionnaire's customer demand items are designed, and the second Kano questionnaire is distributed to determine the Kano category corresponding to each customer demand item.

(3) Requirement screening based on the Kano model: screen the customer requirement items belonging to different Kano categories and keep only the A category requirements and O category requirements.

(4) Determining the initial weights of customer requirements: design and distribute the third importance questionnaire to the retained A and O requirements and calculate the initial weights of customer requirements using the coarse number method.

(5) Weight adjustment based on the Kano model: based on the different Kano categories of customer demand items, the initial weights of customer demand items are adjusted by selecting the corresponding adjustment coefficients, and the final weights of customer demand items are obtained.

(6) Determining the importance ranking of the customer demand items: the customer demand items

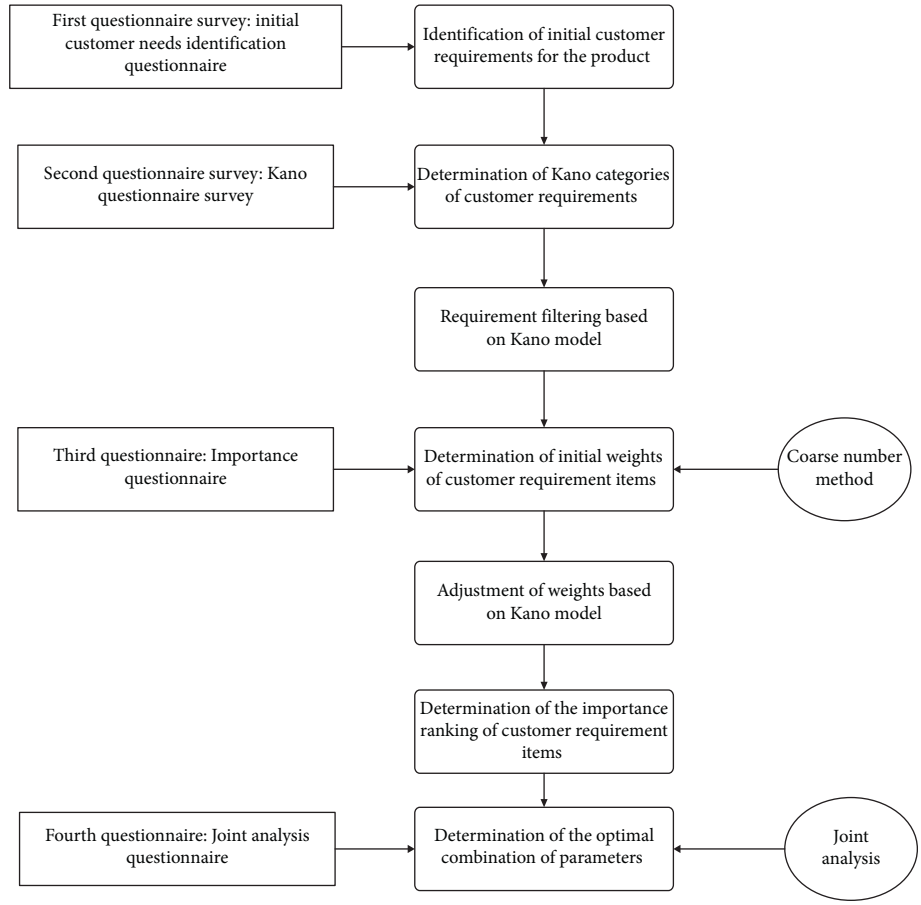

Figure 2: Customer requirement analysis process based on Kano model.

are ranked in the order from the largest to the smallest, and the importance ranking of the customer demand items is obtained.

(7) Determination of the optimal parameter combination: take the top six most important customer demand items and find the level corresponding to each customer demand item, produce a series of virtual products using the orthogonal experimental design method, distribute the fourth joint questionnaire to these virtual products, let consumers score these virtual products, and analyze the obtained results jointly to finally obtain the most popular product parameter combination.

3.2. Steps of Customer Demand Analysis Method Based on Kano Model

3.2.1. Determining the Kano Categories of Customer Demand Items. The application method proposed by Kurt Matzler is the one that is more commonly used today. The idea is that for each quality characteristic of the product, positive and negative questions are asked to determine the Kano category to which each quality characteristic belongs based on the Kano evaluation form [17]. The steps are as follows: first, the design and distribution of the Kano questionnaire are conducted, then obtain the initial customer demand items of the product, and design the Kano questionnaire according to the template given by the Kano theory, and the respondents are asked to score the two cases of providing or not providing the initial customer requirement items of the product. The form of the Kano questionnaire, as shown in Table 1, is as follows.

(2) Kano questionnaires were distributed, and the results were tallied corresponding to the Kano evaluation table [17] shown in Table 2 to obtain the Kano category to which each customer requirement item in each questionnaire belongs. A indicates charm quality, *o* indicates one-dimensional quality, *m* indicates must-have quality, *i* indicates undifferentiated quality, *r* indicates reverse requirement, and *q* indicates that there is a problem with the response (because Q represents that the respondents' answers to the forward and reverse questions are the same).

3.2.2. Determining the Kano Categories of Customer Requirements. After the statistics are completed, the data of each initial customer requirement item are summarized separately and the Kano category of each quality characteristic is obtained by applying the principle of "relative majority," as shown in Table 3. The "relative majority" means that among the five Kano categories, the Kano category with the most product quality characteristics is the Kano category of that quality characteristic.

Table 1: Kano questionnaire item format.

Customer needs	Question	Dislike	Tolerable	Do not care	Take for granted	Like
Ri	The product provides the requirement	1	2	3	4	5
	The product does not provide the requirement	1	2	3	4	5

Table 2: Kano evaluation form.

Positive problem	Reverse problem				
	Like	Take for granted	Do not care	Tolerable	Dislike
Like	Q	A	A	A	O
Take for granted	R	I	I	I	M
Do not care	R	I	I	I	M
Tolerable	R	I	I	I	M
Dislike	R	R	R	R	Q

In order to avoid misclassification of Kano categories, Berger [61] proposed to use the ratio of the coefficient of increasing satisfaction to the coefficient of eliminating dissatisfaction, i.e., "satisfaction/dissatisfaction ratio," to identify the Kano categories of product attributes with relatively similar percentages. The calculation formula is shown below.

$$\begin{aligned} \text{Increase the satisfaction factor} &= \frac{A+O}{A+O+M+I}, \\ \text{eliminate dissatisfaction coefficient} &= \frac{M+O}{A+O+M+I}, \end{aligned} \tag{1}$$

where A is the proportion of charm quality attributes in total attributes, O is the proportion of one-dimensional quality attributes in total attributes, M is the proportion of essential quality attributes in total attributes, and I is the proportion of undifferentiated quality attributes to the total attributes.

3.2.3. Requirement Screening Based on Kano Model. Customers who customize products pay different attention to different categories of customer demand items and treat them differently in order to improve customer satisfaction. The following are the demand screening principles. (1) For category A demand: if such customer demand is not satisfied in the final product, the customer will not be dissatisfied; however, if such demand is reflected in the final product, the customer will be very satisfied. As a result, this type of demand can greatly improve customer satisfaction, so it is critical to maintain this type of demand. (2) For O-type requirements: the more such requirements are provided, the more satisfied the customers will be; the fewer the requirements provided are, the less satisfied the customers will be. As a result, such requirements must be maintained in order to improve customer satisfaction. (3) For M-type requirements: if such requirements are satisfied in the final product, customers will not be satisfied because they believe this is what the product should have; however, if such requirements are not satisfied, customers will be very dissatisfied and will most likely stop using the product. As a result, such requirements must be met in the final physical product; they do not need to be included in the importance ranking of the customized product because they do not contribute significantly to customer satisfaction, but they must be met in the final physical product. (4) For class I requirements: these are requirements that customers do not care about, customers are satisfied when these requirements are met and dissatisfied when these requirements are not met, and such requirements have no impact on customer satisfaction. As a result, such requirements should be removed from the final product, allowing the company to reduce production costs. (5) For R-type requirements: such requirements are inversely proportional to customer satisfaction, and if the product meets such requirements, customer satisfaction will not only not increase but will actually decrease; thus, such requirements must be removed. Table 4 depicts the principles of customer requirement screening based on the Kano model.

3.2.4. Determination of Initial Weights of Customer Demand Items

(1) Design and Distribution of the Importance Questionnaire. The importance questionnaire of customer demand items was designed by dividing each customer demand item into five rating levels: very unimportant, not very important, average, relatively important, and very important, corresponding to the ratings: 1, 2, 3, 4, and 5, using the five-point Likert scale method to retain the A and O customer demands. The questionnaire will be distributed to those who meet the requirements, and the survey of importance questionnaire will be conducted.

(2) Calculation of Initial Weights. The recovered data are analyzed for customer needs by using the coarse number method. By applying the coarse counting method, the initial weight of each customer demand item can be obtained for later calculation. The introduction of the coarse counting method and the improved coarse counting method are given below.

3.2.5. Weight Adjustment Based on Kano Model. In the actual questionnaire survey, because customers think that the essential requirements are indispensable for the product, they tend to give high evaluation to the essential requirements in the importance evaluation, and their initial weights are generally higher; on the contrary, although the charm requirements can bring surprise to the customers, they do not think they are essential, so the initial weights of the charm requirements tend to be lower. Although the initial weight of must-have requirement is high, its contribution to improve customer satisfaction is small; however, the initial

Table 3: Quality characteristic categorization.

Quality characteristics of products	A	O	M	I	R	Total number of questionnaires	Quality characteristic categorization
A	204	99	35	14	0	352	A
B	56	253	32	11	0	352	B
.....	.....	.....	.....	.....	.....	.....	.....

Table 4: Principles of customer requirement screening based on the Kano model.

Customer requirement category	A	O	M	I	R
Screening principle	Keep	Keep	Remove	Remove	Remove

weight of charm requirement is different from its initial weight, but its contribution to improve customer satisfaction is large, and it can significantly improve customer satisfaction. Therefore, the initial weight of customer demand items does not really reflect the importance of customer demand items. When determining the final weight of customer demand items, not only the importance information given by customers but also the contribution of customer demand items to the improvement of customer degree should be taken into account, and both aspects should be considered comprehensively. Therefore, in this paper, we adjust the initial weight of customer demand items according to Kano's theory and use the adjusted weight as the final weight of customer demand items. The specific steps of the adjustment are shown as follows:

(1) Based on the Kano category of the customer demand item, the adjustment coefficient k is selected. The relationship between customer satisfaction and the degree of satisfaction of the customer demand item in Kano theory can be expressed by the following equation:

$$s = cp^k, \tag{2}$$

where s is the customer satisfaction, c is a constant, p is the degree of satisfaction of the customer demand item, and k is the adjustment factor in the Kano theory. For charm demand, $k > 1$; one-dimensional demand, $k = 1$; essential demand, $0 < k < 1$; undifferentiated demand, $k = 0$; and reverse demand, $k < 0$. The exact value of the adjustment coefficient can be determined by the researcher based on previous experience.

(2) Adjust the initial weights of customer requirements based on the k values to obtain the final weights of customer requirement items:

$$w_i' = \frac{w_i k_i}{\sum_{i=1}^{n} w_i k_i}. \tag{3}$$

Let w_i' be the final weight of customer demand item, tw_i be the initial weight of the customer demand item, and k be the corresponding adjustment factor.

3.2.6. Determination of the Ranking of the Importance of the Customer Requirement Items. The final weight of a customer requirement item takes into account both the customer's evaluation of the importance of the requirement item and the contribution of the requirement item to the improvement of customer satisfaction. Therefore, the final weight of a customer requirement item can reflect the importance of that requirement item to a certain extent. The importance ranking of customer demand items is obtained by ranking the items according to their final weights from the largest to the smallest. In practice, it is impossible to satisfy all customer needs when customizing products because of the limited production capacity of the company itself. In the custom production, the company can focus on the more important items according to the importance of customer requirements. Therefore, the importance ranking of customer requirements can provide some reference for customization companies so that they can meet customer requirements very well and improve customer satisfaction.

4. Experimental Results and Analysis

4.1. Data Evaluation. The Old Man and the Sea, a 1954 Nobel Prize-winning work by Ernest Hemingway, was extracted from the English corpus, and six groups of 30 pages, 50 pages, and 124 pages were selected to compare the evaluation results. The result is shown in Tables 5–7.

From the values in Table 8, it can be seen that when the sampling rate SR was 16%, 24%, 32%, 39%, and 52%, respectively, there was no significant difference between their respective SAS values and the full text SAS values, i.e., the systematic evaluation of the same text did not differ in evaluation due to different sampling rates.

4.2. Analysis of Key Quantitative Elements. Using the absolute values of satisfaction and dissatisfaction indices as horizontal and vertical coordinates, respectively, all the indicators are included to form a satisfaction matrix model (as shown in Figure 1). The center lines of the X-axis and Y-axis are the average values of satisfaction and dissatisfaction, respectively. The matrix is divided into four quadrants. Through the analysis of these quadrants, it is possible to quickly identify which quality attributes can effectively improve student satisfaction. In Figure 3, the first quadrant belongs to the area of high satisfaction and high dissatisfaction. The quality elements in this region are the most effective for improving students' satisfaction and reducing dissatisfaction and are the key concerns for improving the quality of course construction. The high charm attributes of teaching content setting (items 1, 2, and 3), teaching material

Table 5: Statistics of the 30-page group.

Extracted pages	Total sentences	Number of words	L	Polyphony number	H	Fog index
6	18	150	8.33	4	2.67	4.22
9	20	182	9.10	7	3.85	4.65
12	19	174	9.16	4	2.34	3.87
13	21	180	8.57	6	3,32	4.21
...	...	...	...	...	...	...
119	14	209	14.93	6	2.43	6.45
121	25	169	6.85	5	3.33	7.22
123	15	187	12.34	5	2.32	6.16
124	11	98	8.94	3	3.55	4.29

Table 6: Statistics of the 50-page group.

Extracted pages	Total sentences	Number of words	L	Polyphony number	H	Fog index
2	18	150	8.33	4	2.67	4.22
3	12	182	9.10	7	3.85	4.65
4	17	174	9.16	4	2.34	3.87
6	18	180	8.57	6	3,32	4.21
...	...	...	...	...	...	...
112	24	199	10.18	6	2.65	5.45
113	22	163	7.89	8	3.31	7.62
118	16	191	9.31	7	2.43	7.18
124	11	98	8.94	3	3.55	4.29

Table 7: Statistics of the 124-page group.

Extracted pages	Total sentences	Number of words	L	Polyphony number	H	Fog index
1	15	148	9.11	3	3.62	4.36
2	18	150	8.33	4	2.67	4.22
3	12	182	9.10	7	3.85	4.65
4	17	174	9.16	4	2.34	3.87
...	...	...	...	...	...	...
121	25	169	6.85	5	3.33	7.22
122	21	180	6.31	6	3.41	6.71
123	15	187	12.34	5	2.32	6.16
124	11	98	8.94	3	3.55	4.29

selection (items 4 and 5), and academic communication module setting (item 12) should be improved as a priority, which can effectively improve student demand satisfaction.

The second quadrant is characterized by low satisfaction and high dissatisfaction. Improving the quality elements in this area can significantly improve students' learning motivation, but it may have little effect on student satisfaction. Only item 13 (the Professional English module) is located in this quadrant, indicating that the Professional English section needs to be strengthened and improved.

The third quadrant is associated with low satisfaction and dissatisfaction, implying that these elements have little effect on increasing satisfaction and decreasing dissatisfaction. This quadrant's quality elements include 8, with item 10 (General Academic English module) having a low charm attribute. The reason for this is that graduate students generally have a stronger English foundation and a greater need for academic English. Item 11 (humanities and arts module) and item 8 (project-based teaching of interdisciplinary themes) are both appealing but less satisfying. This indicates that while students recognize that humanities and arts modules play an important role in improving their English literacy, due to increased academic pressure, they prefer to use their limited time to quickly improve their academic English application skills. The importance of interdisciplinary theme-based instruction is confirmed by research data, but achieving the desired results is difficult. The remaining four quality elements are all irrelevant. Cai Jigang recommends using general scientific humanities or superficial specialized knowledge texts as teaching materials in university academic English classes [14]. However, according to the findings of this survey, graduate students regard these teaching materials (item 6) as unimportant quality elements. Graduate students are more motivated than undergraduates to read and write academic English, and they want instructional materials that are relevant to their major, and instructional materials that account for differences in major categories (item 4) are seen as highly appealing quality elements. Students did not approve of the combination of flipped classroom, online independent learning outside the classroom, and classroom teaching (items 7 and 9) possibly because students had already

Table 8: Statistics of SAS values corresponding to different SRs.

Index	S1	W1	*P*1	*P*2	SR	Fog index	SAS
1	306	4433	0.16	0.17	0.16	7.29	0.14
2	451	6236	0.24	0.23	0.24	7.40	0.14
3	622	8298	0.33	0.31	0.32	7.12	0.13
4	730	10714	0.38	0.40	0.39	7.63	0.14
5	996	13967	0.52	0.53	0.52	7.16	0.14
6	1900	26587	1.00	1.00	1.00	7.13	0.14

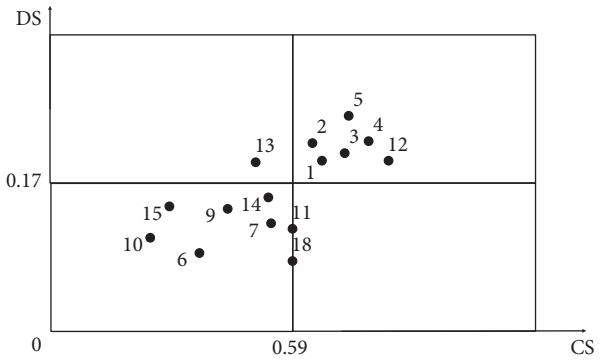

Figure 3: Satisfaction matrix model.

adapted to the traditional classroom lecture teaching mode, and the new teaching mode shifted some of the learning tasks to the classroom, increasing the pressure of independent learning and thus rejecting the new teaching mode. Furthermore, the FIF cloud learning platform's learning resources are too simple to meet students' learning needs. As a result, the enhancement of Project 9 should be prioritized in future curriculum development.

Items 14 and 15, which both involve evaluating teaching objectives, were also deemed irrelevant to quality, indicating that graduate students are more rational in their approach to their grades. While the method of grading is important, they are more concerned with the design of the course content and the selection of instructional materials, both of which are critical components in ensuring the quality of learning.

5. Conclusion

In this paper, we propose a Kano-based method for analyzing corpus semantic acceptance requirements and apply Kano theory to the corpus semantic acceptance requirement analysis. First, through Kano survey, the corpus semantic acceptance requirements are classified into corresponding Kano categories and filtered; second, the initial weights of the corpus semantic acceptance requirements are obtained by using the coarse number method, and then the initial weights of the requirements are adjusted according to the corresponding Kano adjustment coefficients to obtain the final weights of the corpus semantic acceptance requirements. Using a method of joint analysis, the most acceptable corpus is obtained. This paper's innovation is primarily reflected in the enhancement and expansion of the existing research method. The improvement is reflected in the adoption of the coarse number method to determine the initial weight of the corpus semantic acceptance requirements, which not only expresses the true sentiment of customers more precisely but also simplifies the data processing process by calculating the customer's score without adding an index. After applying Kano's theory to the corpus semantic acceptance requirement analysis to determine the importance ranking of the corpus semantic acceptance requirement items, a further extension is made, which reflects the extension. First, a series of virtual products were created using an orthogonal experimental design, then consumers were asked to rate these virtual products, and lastly, the most popular parameter combinations were determined using a conjoint analysis technique.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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