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Retraction

Retracted: The Quality Evaluation and Knowledge System Construction of Hierarchical Teaching in the Curriculum Are Based on the Grey Association Method

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] R. Yan, Y. Xie, and Y. Zhao, "The Quality Evaluation and Knowledge System Construction of Hierarchical Teaching in the Curriculum Are Based on the Grey Association Method," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 7109927, 15 pages, 2022.

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Research Article

The Quality Evaluation and Knowledge System Construction of Hierarchical Teaching in the Curriculum Are Based on the Grey Association Method

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Based on the theory of grey correlation, the hierarchical teaching quality evaluation and knowledge system structure of the curriculum are established. Using the optimal clustering method, the teaching quality assessment and knowledge system construction at the curriculum level were obtained, and the grey correlation method was used to study the teaching at the course level. Through the evaluation of the discipline level and the discipline level and the construction of the knowledge system, the evaluation of the discipline level and the construction of the discipline knowledge system are achieved. The study found that the correlation between the curriculum grading teaching and the establishment of the knowledge system using the grey correlation method was higher than 0.900, the evaluation and knowledge system of the curriculum grading teaching were better evaluated, and the selection and retesting of evaluation indicators exceeded 0.700.

1. Introduction

Volatiles, moisture, sulfur content, ash, oxygen concentration, and temperature of coal seams were all studied using the grey correlation method. The study found that under different environmental conditions, different coal oxygen consumption rates, CO release rates, and CO_2 release rates showed different trends [1]. Comparisons were made based on the results of the experiment, and some advice was provided on how to improve the quality of the sewage treatment plant. This method can not only make full use of the original data but also facilitate the water quality assessment of the water plant and has a high calculation amount and high scientificity which is very useful [2]. The correlation analysis method of grey correlation is used to analyze the correlation of each water injection and energy consumption factor. It has been proven that this method can accurately reflect the influence of energy consumption factors in the water injection system, thus laying the foundation for the daily operation of the water injection system and the optimization of the goals [3]. Aiming at the environmental quality of nonpoint source water bodies, a new pollution forecasting method of nonpoint source water bodies is proposed. The results show that the nonpoint source water pollution forecasting model using the grey correlation method has high forecast accuracy and low forecast error rate [4]. By analyzing the grey correlation degree of foreign exchange income of tourism enterprises in Anhui Province and testing their accuracy, an empirical study of the short-term foreign currency income of Anhui tourism in the future is conducted, and suggestions are made for the future development planning of Anhui Province [5]. Using the relevant theory of grey correlation, an empirical study was conducted on the development of the life insurance industry in Anhui Province. The study found that among the various economic factors, per capita disposable income is the most important. Secondly, the arIMA model is used to analyze the development prospects of life insurance in Anhui Province, the development space of life insurance in China is derived, and the scale of life insurance will reach 9.475 billion yuan in 2023. On this basis, this paper makes a preliminary discussion on the development of the life insurance industry

in Anhui Province [6]. The improved PCA-GRA method was used to analyze and verify the production, consumption, and import and export volume of coal products. The role of various influencing factors on China's coal prices in the world is analyzed. The study found that China's coal power storage technology and the market situation of energy consumption play an important role in the change of coal prices in China, encouraging the development of the coal mining industry and giving a number of opinions [7]. Using the comprehensive evaluation method of grey correlation, four companies were evaluated and analyzed. On this basis, the correlation relationship of various industries is discussed in depth, and the correlation coefficient is calculated [8]. The influence of water injection and weighting factors was discussed by using the grey correlation degree analysis method. This calculation combines effective thickness, permeability and injection, and production well spacing. The number of injection wells and the orientation of interlayer factors are analyzed. Marine grouting and mining of oil fields has certain reference value [9]. There is considerable uncertainty and subjectivity in the evaluation of naval equipment support companies. Using the fuzzy mathematical model of Euclidean approximation and fuzzy mathematics, four shortcomings in conventional grey correlation are overcome: different importance of indicators, factor sequence fluctuations, fuzzy indicators, and sequence fluctuations [10]. Using SVM and greyscale correlation methods, river facies reservoirs in complex geological environments were forecasted. First, the two-dimensional Zhengtai mode is used for feature selection. Based on the selected eigenvalues, the main channel forecasting mode based on the support vector machine and GRA is proposed. The results of the test were carried out with 18 reservoir field data, and the results showed that the method had high accuracy and a relative deviation of less than 10% [10]. The model's predictions also validate accuracy based on oil production. Aiming at the multiobjective and multiattribute problem, the traditional grey correlation degree method is studied, and a new grey correlation evaluation method is proposed [11]. The results of the study coincided with those of the expert evaluation, laying the foundation for the decision-making of the next attack and the formulation of the battle plan. En31 was modified by using assumptions and improvement techniques based on greyscale society [12]. The isolated grey evaluation method is used to obtain the optimal evaluation index. For the next evaluation, technical changes in the process are used to illustrate the process factors [13]. Using the entropy method and the optimization optimal method, the objective deviation law of the data is combined with the subjective experience of the expert to determine the weight of each indicator. Using the basic principles of the grey system, the grey correlation optimization method of multiple indices is used to predict and optimize complex regions with a large scale. The conclusions of the assessment are in line with reality. The comprehensive utilization of coal-bed methane resources was carried out by using the grey correlation optimization method of multiple indicators. This model is suitable for areas of 547 to 675 square kilometers. When this pattern is adopted, the value of the index should be representative and precise [14]. Through the study of the relationship between port logistics and regions, a new method based on fuzzy clustering theory is proposed. The correlation between gross industrial output and total investment in fixed assets and total imports was 0.69 : 0.682 : 0.643, the least relevant to the construction industry. Through the analysis of the decision tree, the impact of industrial output and import value on port logistics is obtained [15]. The curriculum of elderly education should adapt to the different needs of different age groups, and the construction of a hierarchical teaching system is a way to optimize the education curriculum for the elderly. In view of the actual needs of the elderly, it is discussed from the aspects of health care sports, cultural entertainment, and benevolent philosophy. The content modules of the curriculum system are designed from four levels, including introductory, beginner, and intermediate, and four levels of the advanced educational process. According to the characteristics of students, differentiated learning purposes are formulated, and targeted teaching methods are adopted, so as to achieve the purpose of adapting to the diversified learning needs of the elderly [16]. According to the import and output of students' quality, mathematical statistical methods and systematic evaluation reports are used to monitor the educational quality of teachers, and the trend of teaching management reform is explored in a clear way [17]. Based on the knowledge structure of chemistry and the principle of ideological visualization, this paper discusses the use of mind maps to construct the knowledge system of chemistry disciplines in colleges and universities in the process of teaching chemistry in colleges and universities. Starting from the three chapters of chemical thermodynamics, chemical kinetics, and chemical equilibrium, this paper links the reversible chemical reactions in the chemical process, links the key knowledge, and sorts out the connection between the idea and the main knowledge points, assisting students in establishing a clear framework of knowledge of chemistry [18]. The relevance of grey correlation to the assessment level is used to determine the teaching level of college English, so as to achieve the assessment of college English. The study found that in college English, the correlation coefficient using the grey association analysis is above 0.90, and it has a good quality of education. The selection and retesting of evaluation indicators exceeded 0.700., which is an effective evaluation method [19]. *Methods*: the method was analyzed by combining literature and grey association analysis. *Results and conclusions*: China's sports products and related product sales, rental, and trade and economic development are the most relevant, and the impact on their sales, rental, and trade is the largest. Among them, sports brokerage and agency, advertising and exhibition, performance and design, and other industries have the greatest correlation and have a greater promotion effect on various industries in the sports service industry. *Proposed*: maintain high-yield leading industries and cultivate the development of less supporting industries. It is necessary to make full use of the pillar industry and make it the leading industry, supporting weak industries and overcoming disadvantages [20]. The risk factors for fires and disasters occurring in

the chemical industry were studied using the ash correlation method. The analysis found that in the event of serious fires and explosions in chemical plants, illegal operations are the most important factors causing major accidents. Among the various types of fires and explosions that occur in China, the most common occurrence is due to the failure and defect of the device [21]. Using the grey correlation degree method, the influencing factors of Shaanxi's domestic tourism revenue and international tourism revenue were studied. As a result, Shaanxi's per capita GDP, added value of the tertiary industry, per capita disposable income of urban residents, and the number of Internet users are all related to the income of tourism, while the coverage rate of radio and television networks, the number of star-rated hotels, and the number of employees in the tertiary industry are not related to them [22]. Using the grey correlation degree method, the favorable conditions for multisection wedge trenching of large sections and large holes were studied. The study found that among the five main factors, the small digging had the greatest effect on the TBM and the least on the ultradeep area, which provided a more reasonable theoretical basis for the TBM process design of the XE3C three-arm TBM in similar engineering [23]. The grey correlation degree method was used to study the influencing factors of each index, which effectively solved the problems existing in the previous mathematical statistical methods, and made the evaluation results more objective and scientific. According to the degree of grey correlation between each factor and the student's learning performance, corresponding countermeasures are given for how to improve the effectiveness of online teaching [24]. According to the existing research on tank leakage hazards and hazard factors, the method of entropy weights is combined with the grey correlation degree, and a comprehensive safety assessment model for the tank area is established. Through the numerical analysis, the correlation coefficient of each tank area is obtained, so as to obtain the comprehensive evaluation results of each region. The conclusions of the assessment have a certain guiding effect on the safe production of gas stations [25].

2. Grey Association Method

A measure of the degree to which the elements of the two systems relate to each other over time and objects is called correlation. Throughout the stage of development, if the trend of change of the two elements is consistent, that is, the synchronization changes more, then the greater the correlation between the two, the stronger the correlation. Therefore, grey correlation analysis measures the correlation of various elements based on similar or different development directions of development, that is, the so-called "grey correlation degree." This model is generally used to analyze the effect of different factors on the evaluation effect and to apply this method to solve the comprehensive evaluation problem in different periods.

2.1. The Specific Calculation Steps of the Grey System Association Analysis

2.1.1. Identify a Baseline Sequence that Reflects the Characteristics of the System and a Comparative Sequence that Can Affect the Performance of the Entire System. A data series, which reflects the characteristics of a system, is called a sequence of references (which can be interpreted as a factor). A series of data consisting of various factors is called a contrast number (which can also be regarded as an independent variable). The factorless method is used to dimensionlessly classify the reference number and the contrast number series. Because the physical meanings of the factors are not consistent, the scale of the data is also inconsistent, making it difficult to obtain accurate results when comparing. Therefore, when calculating grey correlations, it is often necessary to process its dimensionless data. The relationship between the grey correlation coefficient () of the reference series and the contrast sequence x_i essentially refers to the difference between different curves. Therefore, the difference between these two curves can be used to measure the degree of correlation. A reference sequence x_0 has multiple contrast x_1 sequences, $x_2, \cdots, x_3$; the correlation factor between each contrast sequence and the reference series at different times (that is, each point in the curve) x_i can be calculated by the following equation:

$$\zeta_i(k) = \frac{\min_i \min_k |x_0(k) - x_i(k)| + \rho \cdot \max_i \max_k |x_0(k) - x_i(k)|}{|x_0(k) - x_i(k)| + \rho \cdot \max_i \max_k |x_0(k) - x_i(k)|}. \tag{1}$$

Its prediction example line chart can be represented by Figure 1.

ρ is the resolution; the lower the ρ, the higher the resolution, and the permanent range is (0 to 1), depending on the actual situation. It is generally considered that 0.5 is the second-level minimum deviation, denoted by Δmin. The Δ maximum difference between the two phases expressed in max is represented by the following equation:

$$|x_0(k) - x_i(k)|, \tag{2}$$

expressed as the absolute difference between x_i each point on each contrast sequence curve and x_0 each point on the datum $\xi_{0i}(k)$ series. Therefore, the correlation factor (x_i) can be reduced by the following equation:

$$\xi_{0i} = \frac{\Delta(\min) + \rho\Delta(\max)}{\Delta_{0i}(k) + \rho\Delta(\max)}. \tag{3}$$

2.1.2. Calculate Correlation r_i. Because the correlation factor is a correlation value that compares the number with the reference number at different times (that is, each point in the curve), there is more than one correlation coefficient. And because too much data is not conducive to the overall comparison,. it is necessary to combine the correlation factors of each time (that is, on a straight line) into a numerical value, that is, to calculate its average, as a number of correlations

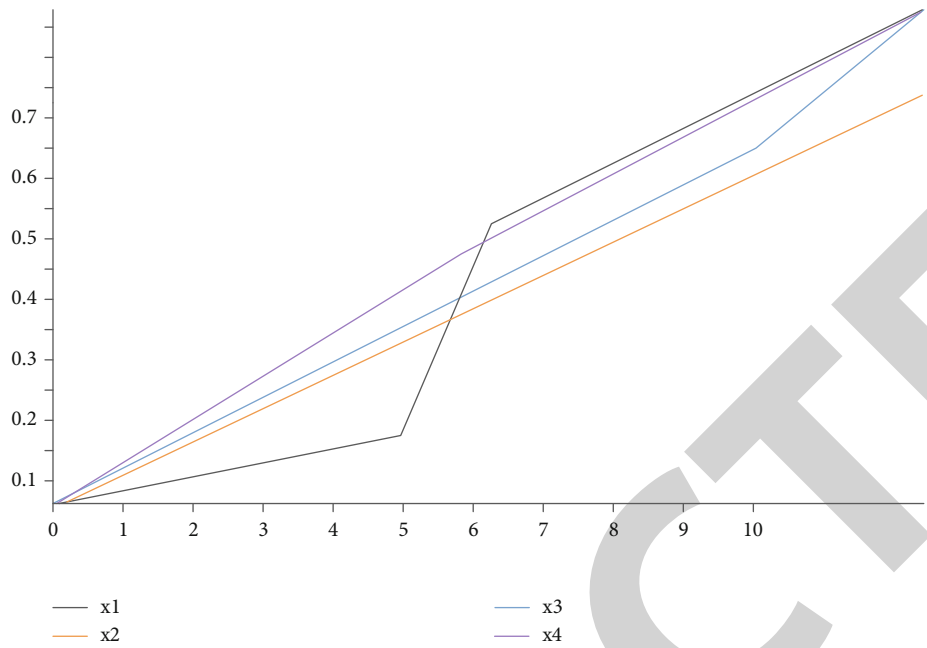

Figure 1: Grey association method prediction example diagram.

between a comparative sequence and a reference series, r_i, as follows:

$$r_i = \frac{1}{N}\sum_{k=1}^{N}\xi_i(k). \tag{4}$$

2.1.3. Relevance Classification. The correlation between the features, in addition to the size of the relationship, is expressed in terms of the size of its scale. The correlation between the m subseries and the same parent sequence is sorted according to their size, which constitutes an association order, expressed as $\{x\}$, which indicates the "advantages and disadvantages" between the subsequences. If $r_{0i}>r_{0j}$, then, with respect to the same parent order $\{x0\}$, it is called $\{xj\}$. If r_{0i} represents the Flag County benchmark sequence, compare the characteristics of the sequence.

The mean n clustering errors is the following equation.

$$\delta^2\left(X,\bar{X}\right) = \frac{(1/n)\sum_{i=1}^{n}\delta^2\left(X_y,\bar{X}_y\right)}{\xi^2(X)}. \tag{5}$$

In this formula, the $\bar{X}_y$ and $\delta^2(X_y,\bar{X}_y)$ are the average value of n clusters and the close water mean of clusters are, respectively, and $\delta^2(X_i,\bar{X}_i)$ which is the smaller value indicates that the spacing between n evaluation indexes is smaller. When the evaluation index spacing is larger, the index is larger. This value can reflect the clustering effect of the cluster evaluation index. The mean distance between n clusters $D(X,R)$ is the following equation.

$$D(X,R) = \frac{1}{2n}\sum_{i=1}^{n}\sum_{j=1}^{n}\left|r_i - r_j\right| = \frac{1}{2n}\sum_{i=1}^{n}\sum_{j=1}^{n}\left|r_i - r_j\right|. \tag{6}$$

3. Courses Are Taught in Layers

3.1. The Meaning of Curriculum-Layered Teaching. Stratification of curriculum knowledge is the social nature of the knowledge structure of the discipline. According to the position of knowledge, the disciplines are divided, selected, determined, and organized, so that the knowledge at all levels is fully applied, which is the distribution of knowledge and reflects the social level of school education. Bernstein believes that grading course knowledge is a process of selection, classification, and distribution. The transmission and evaluation of public information is the distribution and domination of social forces. British scholar Mike Young divides the knowledge of the discipline into two levels, namely, the disciplinary level and the nondisciplinary level. Academic courses have a high level, with the characteristics of textualization, personalization, abstraction, and being unrelated to life experience. Nonacademic knowledge levels are low, with oral expression, group activities and evaluations, specificity, and nonschool relevance. Academic (advanced knowledge) versus nonacademic (lower) are characterized by a cultural choice that conforms to the values and beliefs of the dominant group of a given period and thus limits success or failure in education. Figure 2 below is a structural diagram of hierarchical teaching between teacher activities and student activities.

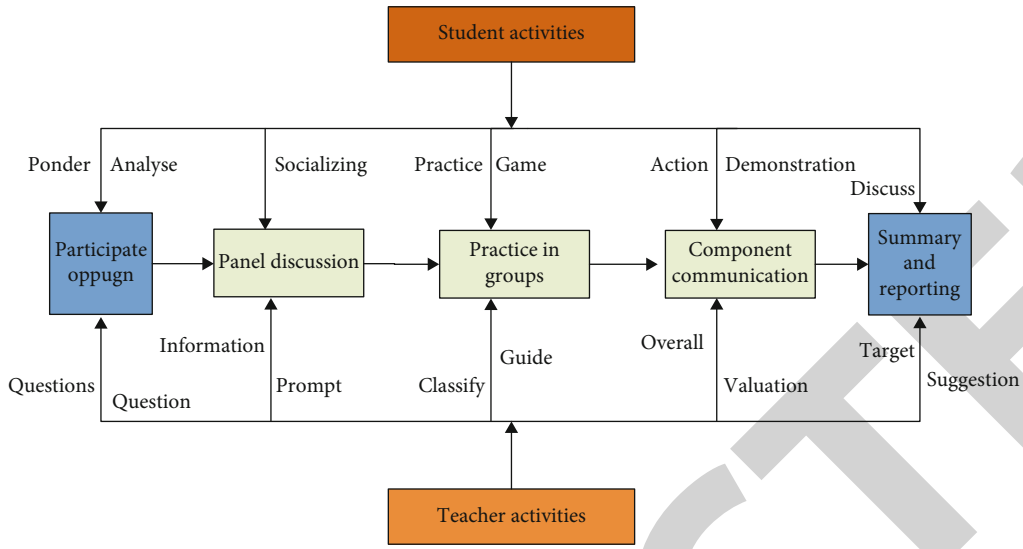

Figure 2: Example of hierarchical teaching.

3.2. Benefits of Tiered Teaching of Courses. The disciplines of physics, chemistry, and biology are gradual at all levels of basic education. This curriculum feature leads to differences in students' learning, which is often reflected in differences in their understanding of difficulties and knowledge. Under different development needs, students' learning level will also have certain differences. In view of the particularity of the discipline, combined with the learning foundation, learning ability, and the needs of their own development, the teaching of mathematical science disciplines is divided into levels.

3.2.1. Take the Academy as an Example. The college offers three grades of mathematics: the first level of mathematics, the second level, and the third level of mathematics. The first choice is humanities and society, language, law, economics, business, agriculture and forestry, traditional Chinese medicine, art, and education. This course is aimed at students in psychology, other related fields, and students who intend to study in the United States. The textbook is based on mathematics from ordinary colleges and universities and contains national and common "elective courses" to meet the needs of the exam. Stage 2 students choose finance, engineering, and mining. It is run by students of higher education and other specialized schools. Under the original syllabus, the regular mathematics and elective I of the university were combined and expanded to a certain extent. *Mathematics III*: students love mathematics, have good self-learning ability, have better independent thinking, and can choose computers, informatics, and mathematics, which is provided by students in physics and other related disciplines. With Mathematics II as the core, this course expands and deepens and has a certain degree of connection with mathematics teaching in colleges and universities, which is a good preparation for mathematics competitions. In addition, the school also provides professional basic knowledge such as differentiation, integration, and linear algebra and provides compulsory courses for students who love mathematics and have strong learning ability. From the initial stage, it is possible to teach the class hierarchically and adjust the class in the teaching practice.

3.2.2. Conception of the Discipline. First of all, graded teaching focuses on the future development of students. Students' tiered courses are based on their future professional development, and the best is the best, so students who choose one of the best courses will not feel humble. And in the choice after choice, the student union will gradually clarify its own development path.

Second, the knowledge learned at each level is different. Although the purpose and content of mathematics teaching at each level are not consistent, the number of teaching hours is basically the same as that required by students, so at the teaching level, students' teaching styles will also be very different. Some classes are guided by teachers and are mainly lectures, some are mainly group activities, and some are mainly special seminars. In general, the more advanced the subject, the higher the planning and self-discipline for students.

Third, different disciplines have different difficulties and depths. Because different levels of courses will have a great connection with the majors of different institutions, the difficulty and depth of the courses will also vary greatly. When selecting higher-level subjects, the school will conduct a risk screening to help students make reasonable choices.

4. Knowledge System

A knowledge system is made up of many kinds of related standardized knowledge. It is to combine individual, separate, and independent knowledge concepts to form an interrelated knowledge system. It is like a tree; each leaf is individual, but its body connects them to form a system. If you look at these teaching materials, you will have a summary and then combine this knowledge to form a complete knowledge system.

For example, as a scientist, one needs to learn the theory of the "universe," Newton's laws, celestial mechanics, and the big bang theory. Relativistic theory, mathematics, etc., can also be a system of knowledge, just like astrophysics, that is, perturbation theory, numerical theory, and qualitative theory. Astronomical dynamics, celestial shape and rotation theory, multibody problem (two-body problem), etc., have been developing for more than 300 years, and there are also changes in their definitions and representative figures.

It is made up of countless related kinds of standardized knowledge. It is to combine individual, separate, and independent knowledge concepts to form an interrelated knowledge system. It is like a tree; each leaf is individual, but its body connects them to form a system. If you look at these teaching materials, you will have a summary and then combine this knowledge to form a complete knowledge system.

4.1. Composition of the Knowledge System. The so-called "knowledge system" refers to a "knowledge" that is "scattered," equivalent to "scattered knowledge," which can be divided into two "blocks."

4.1.1. The Content of the Said Knowledge Itself. This includes the definition, composition, conditions, background, history, and use of knowledge points, functional orientation, extension, etc. A kind of learning is a system of knowledge. It is infinite, changeable, and complex. All of them must go together to find and confirm, as shown in Figure 3.

4.1.2. Order Configuration. What is a "system"? You definitely know some people who are very accomplished in a particular area, and no matter what you ask them, they can always find a breakthrough in your subject and knock on the side. A large number of principles, mechanisms and knowledge points are described and applied orderly. This is "order." In their mind, this knowledge is interconnected. They know "what knowledge to put where" and where to lead it. If we compare broken knowledge to sketches of streetscapes, then this system of knowledge is a complete picture.

4.1.3. Individual System. This refers to the knowledge acquired by individuals on the basis of their own genetics, according to their own interests, needs, and strengths. Experience, ability, and so on are combined. It is private and controllable. This means that the difference between them is also unique. One is the one's own cognitive system, and the other is the human cognitive system, both from the point to the end, as shown in Figure 4.

Knowledge system related to the individual: we generally call this as the system of cognition. To most people, a person's knowledge system is like a tree that can only grasp a leaf. Therefore, when we talk about the knowledge system, we generally mention our own knowledge system, the knowledge system needed to complete a task (such as PMPOK, such as the knowledge system required for a certain position), such as the knowledge system required for a certain task. All knowledge (external, other, social) must be systematically studied, practiced, and reflected and eventually become their own knowledge; when a person's knowledge accumulates to a certain extent, it is necessary to build their own knowledge system in a specific aspect.

4.2. 6 Steps to Establish the System. The first step is to ask what aspect of something you want to master and set it to X, use the indicator to analyze it, and come up with the following formula.

$$X = \frac{\min x}{\max x} e^{\Delta x} \sum_{x=1}^{n=10} x, \tag{7}$$

where Δx is the expectation index, $\min x$ is minimum value of expectation, and $\max x$ is the maximum value of expectation; the formula can easily calculate the willingness to grasp which aspect.

The second step is to collect. Use the method of taking notes to collect daily scattered information, and the collected consultation is expressed in Y and calculated as shown in the following formula.

$$Y = \log_y 2 \cos \int_1^x \sqrt{ydy} e^{\Delta y}. \tag{8}$$

Among them, $e^{\Delta y}$ is a judgment indicator, which is used to constrain the range of Y, integrate the root number Y, and easily calculate the weight of Y in the process of building the knowledge system.

The third step is to organize. The best knowledge is extracted and the corresponding output is carried out, which is expressed in N, which is calculated by the following formula.

$$N = \frac{\sqrt{\Delta n e^n}}{\Delta n} \log_n 2 \iint n2dn. \tag{9}$$

The fourth step is sharing. Sharing is a constant learning, and professors are the best.

The fifth step is application. Connect your knowledge to your own life and think about how to do it.

The sixth step is creation. Connect knowledge with knowledge and create new content.

For the 4563rd step, the resulting indicators are collectively referred to as E, and they are calculated with the three indicators calculated in the first step, the second step, and the third step, which can provide data support for the subsequent use of grey correlation methods to achieve the construction of the knowledge system.

5. The Use of Grey Association Method in Curriculum Hierarchical Teaching Quality Evaluation and Knowledge System Construction

Curriculum hierarchical teaching quality evaluation and knowledge system construction seem to be two different fields, but in essence, they can be implemented by grey correlation methods, so the two will be discussed together experimentally.

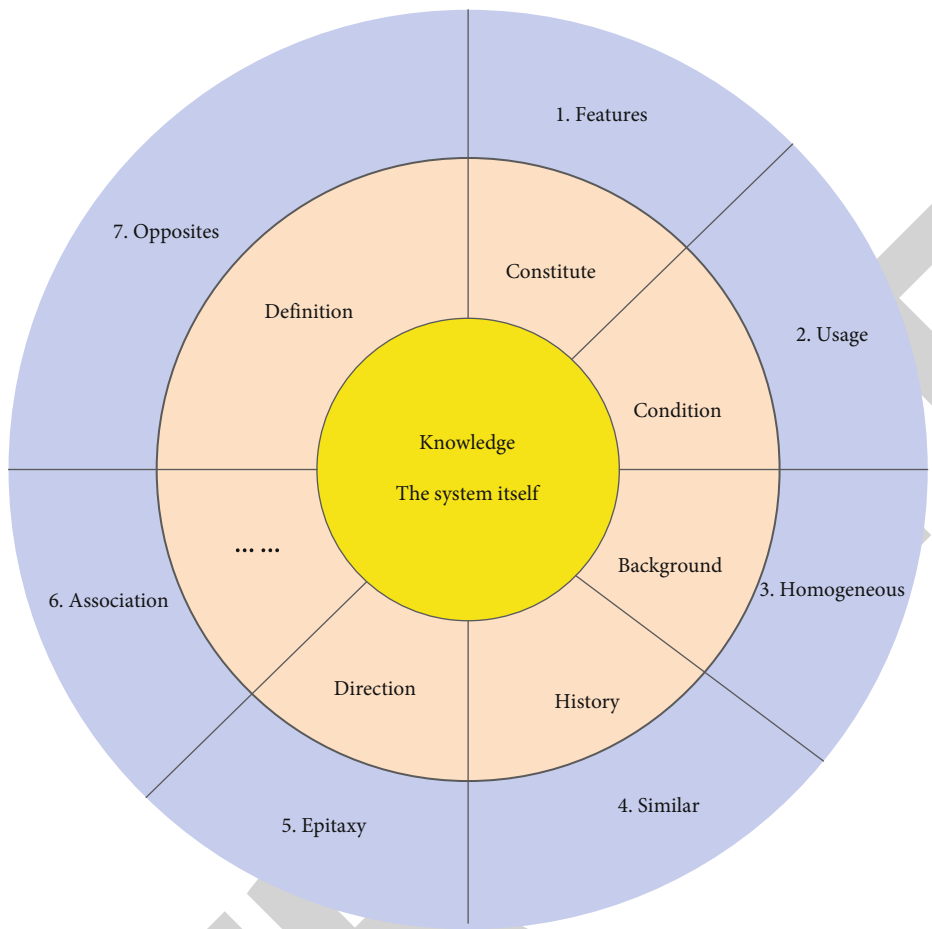

Figure 3: Knowledge content.

5.1. Selection of Evaluation Index for Evaluation with Optimal Data Clustering Criteria. Under the best data aggregation conditions, there is a big difference between the quality of hierarchical teaching and the establishment index of knowledge structure. The baseline value range for the curriculum-level teaching quality assessment and knowledge system construction index cluster type is f, which must be maximized under the requirements of optimizing the cluster. f is generally set by a professional, which maximizes the properties of the cluster. The attributes of the graded teaching quality assessment are set to X, the categories of the graded teaching quality assessment are set to C, the classification of each category is set to C, and the C_n differences between the evaluation indicators $\delta^{2(X)}$ are as follows:

$$\delta^2(X) = \frac{1}{n}\sum_{k=1}^{n}(x_n - \bar{x})^2. \tag{10}$$

In the equation, the value becomes larger in order to evaluate the average of the feature set X of the index, $\bar{x}$ that is $\bar{x}\bar{x} = (1/n)\sum_{k=1}^{n} x_k$, when the values of the attributes of each evaluation index in X are very different, and the numerical closeness between the attributes of each evaluation index in X is high; n is the number of the index.

A similar method to calculate the error of $\delta^2(X_i, \bar{X}_i)$ is the following equation.

$$\delta^2(X_i, \bar{X}_i) = \frac{1}{n}\sum_{k=1}^{n}(x_n - \bar{X}_i)^2. \tag{11}$$

The mean c clustering error is the following equation:

$$\delta^2(X, \bar{X}) = \frac{(1/c)\sum_{i=1}^{n}\delta^2(X_i, \bar{X}_i)}{\xi^2(X)}. \tag{12}$$

In the formula, $\bar{X}_i$ and $\delta^2(X_i, \bar{X}_i)$ are the mean value of c clusters and the close water mean of clusters, respectively, and $\delta^2(X_i, \bar{X}_i)$ is the smaller value which means that C which is the spacing of the evaluation index is small. The spacing between the indicators increases, which can reflect the clustering effect of each indicator C. The mean distance between clusters $D(X, R)$ is the following equation.

$$D(X, R) = \frac{1}{2c}\sum_{i=1}^{c}\sum_{j=1}^{c}|r_i - r_j| = \frac{1}{2c}\sum_{i=1}^{c}\sum_{j=1}^{c}|r_i - r_j|, \tag{13}$$

where the clustered i and j centers are set sequentially to

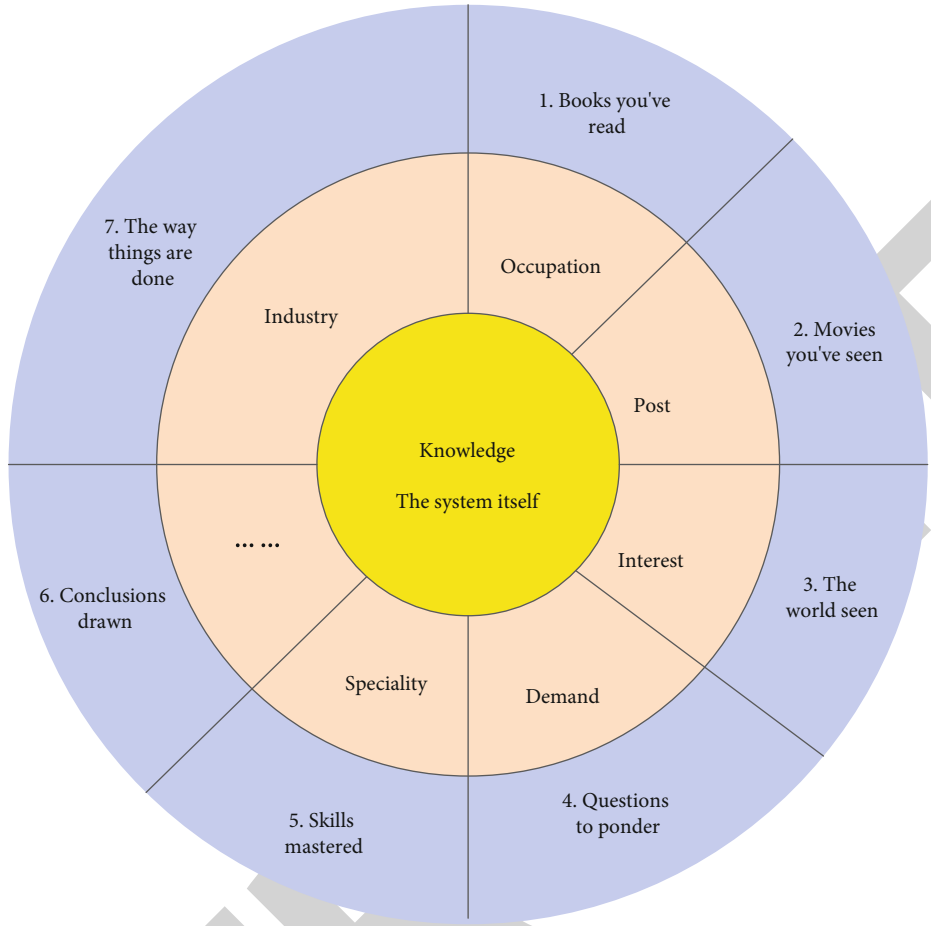

Figure 4: Individual knowledge system.

r_i and r_j, respectively. Interclass closeness and interclass distribution recognition need to be considered when clustering. Set the weight to α and β and obtain the evaluation index of the optimal clustering as the following equation.

$$S(X,R) = \frac{\delta^2(X,\bar{X})}{\beta/\alpha} + \frac{\alpha}{D(X,R)}, \tag{14}$$

in the formula, the $\delta^2(X,\bar{X})$ level of clustering closeness is described as $\alpha/D(X,R)$. Using methods, the interaction between the two evaluation indicators was studied.

The construction process of curriculum hierarchical teaching quality evaluation and knowledge system construction index system is shown in Figure 5.

According to Figure 5, the evaluation index system process is constructed as follows:

(1) When establishing teaching quality assessment and knowledge system at the curriculum level, evaluation indicators based on the best clustering method should be used to obtain the index of teaching quality and knowledge system construction at the course level

(2) Set up several first and second assessments

(3) The Delphi method is used to assess the main degree of indicators, excluding those that are not important in terms of importance but remain high in importance

(4) Establish a set of teaching quality assessment indicators for assessment and grading courses. On this basis, a hierarchy-based assessment system for teaching quality assessment and knowledge system has been established as shown in Figure 6

5.2. Comprehensive Evaluation of Teaching Quality and Knowledge System Construction Method Based on Grey Association Analysis. On this basis, the teachers were comprehensively evaluated using the grey correlation degree theory.

(1) Set the benchmark order and the control order, if any, the educational quality of m course levels and

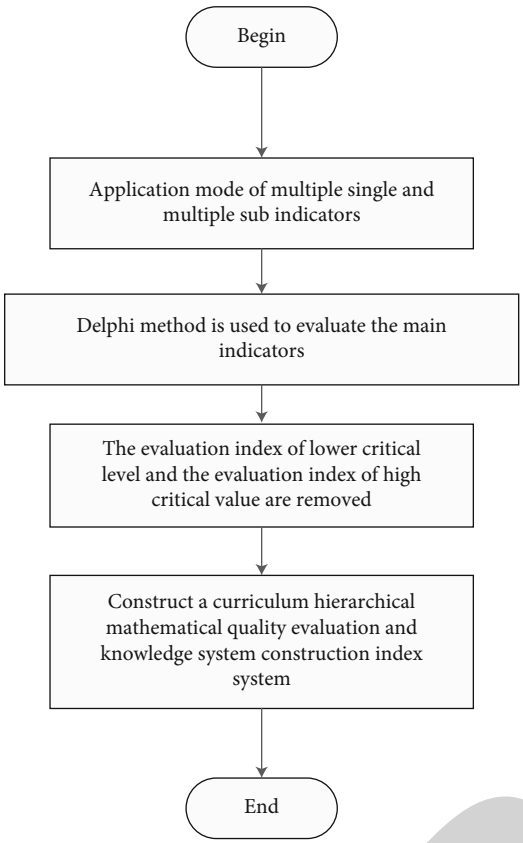

Figure 5: Flowchart of evaluation index system construction.

the index factor of knowledge system construction, n assessment objects, the initial data matrix available

It is assumed that there is an evaluation criterion of P grade, and the culture set is $L = \{L_1, L_2, \cdots, L_p\}$. Through the integral operation of the original judgment matrix, the mean value of N evaluation targets is calculated, and it is set as XM as the reference order. The individual evaluation levels in evaluation group L are quantified, and the judgment matrix of M project indicators corresponding to this quantitative value is extracted.

(2) In college English course evaluation, the correlation between the elements corresponding to the comparison and reference matrix will be in the order of reference x_{0j} which are dimensionless operations of the reference x_{ij} sequence and the comparison series, and the normalization matrix is obtained, and the element algorithm is the following formula.

$$x'_{ij} = \frac{x_{0i}}{x_{ij}}. \tag{15}$$

The operation compares the correlation coefficient and correlation degree between the sequence and the reference sequence, such as the following equations, etc.

$$\xi_{ij} = \frac{\min_i \min_i \left|x'_{0j} - x'_{ij}\right| + \rho(j) \max_i \max_i \left|x'_{0j} - x'_{ij}\right|}{\left|x'_{0j} - x'_{ij}\right| + \rho(j) \max_i \max_j \left|x'_{0j} - x'_{ij}\right|}, \tag{16}$$

$$\gamma_i = \frac{1}{m} \sum_{i=1}^{m} \xi_{ij}, \tag{17}$$

where ρ is the resolution coefficient and $\rho > 0$; the smaller ρ is, the greater the resolution, and the general value interval of ρ is $(0, 1)$. The exact value depends on the situation. Usually the $\min_i \min_i |x'_{0j} - x'_{ij}|$ second level of the smallest difference is taken, denoted as $\Delta\min$. $\rho(j) \max_i \max_j |x'_{0j} - x'_{ij}|$ is the maximum difference of two levels, denoted as $\Delta\max$.

(3) Set the evaluation level according to the size of the correlation. When the relationship between a comparison order and a benchmark is very similar, the greater its correlation, indicating that the various factors of this comparison are very similar to the sequence of this comparison, and the corresponding evaluation level at this time is the final evaluation

6. Experimental Results and Analysis

Using the research methods in this paper, the hierarchical teaching quality and knowledge system construction of A, B, C, and 3 university teachers were evaluated. The evaluation index system is shown in Figure 6. The details of the first-order evaluation matrix in the hierarchical teaching quality and knowledge system construction evaluation indicators of the three university teachers are shown in Figure 7.

Because the dimension, quantity, and expression of each index in the mean system of teaching quantity evaluation or knowledge system construction are very different, it is impossible to compare directly; this paper uses the teaching quality evaluation and the second level index of the knowledge system in Figure 6 as an example to standardize it (see Figure 8).

The weights of the 19 secondary indicators are shown in Figure 9.

The calculation results of the correlation between the hierarchical teaching quality and the knowledge system construction of the three college teachers are shown in Figure 10.

Through the statistics of the data in Figures 4 and 5, it can be seen that the correlation between the knowledge structure and the quality of teaching of Teacher A is 0.95, 0.89, 0.69, and 0.59. The maximum correlation coefficient is 0.95, which corresponds to the evaluation level of the largest correlation which is good. The degree of relevance of educational quality of Teacher B was 0.98, 0.88, 0.65, and 0.45, and the maximum correlation was 0.98; therefore, teachers' education quality and knowledge system construction have achieved good results. For Teacher C, the

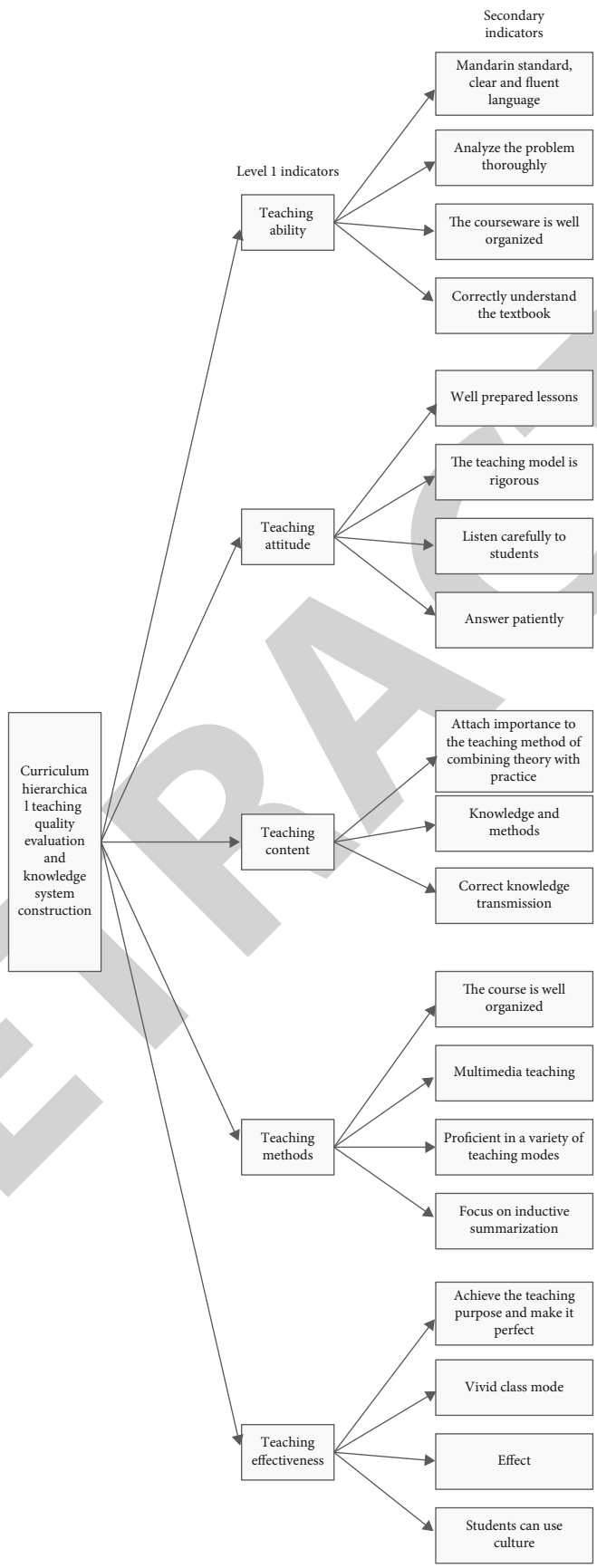

Figure 6: Curriculum hierarchical teaching quality evaluation and knowledge system construction index system.

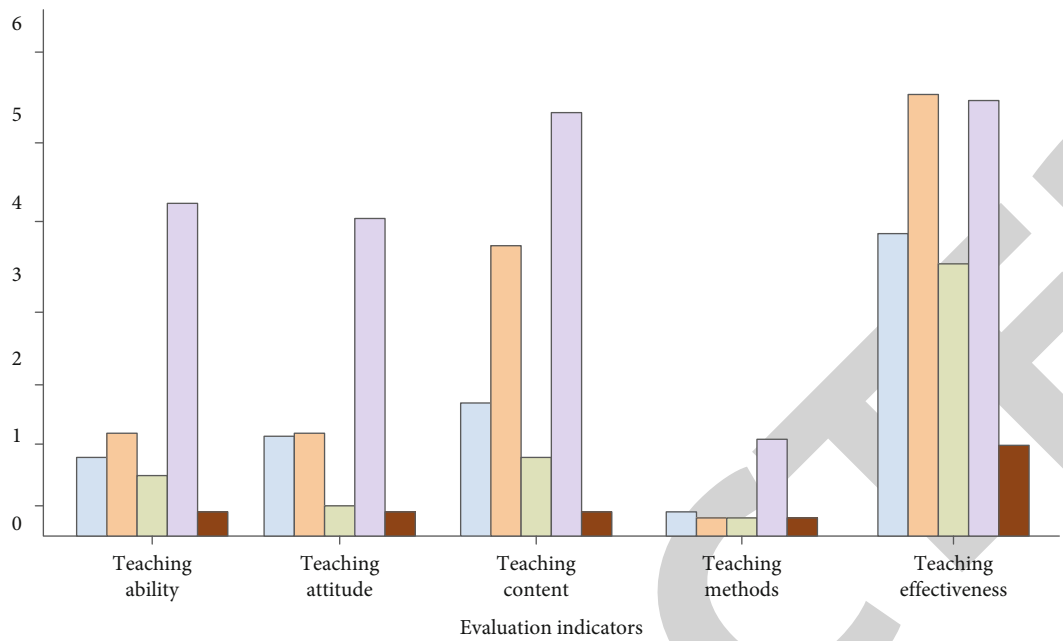

Figure 7: The decision matrix of the first evaluation index.

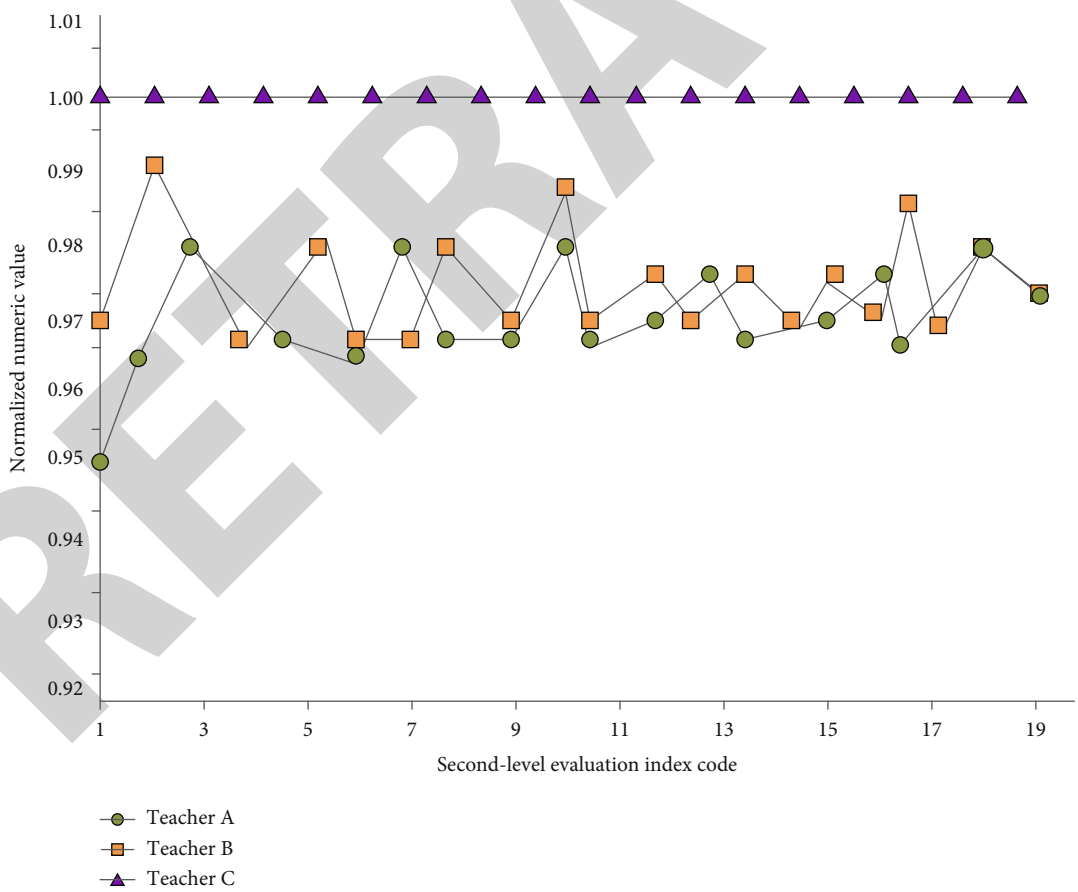

Figure 8: Normalization results.

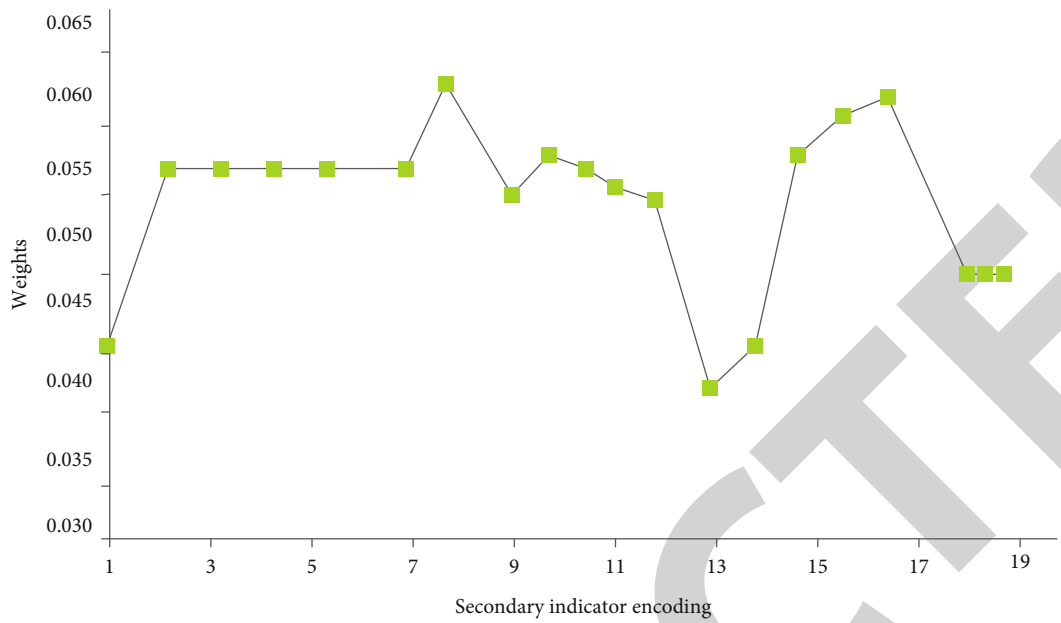

Figure 9: Weights of secondary indicators.

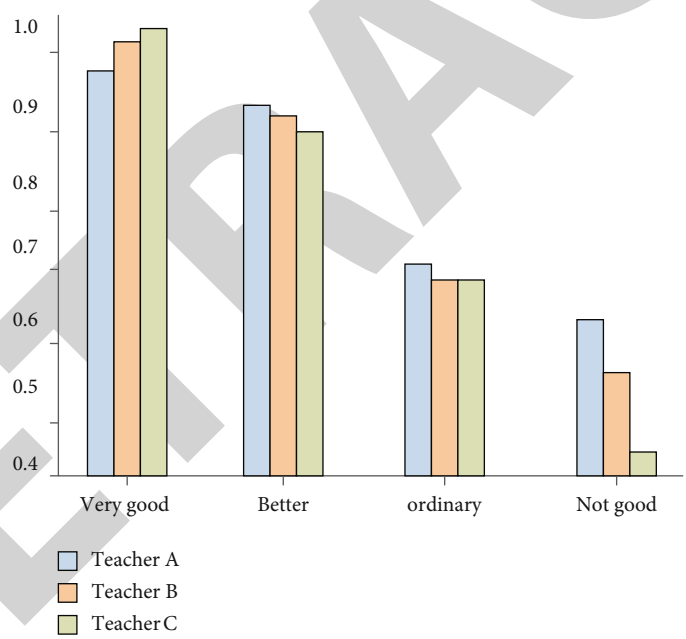

Figure 10: The degree of correlation between the hierarchical teaching quality and knowledge system construction of 3 teachers.

maximum relevance is 0.99, and the teaching quality evaluation and knowledge system construction have achieved good results. It can be seen that teachers have graded their evaluation of teachers in class and established the corresponding knowledge system.

Retesting trust is a common means of trust assessment. The stability and coherence of teaching quality assessment and knowledge systems based on cross-time conditions can be explained in this way: the same evaluation method is used to conduct multiple assessments of the same assessment object, the relevance of several assessments is calculated, and there is a significant degree of correlation. The evaluation of this method has good consistency, good stability, and good effect. The method of calculating the retest reliability is the following equation:

$$s = \frac{\sum FG \cdot \left(\sum F \sum G / M\right)}{\sqrt{\sum F^2 \cdot \left(\left(\sum F\right)^2 / M\right)} \sqrt{\sum^2 \left(\left(\sum G\right)^2 / M\right)}}. \quad (18)$$

F and G represent the establishment in education and knowledge systems at different levels of assessment and M

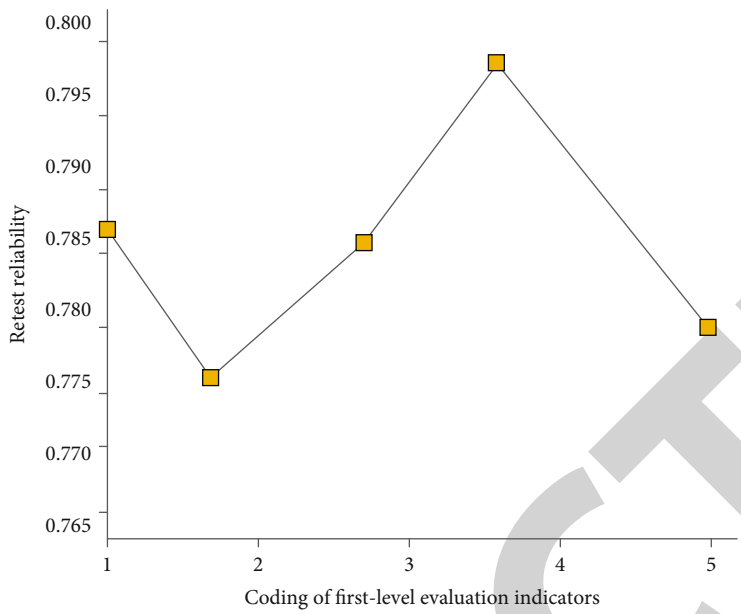

Figure 11: First-level indicators.

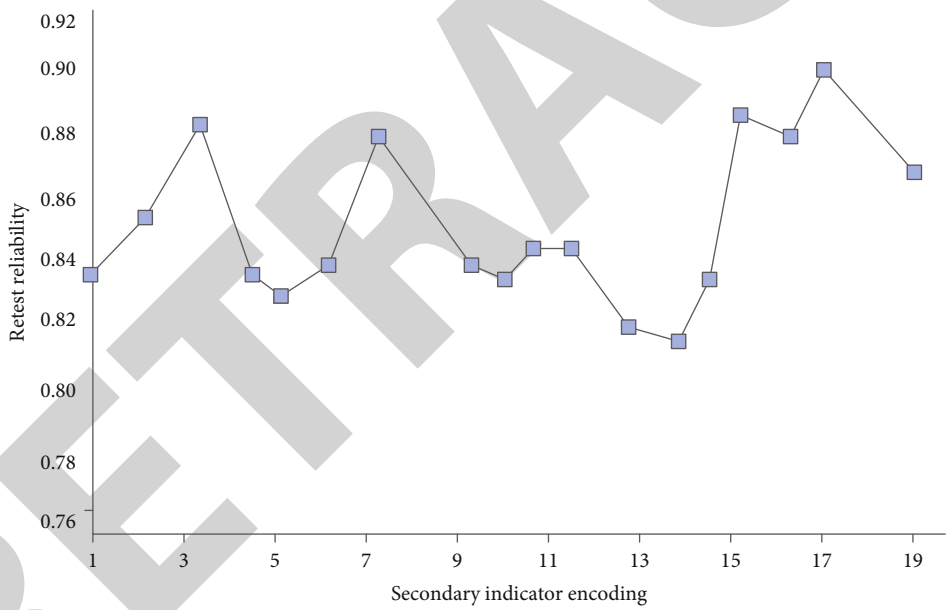

Figure 12: Secondary indicators.

is the evaluation of teaching quality and the establishment of knowledge systems at the public level of universities.

In the evaluation of the hierarchical teaching quality and the effect of knowledge system construction on the three teachers, whether the selection of one or two indicators is reasonable is based on the retesting of the latter, and it is studied and studied. The stability and consistency of the results are assessed. The results are shown in Figures 11 and 12.

It can be seen from the analysis of Figures 11 and 12 that when evaluating the hierarchical teaching quality and knowledge system construction of three college teachers, the first-level indicators and the second-level indicators are reasonably selected, and the hierarchical teaching quality evaluation and knowledge system construction are analyzed. Under the premise of spanning time, the retest reliability of the indicators is also greater than 0.700. The stability and consistency of the evaluation results met the demand for the application form.

Based on the result test of the three levels of teacher evaluation, the retest of credibility and knowledge system construction is shown in Figure 13.

It can be seen from Figure 13 that through the hierarchical teaching of 3 teachers and the establishment of the knowledge system, the credibility of the retest reached 0.757, and it has a high credibility, indicating that the

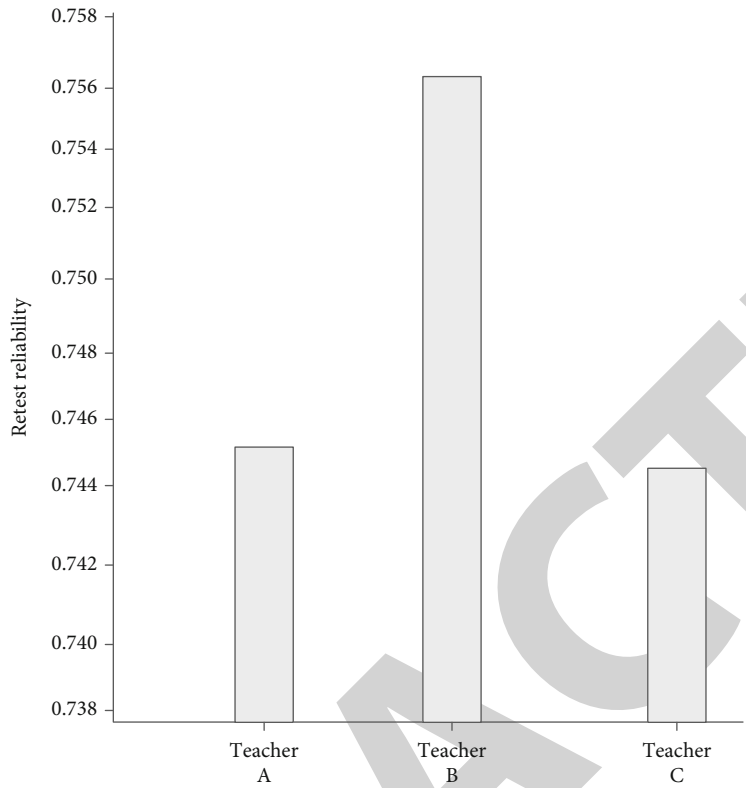

Figure 13: Retest reliability of College Open English course evaluation.

method has good cross-time stability and coherence, and the evaluation and construction effect is very good.

7. Conclusion

In order to solve the problem of hierarchical teaching, this paper adopts a targeted evaluation method: hierarchical teaching quality assessment and knowledge system establishment. Using the method of this study, the hierarchical teaching and knowledge system construction of three university teachers were evaluated, and the knowledge system construction and learning ability of three university teachers in layered teaching were obtained. Using retest validity as the criterion for evaluation, the teaching quality and knowledge system establishment of 3 levels are evaluated. Among them, the selection of primary and secondary indicators is more scientific and has good interperiod stability and consistency.

Data Availability

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

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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