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Retraction

Retracted: Effect Evaluation of Multilevel Fuzzy Comprehensive Evaluation Mechanism Combined with Multimedia Teaching on the Cultivation of Comprehensive Quality of Vocational Students

Advances in Multimedia

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] J. Si and S. He, "Effect Evaluation of Multilevel Fuzzy Comprehensive Evaluation Mechanism Combined with Multimedia Teaching on the Cultivation of Comprehensive Quality of Vocational Students," *Advances in Multimedia*, vol. 2022, Article ID 9223321, 11 pages, 2022.

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Research Article

Effect Evaluation of Multilevel Fuzzy Comprehensive Evaluation Mechanism Combined with Multimedia Teaching on the Cultivation of Comprehensive Quality of Vocational Students

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The core goal of higher vocational education is to cultivate students with good professional quality. The employability of college students depends on their professional quality to a large extent. From the perspective of school education, all kinds of higher vocational colleges have entered a new level in practice, but the evaluation of comprehensive quality is still relatively weak. Therefore, in order to enhance the comprehensive ability of higher vocational students and cultivate their excellent comprehensive quality, this paper adopts the fuzzy comprehensive evaluation method and puts forward the evaluation method of the comprehensive evaluation system of higher vocational students, so as to provide reference for solving the problem of comprehensive quality evaluation. The specific process is as follows: in this paper, a two-level fuzzy mathematical model is established by using fuzzy mathematics theory and multimedia technology. First of all, according to the educational characteristics such as learning interest, psychological quality when encountering difficulties, and the ability to solve problems cooperatively, a set of secondary indicator system reflecting vocational college students is established. With this indicator, quantitative indicators are fuzzified by introducing membership functions, and a single factor evaluation matrix is established. Then, the specific steps are illustrated with examples to realize the qualitative analysis and quantitative evaluation of students' comprehensive quality. The results show that the new comprehensive quality evaluation method established in this paper has strong practicality and innovation.

1. Introduction

At present, quality education has become the consensus of the whole society. As the cradle of cultivating talents, colleges, and universities adhere to quality education as the core and aim to cultivate pioneering talents with strong professional skills, abilities, and high quality [1]. Education is a long-term and arduous task. At present, the improvement of higher education quality has entered a new stage in practice, and the quality assessment is still in a weak link [2]. It is a "bottleneck" of improving students' quality education. Therefore, it is necessary to design and formulate a scientific and feasible evaluation of vocational college students' professional quality to make quality education more targeted, proactive, and effective. In the 21st century, social competition has become increasingly fierce [3]. To win, we must obtain high-quality talents. High quality talents refer to talents with high comprehensive quality [4], including ideological and moral quality, scientific and technological quality, humanistic quality, practical ability and innovation ability, and physical and mental quality [5]. Higher vocational colleges continue to send various professional talents to the society every year [6]. In order to develop society and enterprises to gain advantages in competition and meet the demand of society for high-quality talents [7], higher vocational colleges should develop, establish, cultivate, and educate students according to this evaluation system [8]. The evaluation of vocational college students' professional quality also points

out the development goal and direction for students; it is beneficial for enterprises to objectively, truly, and effectively identify, select and use talents, scientifically diagnose talents, and make full use of talents [9]. To this end, relevant central ministries and commissions jointly launched a major measure of quality education—the Quality Development Plan for College Students [10]. At present, this plan has been piloted in more than 100 universities across the country [11]. Such a quality development plan for college students, correctly understanding the connotation of quality education and objectively evaluating the First Middle School has become a common concern of all colleges and universities [12].

With the deepening of educational reform, people pay more and more attention to the development of students' quality, personality, and other aspects. Physical education teaching and psychological teaching are gradually valued by people, and their educational role is gradually enhanced. In order to give full play to the role of physical education teaching and psychological teaching, in terms of teaching tasks, teachers actively explore various teaching methods that can stimulate students' comprehensive qualities [13]. Through reasonable and effective teaching methods, such as combining multimedia technology to teach, teachers can improve students' knowledge level as a whole and cultivate their comprehensive qualities [14]. Many new teaching models have been gradually applied to teaching, among which multimedia assisted teaching has become an important means of modern education and an indispensable teaching form in the teaching process. Reasonably and effectively use multimedia for teaching, and use multimedia resources such as images, audio, and animation to show students rich and colorful knowledge, adding more fun to the teaching classroom. For example, sports, psychology, and other disciplines are relatively traditional, which often lack certain interest in teaching, and it is difficult to achieve ideal teaching results in the teaching classroom [15]. Teachers can make full use of the advantages of multimedia in classroom teaching, vividly demonstrate sports, psychology, and other knowledge, let students think about relevant issues according to the demonstration content, so as to develop the habit of students' independent thinking and promote the improvement of students' comprehensive quality [16]. At the same time, combined with the practice of multimedia application, it shows that the application of multimedia courseware has changed the traditional classroom teaching structure, enriched the interest of classroom teaching, and played a certain role in promoting the cultivation of students' innovative quality [17].

When selecting talents, employers not only require them to have corresponding subject knowledge and professional level but also require certain political qualities, professional ethics, and physical and mental and cultural qualities [18]. They have vigorously carried out quality education, comprehensively improve the quality of personnel training, and generally improve the comprehensive quality of vocational students [19]. However, how to evaluate the comprehensive quality of vocational students comprehensively, objectively, and scientifically has become an important issue that every vocational college must face in the process of further promoting quality education [20].

Therefore, this paper uses the fuzzy comprehensive evaluation method to put forward the evaluation method of the comprehensive evaluation system of vocational students, so as to provide a reference for solving the problem of comprehensive quality evaluation. In this paper, a two-level fuzzy mathematical model is established by using fuzzy mathematics theory and multimedia technology. First of all, according to the educational characteristics such as learning interest, psychological quality when encountering difficulties, and the ability to solve problems cooperatively, a set of secondary indicator system reflecting higher vocational students is established. With this indicator, quantitative indicators are fuzzified by introducing membership functions, and a single factor evaluation matrix is established. Then, the specific steps are illustrated with examples to realize the qualitative analysis and quantitative evaluation of students' comprehensive quality.

2. Materials and Methods

2.1. Analysis of the Status Quo and Existing Problems of Student Quality Evaluation in Higher Vocational Colleges. The comprehensive quality of students in higher vocational colleges is based on their professional practical ability. The cultivation of the comprehensive quality of students in higher vocational colleges is a comprehensive work to promote students' noble moral cultivation, interdisciplinary knowledge, good learning ability, and adaptability, with the promotion of professional ability as the core, the cultivation of professional development ability as the purpose, campus education, and social education as the platform, and theoretical education and practical education as the means. The comprehensive quality of students in higher vocational colleges should be based on the comprehensive quality needs of employers and socialist core values, which cannot only promote the sustainable development of students but also adapt to and meet the development needs of enterprises, industries, and society.

Education evaluation and the country's politics and education system are "twin brothers and sisters". It mainly emphasized the students' political performance and family background, as the only criteria for evaluating college students; during the "Cultural Revolution", colleges in our country were involved in vigorous political movements [21]. Colleges and universities stopped enrolling students, and their evaluation of students became "militarized"; at the beginning of the reform and opening up, my country's education system was "examination-oriented education", and the evaluation of students was all carried out around "examination-oriented education"; beginning today, various colleges and universities have had preliminary discussions evaluation comprehensive students.

The education in China is developing vigorously, and the proportion of higher vocational colleges in higher education is increasing, while enterprises are seriously lacking and eager for technical skills, composite skills, knowledge, and

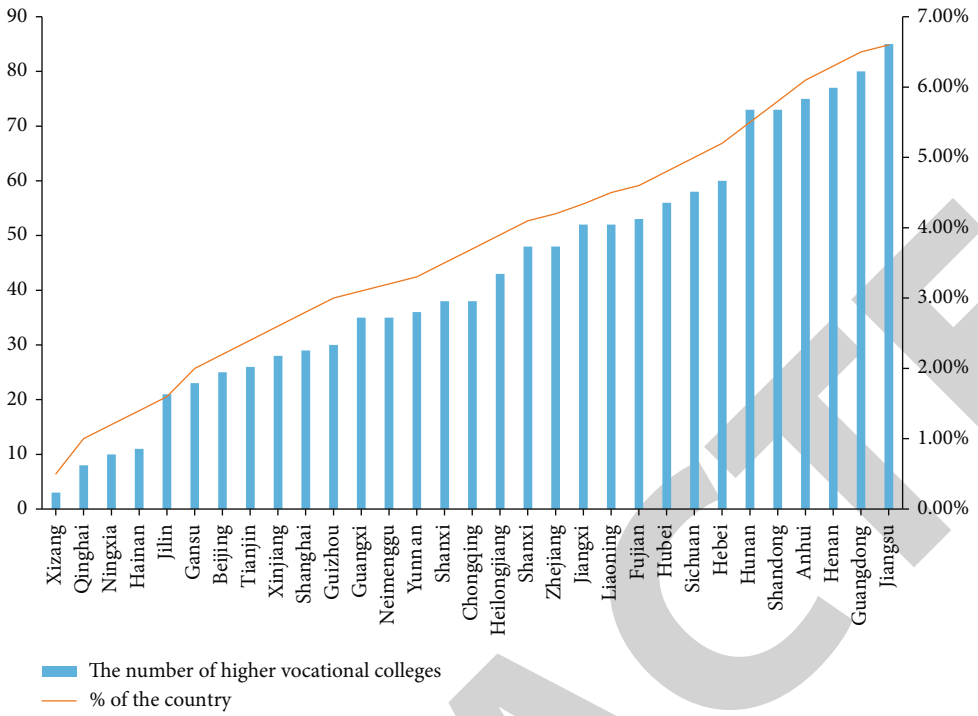

Figure 1: The development of national higher vocational colleges.

skills application talents. Figure 1 shows the development of national higher vocational colleges.

It is evaluated by a single test score, and the professional score becomes the only indicator to it. As a result, students only pay attention to exams, only focus on test scores, have no motivation to exercise their hands-on ability and practical ability, and have no enthusiasm to participate in various club activities and public welfare activities to develop personal interests and hobbies, sacrificing the opportunity to create activities, obliterating. This is the root cause of the difficulty in implementing quality education. In pursuit of high scores, a small number of students resort to opportunistic learning, plagiarizing homework, and even cheating in exams; development of students' moral, intellectual, and physical development affects the development of good study habits and affects style of study and school. The characteristics of traditional college student evaluation are the following: scholarships, three-good students, and graduates; the academic performance is mainly based on test scores, especially in exam courses, and a simple weighted average ranking is adopted; thinking morality selects "excellent" proportionally by voting; ideological and morality, physical education class results, and examination class results are considered as reference data or limitations in academic performance. Such education is not established, and it only focuses on academic performance; there is no scientific method to reflect the relationship between courses. The evaluation method leads students to fall into the "trap" of "high scores and low energy". Problems in the comprehensive assessment: The weight relationship of each subitem of morality, intelligence, and physique is artificially determined and lacks scientific basis; academic performance is only based on examinations and examination courses, which cannot reflect the needs of the new employment situation; there is no definite basis, only personal impressions; daily performance points are not standardized, so that the proportions cannot reflect the real behavior of the evaluators.

In the face of the new standards of the current social development on the demand for talents, the majority of higher vocational colleges must update their educational concepts, and at the same time strengthen the teaching of professional skills, vigorously improve the implicit professional quality of college students, so as to promote the comprehensive development of college students and meet the demand of social development for high-quality talents. The teacher level of vocational quality education in higher vocational colleges is related to the promotion of college students' professional quality. Higher vocational colleges should vigorously introduce and cultivate professional quality teachers and employ well-known experts and scholars as external teachers of professional quality, so as to create a team of professional quality teachers that combines full-time and part-time work. A vocational teacher with good professional quality will play a good exemplary role for students.

2.2. Analysis of the Current Situation of Using Multimedia to Realize Comprehensive Literacy Teaching. In order to improve the quality of students, it is necessary for teachers to actively explore various methods to improve teaching quality. According to the feedback from the peers, the use of multimedia teaching technology by relevant teachers in organizing teaching activities can do it and only need to invest less energy to obtain good teaching results. The

specific reason is that multimedia contains rich teaching resources, which is diversified, intuitive, interesting, and other characteristics. It conforms to the taste of students, reduces the teaching pressure of educators, and can achieve the goal of students' comprehensive quality teaching. However, in the teaching process, multimedia is not omnipotent. When using multimedia for teaching, educators should make it clear that the main body of education in the teaching task is the students. Even if multimedia is used for teaching, students' psychological needs and actual conditions should also be combined. For example, when psychological teachers analyze students' personality health, they simply explain in theory, which is difficult to arouse students' interest in learning. Students with unsound personality will naturally have certain psychological problems. Under such educational background, it is impossible to realize the teaching of students' comprehensive quality. In this regard, when carrying out relevant psychological education, in order to make the classroom rich and diverse, teachers can introduce multimedia technology in the psychological classroom, design interesting teaching situations, guide students to participate in the game situations designed in advance, guide students according to their performance, correct students' existing psychological problems, and help students establish a sound personality. Figure 2 shows the market size and growth forecast of China's quality education industry from 2015 to 2021.

Quality education has been advocated for many years in China, and the market size has also been growing. Between 2015 and 2019, the market size of quality education has increased from 264.2 billion yuan to 528.6 billion yuan, with a compound annual growth rate of 19%. In 2020, the epidemic situation of new coronal pneumonia had a certain impact on quality education in a short period of time, resulting in a decline in the market scale of quality education in 2020, down to 324.1 billion yuan. At the same time, due to the strict control of the policy on the subject remedial education, but under the condition of encouraging the development of quality education, the scale of quality education in China will reach 505 billion yuan in 2021.

2.3. The Advantages of Using Multilevel Fuzzy Comprehensive Evaluation and Multimedia Teaching to Evaluate Students' Comprehensive Quality. In terms of teaching form, some teachers use traditional teaching methods to teach in the classroom the teaching progress. Due limitation of learning channels, they learn through the teacher's description or the content in the textbook. The boring learning environment and learning mode led to a low level of students' understanding of knowledge. In this regard, in order to change the traditional teaching methods and enrich the teaching classroom, teachers can introduce multimedia and multilevel fuzzy comprehensive evaluation mechanism into the current teaching classroom, simulate various learning environments for students according to their actual needs, and finally achieve the goal of stimulating students' creativity and cultivating students' thinking ability. This is more obvious in physical education and psychology teaching. Students can understand similar learning content through multimedia and achieve the goal of inferring others. The network environment contains a lot of knowledge resources, which is very suitable for students to explore and mine, and provides a good platform for cultivating students' divergent thinking.

We use multimedia technology to combine pictures, text, and audio resources to create three-dimensional and diversified teaching scenarios for students, exercise students' innovative thinking ability, and help students analyze various difficult problems. Sports action, so that students better master all kinds of sports knowledge. In addition, students' physical literacy is cultivated so that students can maintain a good physique to face various learning problems. Another example, in the sports psychology class, according to psychological analysis, in the previous learning mode, students are accustomed to using the left brain for thinking, ignoring the development of the right brain, so the development of the left and back brain is not coordinated, and the ability to adapt generally. In this regard, teachers should exercise students' divergent thinking through multimedia teaching mode, use static and dynamic images to create thinking training space for students, promote the development of students' multifaceted thinking ability, and help students use existing knowledge to solve various practical problems.

3. Results and Discussion

3.1. Evaluation Method of Comprehensive Quality of Students in Higher Vocational Colleges. So it is necessary to take systems science as the basis of the methodology. Systems science is a group of disciplines centered on systems thinking, including systems theory, information theory, cybernetics, operations research, systems engineering, control management technology, and many other disciplines. The original data obtained from the investigation are scattered, messy, and unsystematic. They can only show the specific situation of each individual, reflect the superficial phenomenon or one aspect of the thing, and cannot explain the essence or overall situation of the thing. Therefore, only by processing these materials can we understand the totality of things and their internal connections. Educational statistics provides methods for processing raw data.

3.1.1. Average. Average is also known as mean or mean. It is the quotient of observations. It is generally represented by X, and the observed values are set as follows: X_1, $X_2 \ldots X_n$. Then,

$$\bar{X} = \frac{1}{n}(x_1 + x_2 + \wedge + x_n) = \frac{1}{n}\sum_{i=1}^{n} x_i. \quad (1)$$

3.1.2. Weighted Average. In the evaluation, sometimes the measurement results of various aspects should be combined to obtain an average, but because the evaluation results of various aspects have different degrees of importance, it is obviously unreasonable to equate them and calculate them like the arithmetic mean. The correct methods are as follows: consider the importance of the measurement results from various aspects, give them a

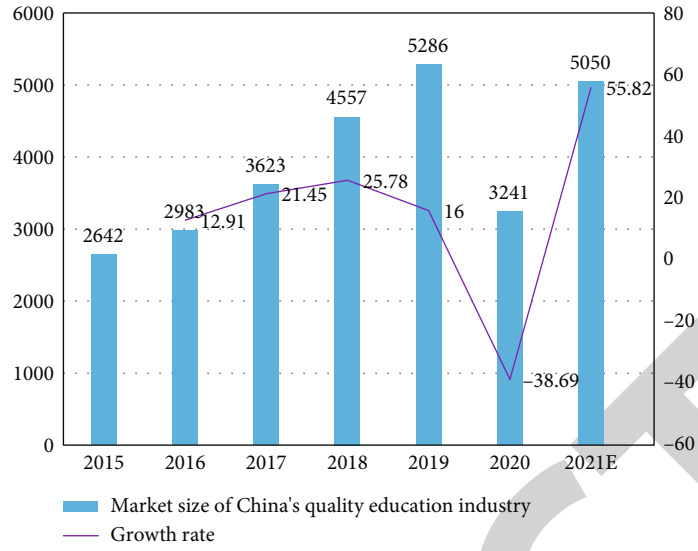

Figure 2: Market size and growth forecast of China's quality education industry from 2015 to 2021.

certain weight, and then substitute the following formula to calculate:

$$\bar{x}_W = \frac{\sum W_i x_i}{\sum W_i} \tag{2}$$

In the formula, is the weighted average; W_i is the weight; x_i is no measurement, and the weighted average is a widely used statistic in comprehensive evaluation.

3.1.3. Variance and Standard Deviation. Variance and standard deviation are statistics that represent the degree of variation or dispersion of a set of data. If the population X consists of data x_1, x_2,….x_n, then the calculation of the variance of the population X is common. The formula is as follows:

$$\sigma^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2. \tag{3}$$

The formula for calculating the standard deviation of the population X variance is as follows:

$$\sigma = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}. \tag{4}$$

3.1.4. Standard Score. The standard score is a quantity with the standard deviation as the unit. Suppose a set of data is as follows: x_1, x_2,….x_n; the mean is X_i, and the standard deviation is σ, then the calculation formula of the standard score is as follows:

$$Z = \frac{x - \bar{X}}{\sigma}. \tag{5}$$

3.1.5. Median. Assuming that n observations are taken, arranged according to the size of the following value: x_1, x_2,….x_n; the value in the middle position is called the median. It is represented by Me, and the calculation formula is as follows:

$$\text{Me} = \begin{cases} x_{n+1/2}(\text{N is odd}), \\ \frac{1}{2}(x_{n/2} + x_{n+1/2})(\text{N is even}). \end{cases} \tag{6}$$

3.2. Construction and Design of Evaluation Index System Based on AHP. Establishing a scientific index system is the basis for improving the effectiveness of the comprehensive quality evaluation of vocational students. In view of the employers' requirements for the comprehensive quality of higher vocational college students, as well as the quality problems existing in the graduates themselves, and in line with the principle of setting evaluation indicators with directivity, scientificity, integrity, and comparability, a comprehensive quality education model is established, with students' employment as the leading factor, the requirements of society for higher vocational college talents as the standard for talent development, and the purpose of improving students' comprehensive quality. At the same time, combined with the characteristics and actual situation of higher vocational colleges, the evaluation index system is established according to the hierarchical structure of the analytic hierarchy process.

To accurately carry out this value judgment is to scientifically and reasonably design a set of comprehensive quality evaluation index system. This set of indicators system should reflect the concept of quality education, that is, based on the comprehensive development of students, not only to make students learn to do things but also to make students learn to be people. To enable students to develop innovative spirit and innovative ability, combining inheritance and innovation not only enables students to develop memory, attention, observation, thinking, and other intellectual factors but also enables students to develop motivation, interest, emotion,

will, and personality. Intelligence factor, the combination of developing intelligence factor and nonintelligence factor not only enables students to improve their intelligence but also enables them to improvement of intelligence with the improvement of health.

Analytic Hierarchy Process (AHP) is a systematic evaluation method combining quantitative and qualitative methods proposed by American operations research scientist and Professor A.L. Saty of Pittsburgh University in the 1970s. It defines the problem, establishes the hierarchical structure analysis model, constructs the judgment matrix, calculates the relative weight of the elements at each level for the overall goal, and thus obtains the comprehensive evaluation value of different schemes, providing a basis for selecting the optimal scheme. This method first requires the problem to be hierarchized, that is, according to the nature of the evaluation object, the evaluation objectives are decomposed into different categories of systems and indicators at different levels; then, the indicators in the same level are compared in pairs to determine the relative importance, and the comparison and judgment are made. The result is quantified according to the given scale; it shows the specific flow of the AHP. As shown in Figure 3.

According to the above scaling method, after comparing and judging the indicators obtained, its form is as follows:

$$A = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ a_{n1} & a_{n2} & \cdots & a_{nm} \end{bmatrix}. \tag{7}$$

Obviously, for any judgment matrix it should satisfy the following:

$$\begin{aligned} a_{\mathrm{ii}} &= 1, \\ a_{\mathrm{ij}} &= 1/a_{\mathrm{ji}}. \end{aligned} \tag{8}$$

It is coefficient. There are different methods for the operation of the judgment value in the matrix. The commonly used methods are as follows:

(1) It is

$$\begin{aligned} b_{ij} &= \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}}, \\ B &= \left[b_{ij}\right]. \end{aligned} \tag{9}$$

(2) Sum by row

$$\begin{aligned} v_i &= \sum_{j=1}^{n} b_{ij}, \\ V &= [v_i]. \end{aligned} \tag{10}$$

(3) Calculate the feature vector (normalization)

$$\begin{aligned} w_i &= \frac{v_i}{\sum_{i=1}^{n} v_i}, \\ W &= w_{ij}. \end{aligned} \tag{11}$$

Generally, if each element in the judgment matrix has the relationship of a_i, $j = ax/ax$; , the judgment matrix has complete consistency. At this time, the eigenvector corresponding to its maximum eigenvalue (i.e., the weight vector obtained in the fourth step) can reflect the relative importance of each indicator. However, due to when people judge them, it is impossible to make the judgment matrix completely consistent.

Let the and in general, $\lambda \max \neq n$, we usually use the consistency ratio to test, the formula for the following:

$$\mathrm{CR} = \frac{\mathrm{CI}}{\mathrm{RI}} \tag{12}$$

In the formula, CR represents the consistency ratio;
CI stands for conformance indicator.

$$\begin{aligned} CI &= \frac{\lambda_{\max} - n}{n - 1}, \\ \lambda_{\max} &= \frac{1}{n} \sum_{i} \frac{(\mathrm{AW})_i}{w_i}. \end{aligned} \tag{13}$$

Such participation in the evaluation, we have widely solicited the opinions of students, teachers, student administrators, and experts in Shaanxi Institute of Technology through questionnaires to give scores for the use of the scale. The method provides a basis for the comparison of the importance of each index; the Delphi method is used to analyze and weigh the received effective feedback information, and the judgment value is given.

The judgment matrix A is as follows:

$$A = \begin{bmatrix} 1 & 1/4 & 2 & 1/3 \\ 4 & 1 & 3 & 1/2 \\ 1/2 & 1/3 & 1 & 1/3 \\ 3 & 2 & 3 & 1 \end{bmatrix}. \tag{14}$$

Summing matrix B row-wise gives the following:

$$V = [v_i] = \begin{bmatrix} 0.5635 \\ 1.3138 \\ 0.4168 \\ 1.7060 \end{bmatrix}. \tag{15}$$

Therefore, the judgment matrix is considered to be completely consistent, and the obtained first-level index

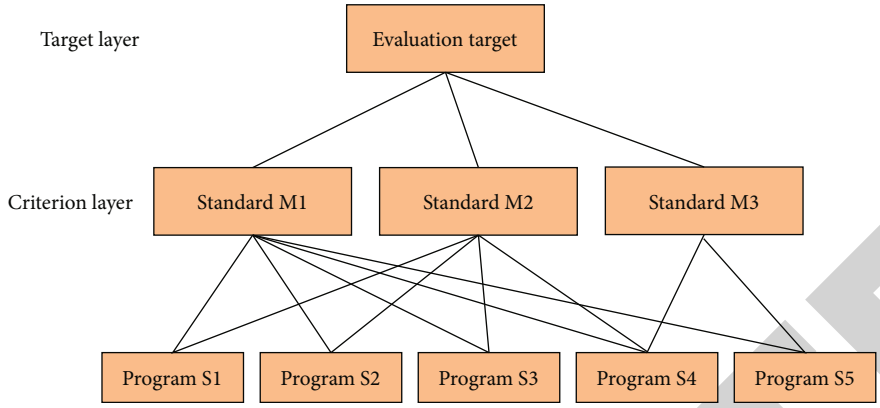

Figure 3: Analytic hierarchy process.

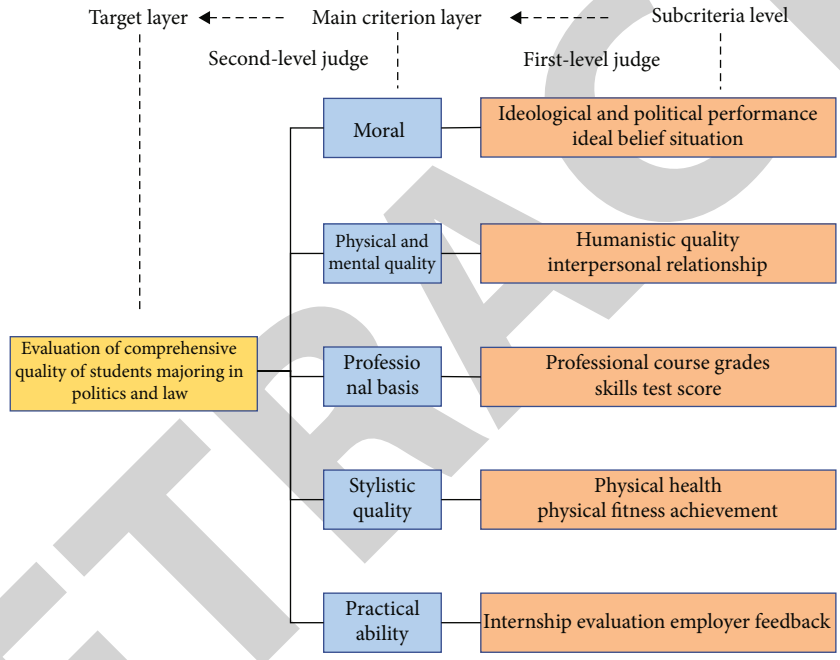

Figure 4: Level fuzzy judgment diagram.

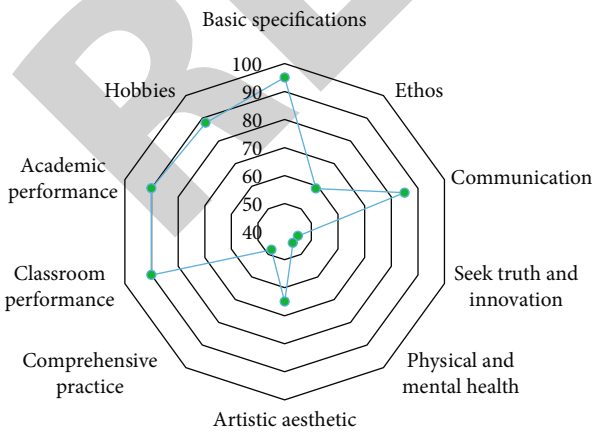

Figure 5: Fuzzy comprehensive evaluation results.

weight coefficient A_i can also reflect the relative importance of each index.

3.3. Fuzzy Comprehensive Evaluation Method. Suppose the known index set $U = \{x_1, x_2, \cdots .x_n\}$; the comment set $V = \{y_1, y_2, \cdots .y_n\}$, and the weight of each index is the fuzzy subset A on U as follows:

$$A = (a_1, a_2, a_3, \cdots, a_n). \tag{16}$$

It is to be considered, and there are layers among the indicators, then the indicator set U can also be classified according to certain methods (for example, according to the results of tree data), and each indicator set U can be classified first. Classes are comprehensively judged, and then a high-level comprehensive judgment among "classes" is evaluation as an example to illustrate its steps. Comprehensive evaluation is to make an overall evaluation.

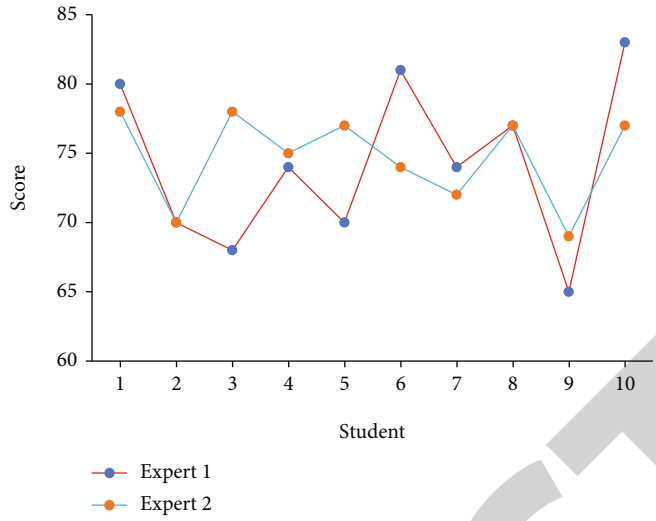

Figure 6: Ranking of students' overall quality score.

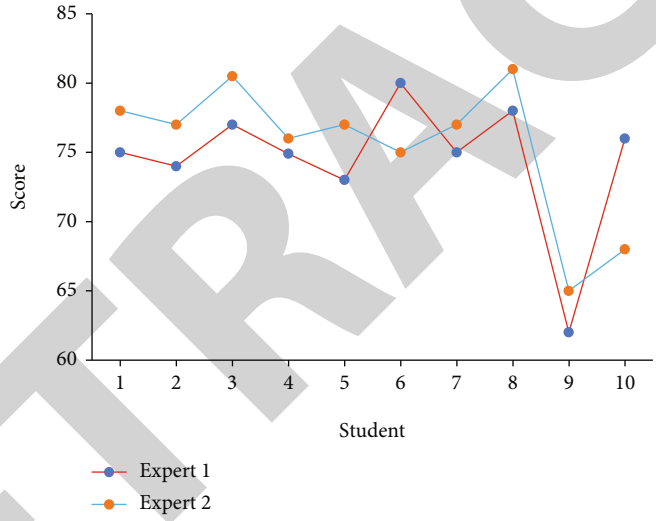

Figure 7: The total score of students' comprehensive quality in the multilevel fuzzy comprehensive evaluation.

4. Result Analysis and Discussion

4.1. Establishment of Comprehensive Quality Evaluation Model. Analytic hierarchy process can effectively determine the relative importance of each factor in multifactor evaluation and then evaluate. However, AHP lacks a unified and specific indicator quantification method when judging the overall goal, so in actual use, it should only be used to analyze the indicator weight, and then use other methods to quantify and evaluate the indicator value. Therefore, it is necessary to combine the fuzzy analytic hierarchy process with the fuzzy comprehensive evaluation method to evaluate the comprehensive quality of vocational students.

According to the aforementioned analysis, among them, the target layer is the evaluation of students' comprehensive quality; the main factor layer is the students' comprehensive quality 1, about the main quality indicators such as ideology and politics, professional foundation, and vocational skills, and the factor layer is the specific quality indicators that belong to the main quality aspects of the main factor layer. After the second-level comprehensive evaluation, the overall quality score of the evaluated students is finally obtained as shown in Figure 4.

The example used in this article is the five-year legal secretarial professional class of Beijing Municipal Law Vocational College. They have been in school for a long time, have accumulated practice and have graduated and entered the workplace. Acoording to the performance in the comprehensive quality evaluation system, we analyzed the information accumulated in many aspects such as their moral education performance and professional achievements during their school days and decided to select the XX-level legal secretary X class. Through the comprehensive quality of the students in this class, based on the

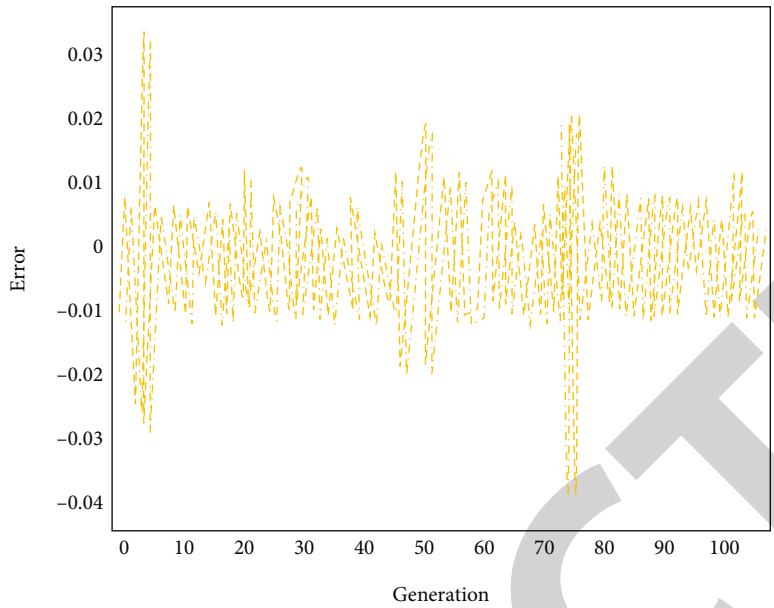

Figure 8: Multilevel fuzzy comprehensive evaluation test results.

survey, we obtained the relevant evaluation information of these 20 students, and on this basis, we used the comprehensive evaluation model to judge their comprehensive quality.

In order to obtain the required index weights, we distribute consultation forms in the expert and teacher group of the college, and conduct analysis according to the requirements of the AHP. The evaluation information for students comes from the previous test scores and the evaluation and learning experience issued to relevant contacts roll. Except that the professional test scores during the school period are quantitative information, which can be directly used by converting them into standard scores; other index items are distributed through the distribution of score sheets in the class and the teaching group, combined with relevant reward tables, identification table to determine the evaluation of student indicators. In the process of comprehensive quality assessment, the number of teachers to be investigated should be as large as possible, because according to the general principle of statistics, the more the number of teachers, the more objective laws can be shown, and the results of comprehensive quality tend to be more consistent; therefore, more sciences are more reliable. Based on a large number of score sheets, we can basically get the student's evaluation distribution on a certain index item, and then get the evaluation matrix.

4.2. Experimental Results and Analysis. In the fuzzy comprehensive evaluation matrix operations, it is not advisable to use manual calculation, but the use of computer can get very good benefits evaluation work. We use computer-aided realization, and the software system used is Matlab. The obtained index weights are brought into the evaluation matrix of each index of famous students for operation, and finally the evaluation results of students' comprehensive quality are obtained as shown in Figure 5, through the practical application obtained, which has also been affirmed by the college.

This experiment mainly analyzes the influence of the processing results of the AHP judgment matrix based on Google PR algorithm on the total score of students' comprehensive quality. There are 40 questionnaires in this survey, which the experts answered, school's student work management office (expert 1); the other group is the class counselor (expert 2). According to the collected questionnaires for consistency verification, the weights are calculated using the AHP weight calculation method in the first section. In the same 10 sample calculations, the student achievement rankings obtained by the weight table determined by the original AHP algorithm are quite different, and only the relative rankings of 3 students remain unchanged and fuzzy. The difference in the ranking of students' grades obtained from the updated weight table of the comprehensive evaluation algorithm is significantly reduced. Except for the changes in the rankings of students 4 and 6, the relative ranking of students in the current period basically remains unchanged. Compared with the original algorithm, the ranking stability is improved. 267% is shown in Figures 6 and 7.

During network training, sample data of multilevel fuzzy comprehensive evaluation, which can speed up the training speed of the network. The training results are also ideal, and only the two test data in the 70-80 generations have different results as shown in Figure 8. Usually the rest of the data are controlled within the ideal error range. To sum up, it can be concluded that it can be more accurately applied to student evaluation.

5. Conclusion

The comprehensive quality of students is the concrete embodiment of the school running concept and quality.

The evaluation of the comprehensive quality of higher vocational students is an important part of the talent training work in higher vocational colleges, and an important measure to improve the level of education management and promote the comprehensive quality of students. In this paper, a two-level fuzzy mathematical model is established by using fuzzy mathematics theory and multimedia technology. First of all, according to the educational characteristics such as learning interest, psychological quality when encountering difficulties, and the ability to solve problems cooperatively, a set of secondary indicator system reflecting vocational students is established. Using this index, the quantitative index is fuzzified by introducing the membership function, and the single factor evaluation matrix is established; Then, it illustrates the concrete steps to realize the qualitative analysis and quantitative evaluation of students' comprehensive quality with examples. The results show that the new comprehensive quality evaluation method established in this paper has strong practicability and innovation.

Data Availability

The figures used to support the findings of this study are included in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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