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Research Article

Refinement Method of Evaluation and Ranking of Innovation and Entrepreneurship Ability of Colleges and Universities Based on Optimal Weight Model

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With the economic development in recent years, the state has paid more and more attention to education, and more and more college graduates have been graduated. The purpose of this paper is to study how to analyze the refinement method of evaluating the innovation and entrepreneurship ability (IEA) of colleges and universities based on the optimal weight model. This paper proposes a sorting refinement method based on the optimal weight model and uses the BP neural network to determine the optimal weight. Weight is a scoring mechanism for comprehensive ranking, that is, a scoring system. The higher the score, the higher the weight, and the higher the ranking of the relative things. The experimental results of this paper show that in 2013, the number of college graduates in China reached 6.09 million, but the number of employed people was only 4.67 million, an increase of 120,000 over the same period. By 2020, the number of college graduates in China has reached 7.27 million, and the number of employed people has been 5.78 million. However, the number of employed persons is always lower than the number of graduates, indicating that employment is difficult. Under this situation, many college graduates choose to start their own businesses, but the success rate of entrepreneurship is also very low, only about 3%. This shows that the IEA of college graduates is not high, so it is necessary to improve the IEA and conduct self-evaluation.

1. Introduction

Entrepreneurial ability is a very complex concept, and self-efficacy or self-evaluation methods for measuring ability are commonly used methods in existing research on strategic management, psychology, and entrepreneurial ability. The so-called self-efficacy refers to the individual's ability to complete many different tasks in the process of entrepreneurship and whether these activities can be completed normally. The ability of self-evaluation entrepreneurs refers to the ability of entrepreneurs who complete specific entrepreneurial actions through self-evaluation. Sorting is the process of rearranging an unordered batch of records (data) into a key-ordered sequence of records.

Entrepreneurial activity provides an important impetus for sustainable economic development. In today's era, innovation economy has become an important economic form. The era of knowledge economy is the era of high-tech revolution. The background of this era is that college students provide a broad development space for their own businesses. Cultivating entrepreneurial spirit can not only promote the growth of college students themselves, but also make great contributions to the development of society and the prosperity and development of the country.

The innovations of this paper are as follows: (1) This paper introduces the optimal weight model and the theoretical knowledge of IEACU and uses the optimal weight model to analyze how the optimal weight model plays a role in the evaluation of innovation and entrepreneurship ability of colleges and universities (IEACU). (2) This paper expounds the optimal weight model and BP neural network. Through experiments, it is found that BP neural network can effectively analyze the ranking and refinement method of the evaluation of IEACU.

2. Related Work

With the increasing number of college graduates in recent years, more and more people choose to start their own businesses. Bhagavatula et al. believe that the latter have a higher level of entrepreneurship, but do not give a corresponding basis [1]. Yan found that preschool education is the core content of the education and teaching system and that art is an indispensable professional course. Higher vocational art teachers should pay attention to the improvement of students' personal accomplishment from the perspective of modern innovation and entrepreneurship education. The goal is to cultivate high-quality, innovative, and entrepreneurial talents. Yan realizes that education can improve students' personal ability, thereby improving the ability of innovation and entrepreneurship, but he did not introduce how to optimize teaching [2]. Landqvist and Lind highlight how newly formed technology-based startups can become part of the business environment. In more detail, their aim is to analyze how startups are adapting to the times through their network behavior in business networks. To address this phenomenon, they propose an industrial network approach based on industrial markets that separates development, production, and usage environments. The final results indicate that the resources of startups need to be combined with those in the three business network settings. Their purpose is to improve the competitiveness of startups, but they do not specify how to improve competitiveness [3]. Conrad proposed that startups should start from the perspective of consumers and from the perspective of protecting ecology, but there are no specific measures [4]. Wang et al. found that the measured data fusion process is an effective way to improve the accuracy of data processing. They first introduce fusion weights and then study optimal weight and parameter estimation using multiple structures and different accuracies. For the linear regression model, it is theoretically proved that the optimal weight is only related to the data measurement accuracy, which is consistent with the classical Gauss–Markov theorem. For the nonlinear regression model, they theoretically analyze the calculation method of the optimal weight and then give the optimal weight algorithm and parameter estimation for actual data. They emphasize the relationship between optimal weights and parameter estimation but do not introduce the specific relationship between them [5]. Isik and Inallı found that due to population growth, limited energy resources, and increasing demand for energy, people have to pay attention to energy issues and the prediction of data is of great significance in the design of thermal energy systems [6]. Alanis and Alma introduced the results of using the recurrent neural network training algorithm based on extended Kalman filter and its application in electricity price forecasting. In addition, it has stability including the use of well-known methods for artificial neural networks trained using extended Kalman filter based algorithms. Finally, the applicability of the proposed forecasting scheme is demonstrated by forecasting using European power system data. Although they mentioned the prediction scheme, they did not prove that this prediction scheme is really applicable [7]. Lucas et al. reviewed deep learning techniques that address such problems in imaging and provided some insights into how these deep learning tools solve the problem, but they did not elaborate on their views [8].

3. Optimal Weight Model Based on Neural Network

3.1. Employment of College Graduates. Students stepping into entrepreneurship can reduce the number of employed graduates. Moreover, college students can use their knowledge and technology, cultivated practical ability, and innovative thinking to create new jobs and opportunities, so as to seek development for themselves, contribute to society, and provide employment opportunities for others [9]. Now, the cultivation of entrepreneurial talents provides new job opportunities and employment models and relieves the employment pressure of college students. The number of college graduates and the number of employed persons from 2013 to 2020 are shown in Tables 1 and 2.

As shown in Tables 1 and 2, since 2013, the number of college graduates entering the labor market in China has exceeded 6 million. In particular, the total number of college graduates in China has reached 7.27 million in 2020, an increase of 280,000 compared with the same period in 2018, breaking a record high [10]. However, the jobs provided by economic development are far from meeting the needs of social employment, and employment contradictions are becoming increasingly prominent. The evaluation process of IEA is shown in Figure 1.

As shown in Figure 1, the fuzzy comprehensive evaluation method can better deal with some vague and difficult-to-quantify matters. The key to this method is the determination of the weight vector. At present, most methods are inevitably affected by human subjective factors or have high computational complexity in the process of weight determination, being prone to weighting results that are inconsistent with reality. The neural network method reproduces the relevant information through the calculation of the correlation coefficient formula, so as to obtain the weight of the relevant evaluation index. At present, the use of the BP neural network method to determine the weight is widely studied [11]. This method neither simply pursues advanced mathematics nor pays one-sided attention to behavior, logic, and reasoning, but it organically combines qualitative and quantitative methods.

3.2. The Basic Algorithm of Artificial Neural Network. Artificial neural network is a research hotspot in the field of artificial intelligence since the 1980s. It abstracts the human brain neuron network from the perspective of information processing, establishes a simple model, and forms different networks according to different connection methods. The artificial neural network can combine the experience and objective judgment of experts and scholars, greatly reduce the possibility of subjective errors in the evaluation process, and reflect the dynamic change process of evaluation indicators in the comprehensive evaluation method. Therefore, the introduction of the neural network method to determine the weight is a feasible solution to the weight problem [12].

Table 1: The number of college graduates and employed persons from 2013 to 2016.

years	Number of graduates (10,000 people)	Employed population (10,000 people)	Increase in the same period (10,000 people)
2013	609	467	12
2014	630	471	21
2015	658	490	28
2016	670	509	12

Table 2: The number of college graduates and employed persons from 2017 to 2020.

years	Number of graduates (10,000 people)	Employed population (10,000 people)	Increase in the same period (10,000 people)
2017	682	513	12
2018	699	532	17
2019	718	570	11
2020	727	578	9

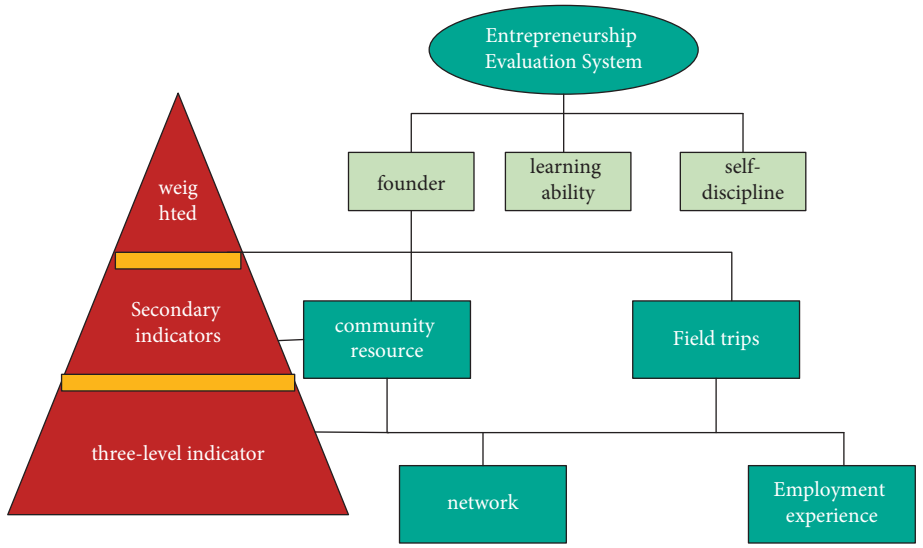

Figure 1: IEA evaluation process.

3.2.1. Basic Principle of Fuzzy Comprehensive Evaluation Method. Fuzzy comprehensive evaluation method has the characteristics of clear results and strong systematicness, which enable it to better solve fuzzy and difficult-to-quantify problems, and is suitable for solving various nondeterministic problems. Fuzzy comprehensive evaluation method is a way to comprehensively evaluate the evaluation object by giving evaluation index and measurement value, and then fuzzy processing the evaluation index and measurement value, and then fuzzy processing the evaluation index and measured value, so as to comprehensively evaluate the evaluation object. The evaluation index is $U = \{u_1, u_2, \ldots, u_n\}$, and the evaluation level is the comment set $V = \{v_1, v_2, \ldots, v_n\}$. According to the fuzzy relationship between the evaluation index universe U and the comment set universe V, the comment set matrix is constructed as follows:

$$R_i = (r_{i1}, r_{i2}, \ldots, r_{in}) \quad , i = 1, 2, \ldots, m, \; j = 1, 2, \ldots, m. \tag{1}$$

Among them, r_{ij} is the importance of factor u_j relative to v_j, which is the degree of membership r_{ij} of u_i in the comment grade v_j. Finally, the obtained judgment matrix and the weight of the evaluation index are subjected to operation and fuzzy processing to obtain the final evaluation result [13]. The fuzzy subset on the whole field of evaluation indicators is as follows:

$$W = \frac{w_1}{u_1} + \frac{w_2}{u_2} + \ldots + \frac{w_m}{u_m} \left(0 \le w_i \le 1\right), \tag{2}$$

where w_m is the membership degree of u_m relative to the fuzzy subset W, and the fuzzy subset of comments on the universe V is set as follows:

$$B = \frac{b_1}{v_1} + \frac{b_2}{v_2} + \ldots + \frac{b_n}{v_n}\left(0 \le b_j \le 1\right), \tag{3}$$

where b_j is the degree of membership of I relative to v_j, and B is the comprehensive evaluation result. To sum up, if W and R are known, the comprehensive evaluation result B can be obtained from $B = W * R$. Among them, $*$ can perform fuzzy matrix product operation according to the actual situation.

However, when determining the relative weights among the factors at each level, if it is only a qualitative result, it is often difficult for others to accept. Therefore, some scholars put forward the consistent matrix method to solve this problem. The consistent matrix method mainly has two constraints. The purpose of constructing the judgment matrix is to reflect the importance of all factors in this layer relative to a factor in the previous layer [14]. On the basis of considering the construction of a completely consistent fuzzy judgment matrix, the consistency of the fuzzy judgment matrix is adjusted by establishing and analyzing the harmonic matrix of the fuzzy judgment matrix, so that the adjusted judgment matrix has a satisfactory consistency and can best reflect the wishes of decision makers.

3.2.2. Total Sorting Weight Vector. In order to obtain the elements of a certain layer in the hierarchical structure and their mutual influence with the upper layer elements, it is necessary to use the results of the single ordering of all levels of the layer to calculate the combined weight of the elements of the layer. This process is called the total ordering of the layer. Hierarchical total sorting is an extension of hierarchical single sorting. The total ranking structure of the construction hierarchy is shown in Figure 2.

As shown in Figure 2, there are m elements $A_1, A_2, \ldots, A_M$ in the A layer, and the n elements in the B layer sort the hierarchy of the upper layer factor A_j as $b_{1j}, b_{2j}, \ldots, b_{nj}$.

Assuming that the B layer elements $B_1, B_2, \ldots, B_N$ are paired with $A_1, A_2, \ldots, A_M$ in the upper layer and the single-ranking consistency index of the layer is CI_j, the random consistency index is RI_j, and then the consistency ratio is as follows:

$$\mathrm{CR} = a_1\mathrm{CI}_1 + a_2\mathrm{CI}_2 + \ldots + a_m\mathrm{CI}_m. \tag{4}$$

When CR p 0.1, the consistency check is passed. Otherwise, it needs to continue to be adjusted until the consistency check is satisfied, and the final decision is made.

3.2.3. RBF Neural Network. The BP algorithm is an error backpropagation algorithm. Through continuous forward and reverse feedback training, a trained network is obtained to evaluate the evaluation samples [15]. The specific implementation steps are as follows: the weight coefficient W_{ij} of the network needs to be obtained in a recursive way. If there are n units in each layer, weight coefficient is an important concept in the evaluation of measurement adjustment accuracy. That is to say, in the parameter

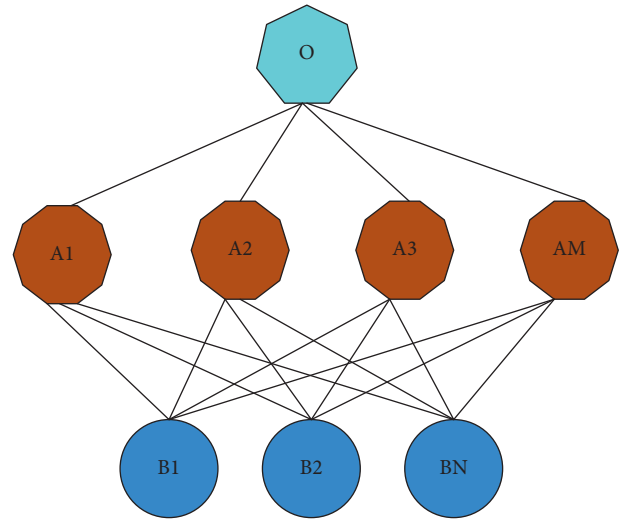

Figure 2: Building a hierarchical total sorting structure.

adjustment, the inverse matrix of the normal equation coefficient matrix is the weight inverse matrix of the parameter adjustment value, as follows:

$$A_{n+1}^{k-1} = 1, \quad i = 1, 2, \ldots, n, \; j = 1, 2, \ldots, n. \tag{5}$$

For the i-th neuron of the k-th layer, there should be n weight coefficients W_{ij}, and another A_{n+1}^{k-1} is used to determine the threshold value to judge whether the network output results meet the expected output [16]. BP neural network has made good progress in the research of index weight determination. However, on its own, it still has disadvantages such as slow convergence speed of training and being easy to fall into the minimum value. There are many improved BP algorithms, and there are two main methods [17]. BP algorithm is widely used, but it has many defects. Many scholars at home and abroad have proposed various improvement methods for the problem of BP algorithm. The main improvement methods are divided into two categories: one is heuristic improvement, such as additional momentum method and adaptive learning rate; the other is improvement combined with new theories. These methods improve the convergence speed of the network to different degrees and avoid the local minimum problem.

In theory, RBF neural network can play the same role as the improved algorithm of BP neural network. Therefore, this paper uses the RBF neural network method to optimize and adjust the weights [18]. The algorithm design of the RBF network mainly includes two aspects; one is the structural design; that is, the number of neurons in the hidden layer is determined [19].

K-means clustering algorithm, also known as K-means, can be regarded as the most famous, widely used, and basic clustering algorithm. Based on the K-means clustering algorithm, the data center of the basis function is calculated as follows:

$$t_i(n+1) = \begin{cases} t_i(n) + \eta\left[A_k(n) - t_i(n)\right], i = i\left(A_k\right), \\ t_i(n), \end{cases} \tag{6}$$

Determining whether all training samples have been completed until the distribution of the basis function center does not change. If it matches, the algorithm ends; otherwise, n is incremented by 1, and $n = n + 1$ continues to be executed until it matches.

We use the least squares method to calculate the weight formula as follows:

$$w_{ij} = \exp\left(\frac{s}{d_{\max}^2} A_k - t_i\right). \tag{7}$$

This section mainly introduces the basic theory and method steps of the fuzzy comprehensive evaluation method and analyzes the shortcomings of the traditional fuzzy comprehensive evaluation in determining the weight. In addition, by introducing the theoretical knowledge, learning methods, and specific learning algorithm steps of BP neural network and RBF neural network, it is concluded that the neural network method can effectively improve the weight problem in the fuzzy comprehensive evaluation method [20].

3.3. Construction of FSE Rating Model Based on RBF Network. Since this paper aims to establish an FSE rating model based on RBF neural network, the number of nodes in the input layer and the number of nodes in the hidden layer of the network structure need to be determined according to the sample data (rating index data) of the candidate transaction, and the number of nodes in the output layer is set to 1 [21]. The FSE rating model takes the index quantitative data of the rated transaction as the input of the neural network, and the final rating result as the output of the network. The three-layer structure system of RBF neural network and the process steps of fuzzy comprehensive evaluation method are effectively combined by means of neural network training. The network structure of the RBF neural network is shown in Figure 3.

As shown in Figure 3, RBF is a three-layer forward network with a single hidden layer. The input layer plays the role of transmitting data information in the whole network. The hidden layer can process the data input by the input layer and feed back the processed information to the output layer. The output layer is the linear weighted output of the input data information of the input layer. The RBF network has a good ability to approximate arbitrary nonlinear functions and express the inherent hard-to-analyze regularity of the system, and it has a very fast learning convergence speed. Based on the above advantages of radial basis function network, we apply it to the simulation of nonlinear functions.

Due to the particularity of the normalized network itself, the number of nodes in the hidden layer of the network is equal to the number of samples, which are the data centers of the underlying functions. Therefore, the normalized network parameter design can only be done by determining the expansion constants and the weights of the output nodes. To find the approximation function $F(A)$, one of the basic contents of function approximation mainly refers to the approximate representation of functions; it is usually achieved by minimizing the objective function as follows:

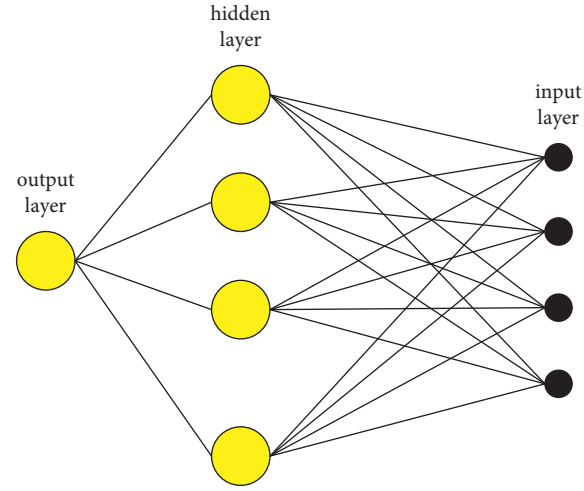

Figure 3: Network structure of RBF neural network.

$$\min E(F) = \frac{1}{2}\sum_{p=1}^{p}\left[d^p - F(A)^P\right]^2 + \frac{1}{2}\lambda \mathrm{DF}^2. \tag{8}$$

$[d^p - F(A)^P]^2$ in the formula is the mean square error; in order to find the optimal approximation function, the mean square error should be minimized. λ is the regularization parameter. When the smoothness is too low, $F(A)$ usually has a larger DF value as follows:

$$F(A) = \sum_{p=1}^{p} w_p G(A, A^p), \tag{9}$$

where $G(A, A^p)$ is the Green function and G is called the Green matrix. When this type of Green function is a Gaussian (Gauss) function, one has the following formula:

$$G(A, A^p) = \exp\left(-\frac{1}{2\sigma^2} A - A^{p2}\right). \tag{10}$$

First, when the number of input samples is P, that is, the number of hidden layer nodes is P, the P -th neuron adopts the G(A, Ap) transformation function, and they have the same expansion constant σ.

3.4. Evaluation Method of College Innovation Ability Based on Principal Component BP Neural Network. The evaluation method of college innovation ability based on principal component BP neural network should not only fully maintain many evaluation indicators, but also use the self-learning and self-organizing functions of artificial neural network to suppress the subjective role of people to a minimum, making it fair and objective to determine the evaluation results. Principal component analysis is used in the evaluation of IEA, as shown in Figure 4.

As shown in Figure 4, principal component analysis (PCA), a method of reducing multiple indicators and variables to a few main indicators, is the most commonly used method in multivariate analysis. The main idea of PCA is as follows: through transformation, the cube is represented by

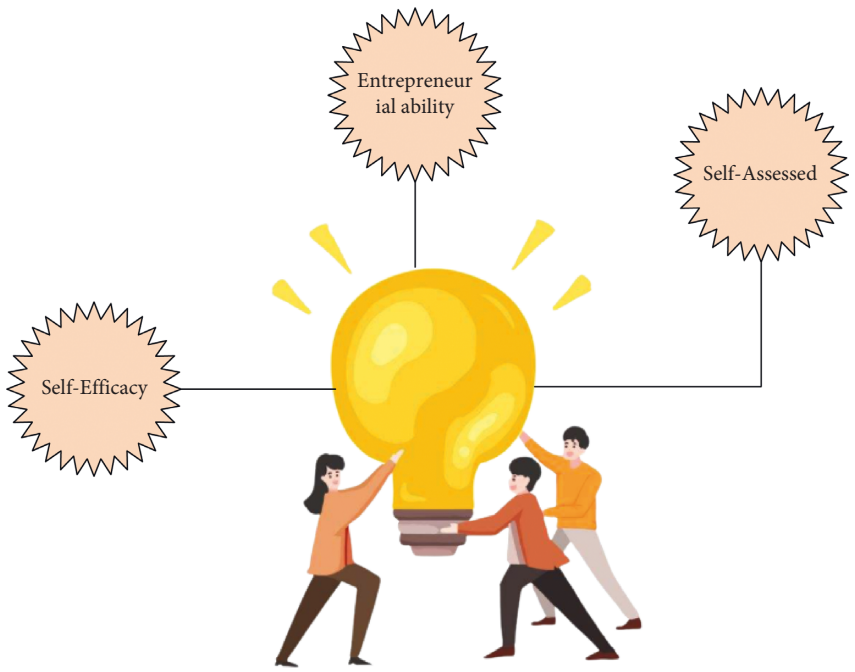

Figure 4: Principal component analysis is applied to the evaluation of IEA.

effective feature components to maintain the main information of the original data, while achieving the best dispersion purpose. This method is called feature extraction. When only the first effective principal component is extracted, PCA is also called maximum linear principal component analysis. Based on the powerful multi-index simplification ability, PCA has a wide range of applications in current image processing, information compression, pattern recognition, data mining, and other fields. Principal component analysis (PCA) is the most commonly used linear dimensionality reduction method. Its goal is to map high-dimensional data into a low-dimensional space through some kind of linear projection and expect the most informative data in the projected dimension.

Assuming that there are n object samples and each sample has p variables, a data matrix of order $n \times p$ is formed as follows:

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{1p} \\ a_{21} & a_{22} & a_{2p} \\ a_{n1} & a_{n2} & a_{np} \end{bmatrix}. \tag{11}$$

When P is large, it is more troublesome to investigate the problem in dimensional space. The processing steps of principal component analysis are mainly as follows: a single sample is $(a_{ij} - a_j)$, and the entire sample space is expressed as follows:

$$a_{ij} = \frac{\left(a_{ij} - a_j\right)}{\sqrt{\left(a_{ij} - a_j\right)^2 / n}}. \tag{12}$$

The correlation coefficient matrix of the sample matrix is calculated as follows:

$$R = \begin{bmatrix} r_{11} & r_{12} & r_{1p} \\ r_{21} & r_{22} & r_{2p} \\ r_{p1} & r_{p2} & r_{pp} \end{bmatrix}. \tag{13}$$

Among them, r_{pp} and a_{ij} are the original variables, and the correlation coefficient with a_j is as follows:

$$r_{ij} = \sum_{k=1}^{n} \left(a_{ki} - a_i\right)\left(a_{ki} - a_j\right). \tag{14}$$

We calculate the contribution rate of the principal component and the cumulative contribution rate as follows:

$$\frac{\lambda_i}{\sum_{k=1}^{p} \lambda_k}, \quad (i = 1, 2, \ldots, p). \tag{15}$$

The cumulative contribution rate is as follows:

$$\frac{\sum_{k=1}^{i} \lambda_k}{\sum_{k=1}^{p} \lambda_k} \, (i = 1, 2, \ldots, p). \tag{16}$$

Generally, the m-th principal component corresponding to the eigenvalue $\lambda_1, \lambda_2, \ldots, \lambda_m$ whose cumulative contribution rate reaches 85%–95% is taken.

The principle and general method of principal component processing are introduced above. Through the above analysis, it can be seen that the principal component algorithm completely adopts the method of mathematical derivation, the thinking is tight, and the level is clear. At the same time, with the help of the rapid development of modern computer technology, the difficulty of matrix solution is effectively reduced, and it has a wide range of applications in multi-index dimensionality reduction.

Since the BP neural network is built on the basis of training a large amount of data to establish a network, in order to ensure correct and effective results, it must have a large amount of data. The typical excitation functions mainly include the following, as shown in Figure 5.

As shown in Figure 5, S-curves mostly exist in classification evaluation models and logistic regression models, which belong to the category of multivariate analysis and are commonly used in statistical empirical analysis in sociology, biostatistics, clinical medicine, quantitative psychology, and marketing. The typical excitation function of BP network generally adopts the sigmoid function as follows:

$$f(a) = \frac{1}{(1 + e^{-a})}. \tag{17}$$

We calculate the input I^i and output O^I of the hidden layer and output layer, respectively, as follows:

$$I^i = \sum O^{i-1} W^{i-1}, \tag{18}$$

$$O^I = f\left(I^{I-1}\right). \tag{19}$$

In this paper, we will maximize the advantages of neural networks and principal component analysis, effectively combining the two methods; first, we train the constructed network through the main set of data, and finally we evaluate other objects through the constructed network.

3.5. Sorting and Grouping Analysis Based on Clustering Method. Cluster analysis is an important part of the research and application of data mining, which can find hidden data from a large amount of data to extract hidden useful information, which is suitable for information, management, decision support and control, etc. In the latest research, it has been widely confirmed [22]. An example of a hierarchical clustering diagram is shown in Figure 6.

As shown in Figure 6, as the name implies, hierarchical clustering is a layer-by-layer clustering, which can divide large categories from top to bottom. This paper introduces the clustering method, through which each high school is divided into different groups. Since it involves one-dimensional data, the processing is relatively simple, the $n \times p$ matrix is called the data matrix, and the data matrix Y is as follows:

$$Y = \begin{bmatrix} y_{11} & y_{12} & y_{1p} \\ y_{21} & y_{22} & y_{2p} \\ y_{n1} & y_{n2} & y_{np} \end{bmatrix}. \tag{20}$$

This paper avoids the general approach of ranking the evaluation results directly and adopts a clustering-based grouping method. This paper divides universities into different groups according to the different sizes of the results, reducing the harm caused by absolute ranking and the trouble caused by ranking.

3.6. Innovation and Entrepreneurship under the Macro Guidance of the Government. As the government manages the country's social resources, government departments must maximize the use of social resources and the influence of administration to guide college students on how to carry out entrepreneurial activities. Many developed countries have formulated relevant laws and policies to promote the entrepreneurial activities of college students. For example, the US government has passed laws to strengthen entrepreneurial education, and the UK government has implemented the "Enterprise Establishment Program". These entrepreneurship policies issued by the government have achieved remarkable results in the development of entrepreneurship education, which has also become a template for promoting college students' entrepreneurship in China. The entrepreneurship policy guarantee system for college students is shown in Figure 7.

As shown in Figure 7, the policy for the initial stage of entrepreneurial competence should focus on guiding college students on how to start their own businesses. College students lack the knowledge and experience of entrepreneurs and need to learn and accumulate knowledge. As the startup is gradually on the right track, the demand for policies such as funds, loans, expert title evaluation, and insurance continues to increase. Medium-term policies must focus on practical support.

3.6.1. Enriching the Entrepreneurial System and Providing Free Training Opportunities. The entrepreneurship education system consists in improving the entrepreneurship education system of the following four closely related links: "theoretical learning–competition simulation–entrepreneurial nursery–entrepreneurial base," which are the foundation of university entrepreneurship. In the first stage, the government should point out that colleges and universities should set up entrepreneurship courses, so that college students can receive theoretical education on entrepreneurship, and provide preferential policies for entrepreneurship training, so that college students can understand the entrepreneurial environment and other knowledge. Through these targeted entrepreneurship training courses, college students can more intuitively understand the entrepreneurship environment and entrepreneurship-related policies and be familiar with various entrepreneurship application procedures.

3.6.2. Accelerating the Promotion of Substantive Preferential Policies and Increasing Publicity Efforts. Government departments should relax the registration conditions for college students' startup companies, simplify the company's registration process, and make it easier for college students to complete a series of processes in the early stage of entrepreneurship. Because college students are not familiar with the relevant registration procedures and processes, the overly complicated process will make many college students give up entrepreneurship, and discourage students' enthusiasm for entrepreneurship.

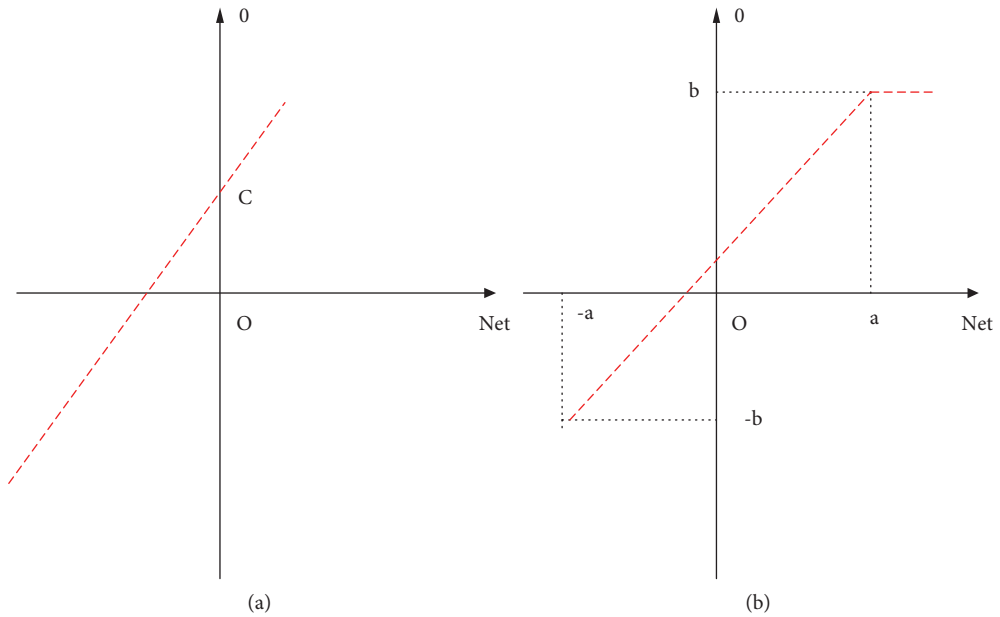

Figure 5: Typical excitation function: (a) linear function; (b) nonlinear function.

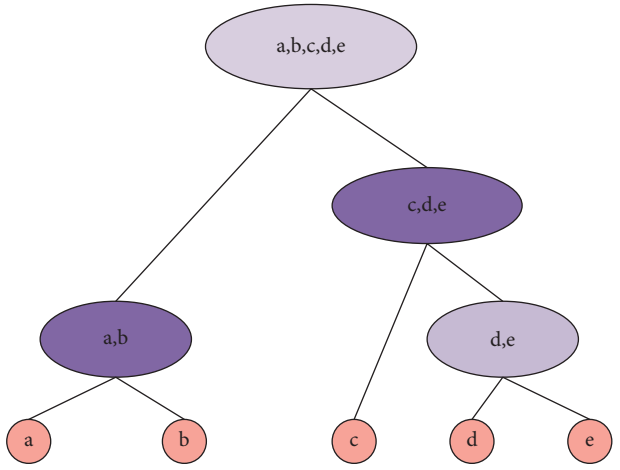

Figure 6: Example of a hierarchical clustering diagram.

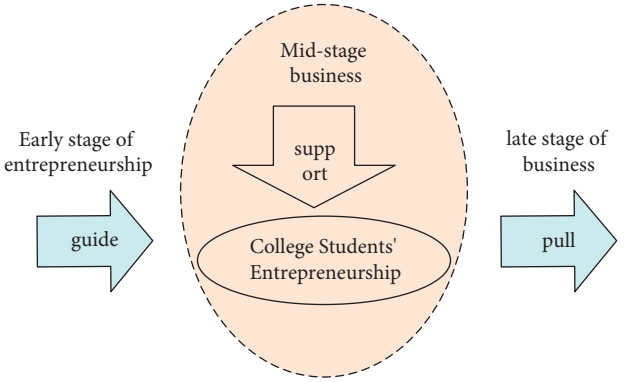

Figure 7: College students' entrepreneurship policy guarantee system.

4. Experiment and Analysis of IEA Evaluation

4.1. Investigation and Analysis of the Characteristics of Innovation and Entrepreneurship in Colleges and Universities. Entrepreneurship education for college students is an important part of improving the comprehensive quality and innovation ability of college students, and it is also a method to promote the transformation of economic development mode to knowledge-based and expand employment. Tables 3 and 4 show the entrepreneurial situation of colleges and universities in various countries.

As shown in Tables 3 and 4, compared with other developed countries, China's innovative education is relatively lagging behind; the average proportion of college students' entrepreneurship is less than 1%, and the success rate is also very low, accounting for only 2% to 3%. Therefore, it is of great theoretical importance to improve the level of

Table 3: Entrepreneurship in universities in countries A–D.

	Entrepreneurship ratio (%)	Success rate (%)
Country A	9.7	19
Country B	7.5	10
Country C	6.2	11
Country D	6.8	17

Table 4: Entrepreneurship in E–G countries and Chinese universities.

	Entrepreneurship ratio (%)	Success rate (%)
Country E	6.9	12
Country F	8.0	15
Country G	5.6	13
China	0.09	3

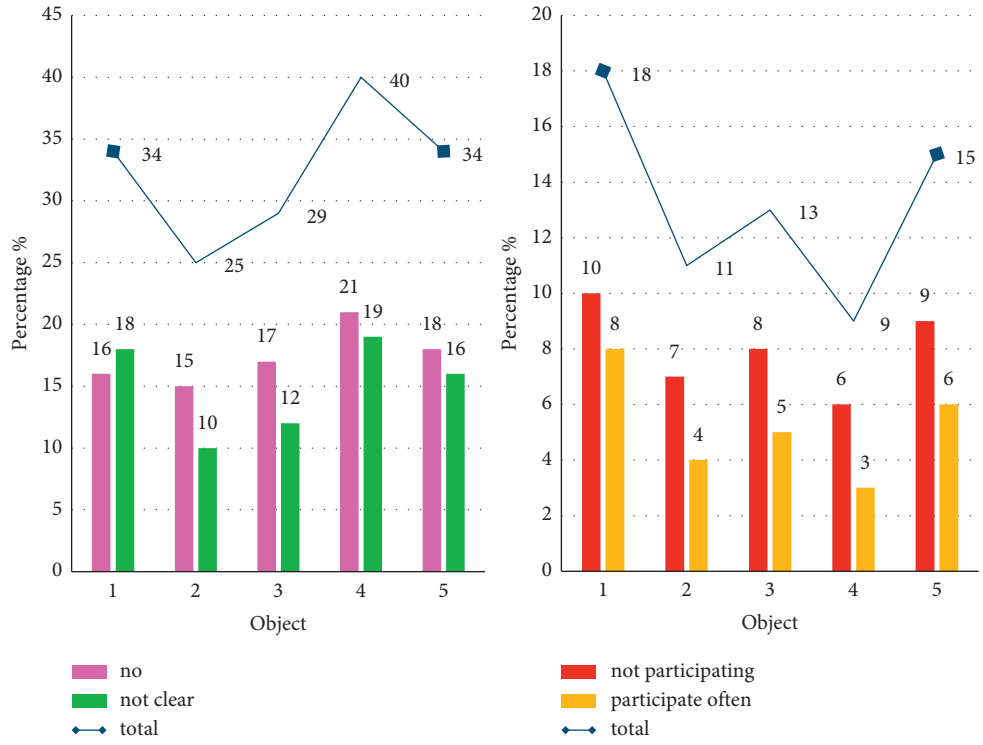

Figure 8: Percentage of participation in entrepreneurial networking events.

education in order to improve the practical value of the level of entrepreneurship education in Chinese universities.

Entrepreneurship exchange activities provide a platform for college students to summarize entrepreneurial experience, exchange it, and discuss how to find employment and start a business in the existing social environment. This paper investigates and analyzes whether students participate in entrepreneurial exchange activities, as shown in Figure 8.

As shown in Figure 8, the survey data shows that only 8% of the students often participate in entrepreneurial exchange activities, which shows that the organization of entrepreneurial exchange activities is not in place, and it cannot become an important channel for students to exchange entrepreneurial information.

Most of the students know about entrepreneurship exchange activities, but they seldom participate. Such activities are not very attractive to college students. Some students are not clear about entrepreneurship exchange activities, and they say that companies do not carry out publicity activities. Some schools do not even have entrepreneurship exchanges, suggesting that there is a need to address educational practices that improve entrepreneurship as an issue in higher education institutions. The characteristics of successful entrepreneurs are shown in Figure 9.

As shown in Figure 9, foreign scholars believe that the reason why entrepreneurs succeed is some unique personalities and characteristics. They investigated the companies that are currently developing rapidly and are in a rising period and summed up some commonalities from the founders of the companies. These commonalities are very important for the development of enterprises, including entrepreneurial tendencies caused by personal factors (family background, educational level, etc.); adaptability, such as interruption, ability to deal with risks, and ability to find logical relationships; and resource acquisition, such as insight, consciousness, and marketing methods and techniques. In contrast, risk-taking, innovative activities, aspirations and visions, leadership skills, and ability to manage a team came second.

4.2. Countermeasures and Suggestions for Improving Students' Entrepreneurial Ability.

(1) A link with the business community must be established. College administrators should actively establish cooperative relations with relevant enterprises to jointly open up a new path for students' entrepreneurship education. The most obvious feature of entrepreneurship education is its strong practicality. If entrepreneurship education is limited to the theoretical level or the campus, it will never bear fruit. The support of the business community will give students practical perceptual cognition and improve their entrepreneurial practice ability.

(2) An entrepreneurship education research center should be established. In order to provide a good organizational foundation for promoting the continuous development of entrepreneurship education, a research center for entrepreneurship education theory and practice can be established to carry out entrepreneurship education-related activities. For example, universities independently set up

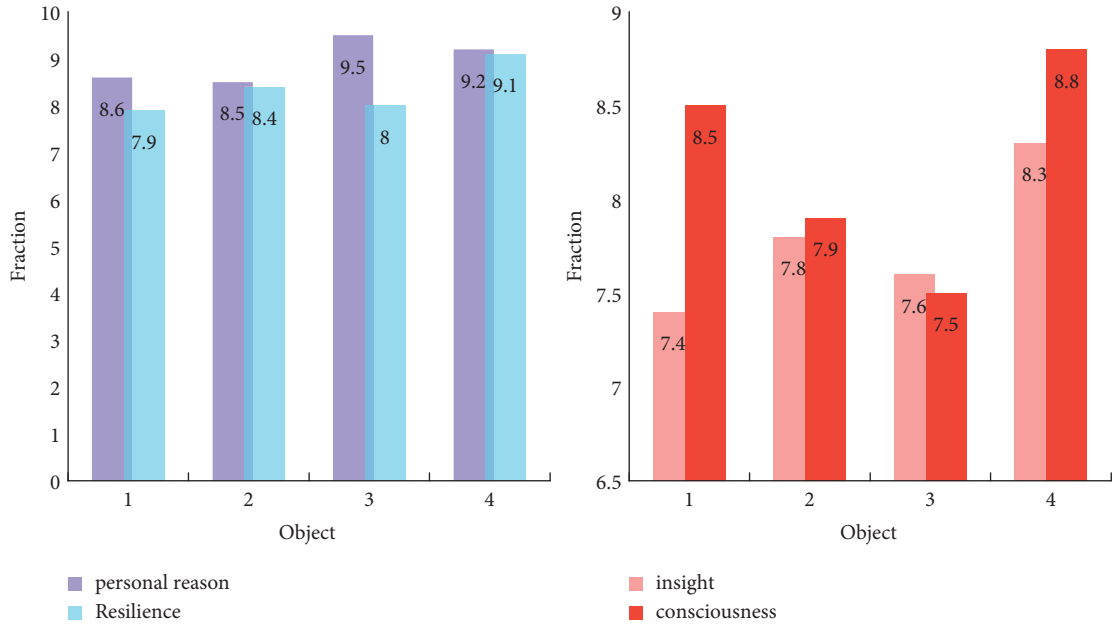

Figure 9: Characteristics of successful entrepreneurs.

innovation and entrepreneurship education guidance centers, which have achieved good results.

(3) The emphasis on entrepreneurship education for small enterprises should be strengthened. Overseas, entrepreneurship education for small- and medium-sized enterprises has received special attention, and it should also be used as a survey and reference in China. Although the development of enterprises cannot be accomplished overnight, with the accumulation of funds and capabilities, enterprises will also grow slowly. For college students who have just stepped into the society, it is impossible to set up large-scale enterprises immediately due to insufficient qualification certificates and funds. On the other hand, the role of SMEs in economic development is becoming more and more obvious. Therefore, focusing on entrepreneurship education in small- and medium-sized enterprises can not only improve the employment situation of college students, but also promote the economic development of society.

5. Conclusion

In the context of the rapid development of modern society, the requirements of major enterprises for talents are also becoming higher and higher. People's requirements for talents are not limited to academic qualifications but also include value personal accomplishment and so on. Therefore, many college students start their own businesses as soon as they graduate. Entrepreneurship alone is not as simple as they thought, and the probability of successful entrepreneurship is also very small. Therefore, it is very important to improve the IEACU. Only by evaluating the IEACU can they accurately understand their own position. Therefore, based on the optimal weight model, this paper proposes a ranking refinement method for the evaluation of IEA in colleges and universities. This paper firstly gives a clear explanation of IEA and shows its importance. The method part shows that the optimal weight model combined with the neural network is more conducive to the accurate evaluation of IEA. In the experimental part, this paper analyzes and investigates the number of graduates and the employment situation of college students in recent years and finds that the number of college students employed in recent years is far lower than the number of graduates, which shows that the employment rate is not high. Among those who choose to innovate and start a business, there are very few successful people, which shows that they do not have strong entrepreneurial ability, which also proves that they do not understand their own position. The experiment finally puts forward some suggestions on how to improve the ability of innovation and entrepreneurship, hoping to provide some methods for college students' innovation and entrepreneurship.

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 declare that there are no potential conflicts of interest regarding the publication of this paper.

Authors' Contributions

All authors have seen the manuscript and approved its submission to the journal.

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