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Research Article

Design of Performance Evaluation Algorithm for Diversified Talent Training in Modern Universities Considering Innovative Thinking

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The global economic trends and the winds of technological change have elevated the status of integration between industry and education for innovation and entrepreneurship. Technologies and the Internet have significantly changed all aspects of our lives. College education has improved as a result of the enormous benefits of the Internet and big data. Reforms and development have still a lot of application space in the training and practice of educational technology talents of a college education. To improve the performance evaluation capabilities of educational technology experts in Chinese universities through education and "Internet +" has become a challenge that has to be addressed. This article is under such a formal background to have a detailed study about the current college education in China. In this study, an analysis is presented for the performance evaluation of the education technology talent training in modern universities based on big data technology. A fuzzy evaluation algorithm based on composite elements is proposed to evaluate the multielement and multilevel college education system. Experimental results illustrate the feasibility and effectiveness of the proposed algorithm. The proposed method has the potential to solve the complicated performance evaluation problem in colleges.

1. Introduction

Talent training is the essential function of universities, and undergraduate education is the root and foundation of universities. Education, teaching, and scientific research are three inseparable parts of universities. Among them, teaching student is the main task of educating people, and scientific research is an effective source to promote the training quality of innovative talents [1]. Recently, the pressure on professional teaching evaluation has increased, and it has become a difficult problem to find a way to implement the coordination and unity of teaching and scientific research in the workplace and have them interact. Since modern universities absorb an increasing number of young teachers as teaching staff, young instructors are not only the major force of college teaching but also the new force of scientific research [2]. Neglecting any aspect of teaching performance evaluation will cause the deformity of college development. However, most modern universities have the problem of emphasizing scientific research and neglecting teaching performance evaluation in practice. Therefore, it is urgent to correctly balance the important relationship between teaching and scientific research, grasp the balance between teaching tasks and scientific research tasks, and promote their complementary advantages and coordinated development [3].

In colleges and universities, teaching quality and teaching quality evaluation systems must be synchronized; the current situation necessitates the construction of a teaching quality evaluation system; its positioning determines for teachers that teaching quality evaluation cannot be done solely through teaching evaluation theory; more attention must be paid to student cultivation. They can also address the needs of real-world social development. At present, young teachers under the age of 45 account for more than 75% of the college. Under the discipline background with significant scientific research advantages, how to effectively stimulate the teaching enthusiasm of young teachers and fully implement the "four returns" education model has already been the important key entry point for the coordinated development of innovative discipline construction and talent training model, to provide guarantee for training socialist builders and successors with all-round development of morality, intelligence, physique, beauty, and labor [4]. Teaching evaluations can serve a variety of goals, including gathering feedback for teaching improvement, establishing a portfolio for job applications, and gathering data for personnel decisions such as reappointment, promotion, and tenure. Jonsdottir [5] investigated the state of innovation in education in colleges and concluded that innovation and creative thinking, as necessary tools for improving students' abilities. The impact of education projects on innovation was investigated by Cruz et al. [6]. Students who obtain management and entrepreneurship education are thought to be more innovative than the general public, and those who have received professional innovation and entrepreneurship education are more likely to succeed in their careers. Herstatt et al. [7] believed that evaluating innovation and entrepreneurship education is an important aspect of evaluating education, and they use the global innovation management plan to assess graduate students' entrepreneurship education. Students' conduct, innovation intention, knowledge acquisition, and skill return are among the evaluation indices, which comprise both process and result evaluation. Zhang et al. [8] proposed a novel methodology based on improved genetic algorithms and neural networks for evaluating the quality of classroom teaching in colleges and institutions. The primary idea is to employ adaptive mutation genetic algorithms to refine the BP neural network's initial weights and thresholds. By enhancing the neural network's prediction accuracy and convergence speed, the findings of the teaching quality evaluation were enhanced, resulting in a more practical scheme for evaluating college and university teaching quality. Wei et al. [9] proposed a prediction model based on the kernel extreme learning machine (KELM) optimized by the improved Harris hawk's optimizer (HHO). To obtain better parameters and feature subsets, the Gaussian barebone (GB) strategy is introduced to improve the HHO algorithm, so as to strengthen the optimization ability for tuning parameters of KELM and identifying the compact feature subsets. The author in [10] proposed an efficient evaluation model for Sino foreign cooperative education projects, which can offer a reasonable reference for universities to deepen reform and innovation of education and further enhance the level of international education. The core engine of the model was the kernel extreme learning machine (KELM) model integrated with orthogonal learning (OL) strategy optimization. Lin et al. [11] developed a modified fuzzy k-nearest neighbor (FKNN) framework to predict the college students' intentions for master's programs in advance, that is, students choose to attend the postgraduate exam or find a job after graduation. The model combined the random forest (RF), FKNN, and a new chaos-enhanced sine-cosine-inspired algorithm (CESCA). Results showed that the proposed model achieved the best classification accuracy.

In this study, an analysis of the performance evaluation of education technology talent training in modern institutions using big data technology is offered. To evaluate the multielement and multilevel college education system, a fuzzy evaluation technique based on composite elements is developed. The suggested algorithm's practicality and effectiveness are demonstrated by experimental results. The proposed method can handle the complex problem of college performance evaluation.

The rest of the manuscript is organized as follows. Section 2 is about material and methods. Section 3 illustrates the evaluation system based on an improved fuzzy algorithm. In Section 4, the results are discussed, and Section 5 presents the conclusion.

2. Data and Methods

2.1. Current Situation and Development Confusion of Undergraduate Teaching in Modern Universities. Undergraduate education at colleges and universities has become the cornerstone of the nurturing of inventive skills in recent years, and it is becoming increasingly crucial in the process of building morality and cultivating talents. However, in domestic modern colleges, the phenomenon of "emphasizing scientific research while neglecting to teach" is frequent, particularly in professional title evaluation, performance evaluation, and talent title evaluation [12]. The formulation and implementation of relevant policies are still guided by scientific research achievements, ignoring the acquisition of teaching achievements, and it is hard to measure the hardness of the work in teaching. At the same time, the direct benefits brought by undergraduate teaching are small; the results are condensed for a long period; the teaching effectiveness is slow; the scientific research pressure on young teachers is high; and the weight of teaching performance in the professional title evaluation is low, which leads to the low enthusiasm of young teachers for teaching. In the professional title evaluation, most college teachers meet the teaching requirements, which reduces the quality of education and teaching [13]. It has caused the bad consequences for "navy" and "watercourse," which has seriously affected the training quality of students. Furthermore, students' lack of professional cognition and imprecise university career planning and objectives cause major issues in the development of study styles and talent.

2.2. Analysis of Educational Technology Talent Training on the Current Situation in Colleges Based on Big Data Technology. Big data is a collection of organized, semistructured, and unstructured data that may be mined for information and used in machine learning, predictive modeling, and other advanced analytics initiatives. We are now in the era of big data. According to CNIC's 34th statistical report on the development of China's Internet, as of June 2014 [14], China has more than 600 million users of the Internet, and China's Internet penetration rate is becoming saturated. Informatization undoubtedly made our daily life becoming more and more convenient; it also provides a theoretical data basis for the performance evaluation of teaching management and talent training mode in modern universities. Computer technology is pervasively penetrating modern university teaching management, vastly increasing teaching quality through the application and practice of digital management. On the one hand, it is entirely based on information technology; on the other hand, it remains a powerful force for big data. It is now obvious that many modern colleges are pursuing management innovation and comprehensive big data management through the use of Internet technologies. Due to the complexity of teaching management in modern universities, both performance evaluation and information transmission are always inseparable from the support of big data [15]. In particular, the work information transmission in the universities should have the property of timely and dynamic; to carry out performance evaluation for the cultivation of educational technology talents in modern universities and strengthen the effective connection between students, teachers, and managers, it not only can improve the communication ability inside and outside the school but also can reasonably allocate relevant resources and improve management efficiency [16]. Therefore, whether from the technical level or the theoretical and practical level, big data has become the pillar of our life, especially when we construct information about modern universities, the reorganization of resources, and the training of educational technology talents.

2.3. Performance Evaluation. The types of performance evaluation include benefit index, cost index, middle index, and interval index [17]. Benefit indicators require that the larger the index value, the better, such as output value and interest rate value. The smaller the value of cost indicators, the better, such as energy consumption, expenditure, and so on. The middle type index requires that the value should be as middle as possible, and the interval type index requires that the value should be within a certain interval value. When calculating the performance evaluation of different types of indicators, type conversion is required. In performance evaluation, cost indicators, intermediate indicators, and interval indicators are converted into benefit indicators. The method of converting cost-based indicators into benefit-based indicators can be formulated as follows:

$$x^* = \begin{cases} 2(x - \mathrm{m}), & \text{if } m \le x \le \dfrac{M + \mathrm{m}}{2}, \\ 2(M - x), & \text{if } \dfrac{M + m}{2} \le x \le \mathrm{M}, \end{cases} \quad (1)$$

where mm is the lower bound of x. The method of converting interval-based indicators into benefit-based indicators can be formulated as follows:

$$x^* = \begin{cases} 1.0 - \dfrac{q_1 - x}{\max\{q_1 - m, M - q_2\}}, & x < q_1, \\ 1.0, x \in [q_1, q_2] \\ 1.0 - \dfrac{x - q_2}{\max\{q_1 - \mathrm{m}, \mathrm{M} - q_2\}}, & x > q_2, \end{cases} \quad (2)$$

where $[q_1, q_2]$ is the optimal interval of indicator x.

2.4. Big Data Technology-Based Performance Evaluation Analysis of Educational Technology Talent Training in Universities. The fragmentation of data fills the teaching environment of universities in the digital era, as well as points out the direction for university teaching decision-making. However, in a big data environment, how to mine the key data needed for talent training and manage innovation in modern universities using high-tech information data has become the emphasis and difficulty of information technology application. Performance evaluation and management analysis for teaching work must be carried out. Cloud computing is the foundation for the education and training of educational technology talents in modern universities. How to break through the traditional talent training model and give full play to the important role of big data has become the focus of research. Cloud computing system is a data information system composed of virtualized network information storage, distributed network information terminals, and integrated information technology [18]. It comprehensively evaluates and analyzes the huge talent training data model and parameter indicators in modern universities and provides a stable and low-cost information integrated network teaching management system for performance evaluation.

Modern universities' resource information, as well as related teaching management information, can be uploaded to the cloud platform via a virtual server, allowing us to share data resources not only within, but also outside of the school, allowing us to provide intellectual support for the innovative cultivation of talents. In addition, the high-quality resources of modern universities and society-oriented mobile terminals can promote the exchange of talents through anytime and anywhere information reception and transmission [19]. There will be an urgent need to obtain the corresponding big data through the major resource information data platforms in the university, such as the analysis of scientific research, curriculum model and students, and the employment situation in modern universities, which can be excavated and utilized through big data platform. From data extraction to data processing and analysis, to data processing and decision-making, relevant technical support is required. As a result, explicit and valuable digital performance evaluation information can be formed to improve the ability to deal with major affairs according to the actual development of modern universities and carry out business supervision, dynamic analysis, evaluation, decision analysis, and so on.

First of all, the framework of university educational technology talent training performance evaluation system based on big data technology should include information infrastructure construction, information application analysis, information resource utilization, and sharing, as well as the management of information organization structure, However, information construction should always evaluate and optimize the corresponding talent training mode through big data analysis to allocate the rational use of resources. Of course, the construction of informatization should always be consistent with the development performance of educational technology talent training in modern universities [20]. The corresponding performance evaluation indicators should be reflected and formulated through the intelligent training of talents, the innovation of scientific research strength in modern universities, and the research on comprehensive strength in the process of talent training in modern universities, as shown in Figure 1.

Secondly, according to the above analysis and process structure design, the indicators of the educational technology talent training performance evaluation system in modern universities are split into three different important modules including talent innovation training informatization performance evaluation, university scientific research ability informatization application ability performance evaluation, and university comprehensive service informatization ability evaluation. The specific framework flow is shown in Figure 2.

Talent training is not just the focus of teaching work in modern universities but also the function of modern universities. In the age of big data, modern universities should integrate the development trend of information background, promote the effectiveness and modernization of teaching work in modern universities through a variety of technical means and ways, change the traditional teaching management practice mode through computers and data management systems, and implement the effective disclosure and sharing of data resources so that students can really have the opportunity to obtain more high-quality teaching resources, obtain high-quality teaching information through efficient learning and communication, truly enable each student to have a broad learning vision, give full power to free imagination ability and creativity ability, promote the scientific research ability's construction, and adopt an educational model of exploration, innovation, and change. Enhance students' external contact ability and social practice ability, comprehensively cultivate scientific research talents and comprehensive people needed by the society, and strengthen the use of multimedia assisted teaching, virtual reality teaching, network teaching, computer simulation teaching, and other modern technical teaching means to improve students' examination system and the efficiency and comprehensive service ability of teachers' lesson preparation system and homework management system.

In addition, the high quality of training of educational technology talents in modern universities is inseparable from strong scientific research. Therefore, it is an urgent task to introduce high-quality scientific study resources, comprehensively build an open network management system, make scientific researchers and experimental instruments in an open network sharing platform, strengthen the dynamic research of teaching management, and formulate a variety of objectives and evaluation indicators for performance evaluation [21]. We should coordinate the support of scientific research and give enough attention to the great function of big data by the mode of online management and offline practice so that multiple different teaching application indicators can truly and scientifically reflect the performance evaluation level of college educational technology talent training according to the big data technology. Figure 3 depicts the university's information management performance.

From the above analysis, it can be seen that this study mainly demonstrates in detail the evaluation of educational technology talent training performance under the background of technology of big data support in modern universities from different aspects with focuses and visually presents different performance evaluation indicators through different network system diagrams, However, it can be continuously adjusted at the macro level and micro theoretical level according to the talent training mode and actual needs of modern universities. Many indicators in this study are data-oriented, quantified according to the teaching management under the current big data environment, and comprehensively described in combination with the application of information management performance evaluation, Therefore, for the practical research of the theoretical model, AHP analysis and research can be carried out through the commonly used fuzzy evaluation comprehensive method [22, 23]. After the continuous demonstration, the specific parameters of the performance evaluation model of educational technology talent training in modern universities based on big data technology can be quantified, which is limited to the practicality of theory and different university development models.

3. Design of Performance Evaluation System Based on Improved Fuzzy Algorithm

3.1. Fuzzy Theory. In this study, a fuzzy evaluation algorithm based on composite elements is proposed to evaluate the multielement and multilevel college education system. The fuzzy theory can be described as follows:

Assume that the fuzzy form background (i.e., the database to be mined) can be expressed as follows:

$$S = \{U, A, D, V | f\}. \quad (3)$$

As the universe of fuzzy formal background S, U has the following mapping relationship $f\colon U \times (C \cup D) \longrightarrow V$ with

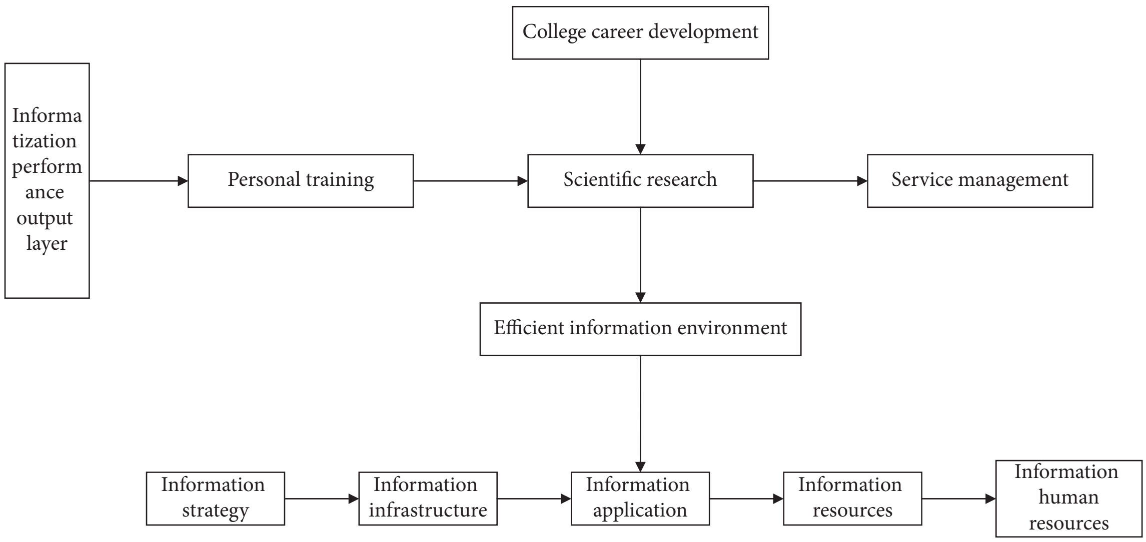

Figure 1: The network system of university informatization supporting organization.

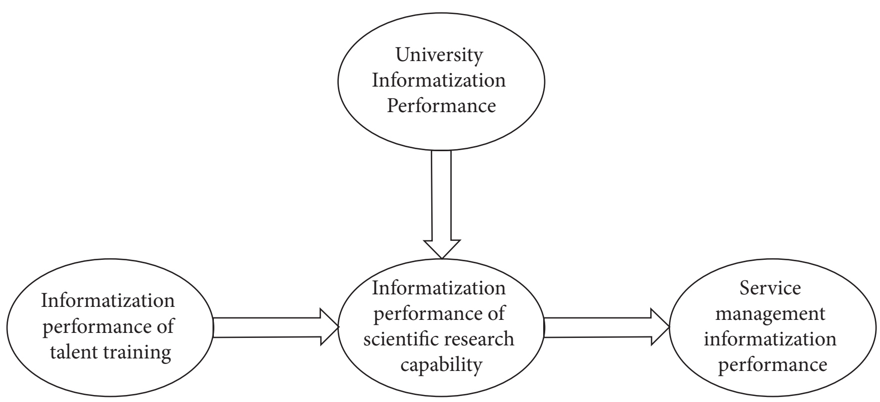

Figure 2: The framework talent training performance evaluation.

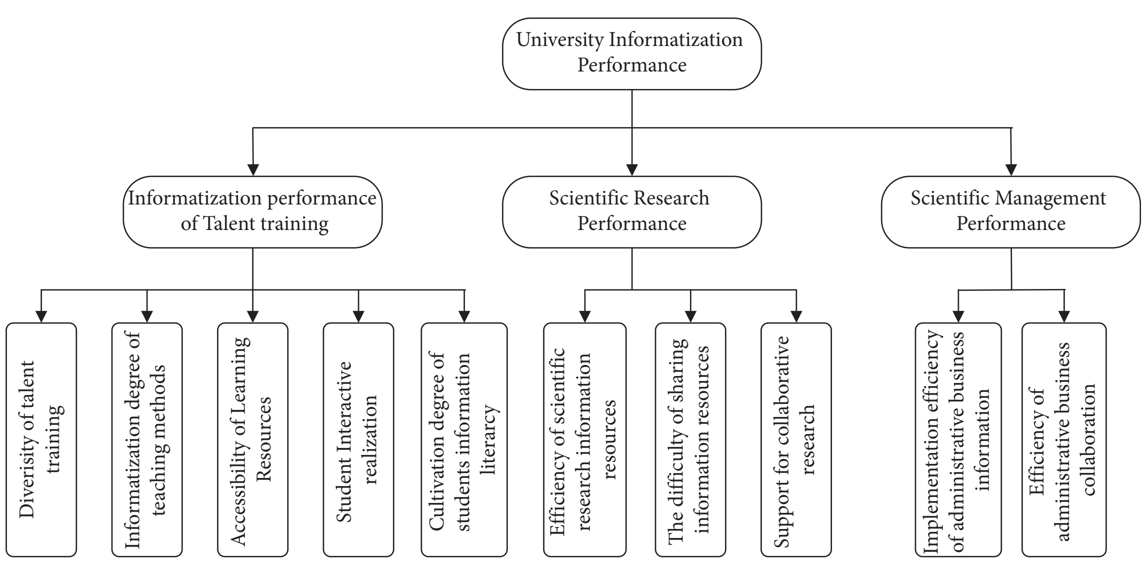

Figure 3: University information management performance.

attribute set A, relationship set $D(D \neq \varnothing)$, and restriction set, V. If $P \subseteq C \cup D$, then

$$\mathrm{IND}(P) = \left\{(x, y) \in U^2 | f(x, a) = f(y, a), \forall a \in P\right\}. \tag{4}$$

Suppose that the upper and lower approximations have the following general forms:

$$\begin{aligned} P_*(X) &= \left\{x \in U | [x]_p \subseteq X\right\}, \\ P^*(X) &= \left\{x \in U | [x]_p \cap X \neq \varnothing\right\}. \end{aligned} \tag{5}$$

Then, the relationship set mentioned above can be split as follows:

$$\mathrm{POS}_P(D) = \cup_{X \in (U/D)} P_*(X). \tag{6}$$

Here, we can say that P Phas a fuzzy classification ability relative to D, Dand it satisfies the following relationship:

$$\begin{cases} \mathrm{POS}_R(D) = \mathrm{POS}_C(D), \\ \mathrm{POS}_{R-\{a\}}(D) \neq \mathrm{POS}_C(D), \ \forall a \in R. \end{cases} \tag{7}$$

For specific element fuzzy set $A \subseteq C \cup D$ and specific element fuzzy set $B \subseteq C \cup D$, they can be divided into (i.e., classified as): $\{X_1, X_2, \ldots, X_n\}$ and $\{Y_1, Y_2, \ldots, Y_m\}$, and meet the following conditions:

$$\begin{aligned} \left[\frac{U}{A}: p\right] &= \begin{bmatrix} X_1 & \ldots & X_n \\ p(X_1) & \ldots & P(X_n) \end{bmatrix}, \\ \left[\frac{U}{B}: p\right] &= \begin{bmatrix} Y_1 & \ldots & Y_m \\ p(Y_1) & \ldots & P(Y_m) \end{bmatrix}, \end{aligned} \tag{8}$$

where $p(X_i) = |X_i|/|U|$, $i = 1, \ldots, n$, and $p(Y_j) = |Y_j|/|U|$, $j = 1, \ldots, m$. For the fuzzy formal background attribute set A, its information entropy can be recorded as follows:

$$H(A) = -\sum_{i=1}^{n} p\left(X_{(i)} \log(pX_i)\right). \tag{9}$$

The conditional information entropy $H(B/A)$ of attribute set B relative to attribute set A can be defined as follows:

$$H\left(\frac{B}{A}\right) = -\sum_{i=1}^{n} p(X_i) \sum_{j=1}^{m} p\left(\frac{Y_j}{X_i}\right) \log\left(p\left(\frac{Y_j}{X_i}\right)\right), \tag{10}$$

where $p(Y_j/X_i) = |Y_j \cup X_i|/|X_i|$, $i = 1, \ldots, n$; $j = 1, \ldots, m$.

For example, if we randomly select fuzzy comprehensive evaluation attributes $a \in C$ and $b \in C$, the fuzzy comprehensive evaluation algorithm of specific elements defines its relationship as follows:

$$k(\mathrm{a}, \mathrm{b}) = H\left(\frac{\{a\}}{\{b\}}\right)\left(1 - H\left(\frac{D}{\{a\}}\right)\right), \tag{11}$$

where k is the $k(k = 1, 2, \ldots, b)$ method for $H(\{a\}/\{b\})$; the smaller its value, the smaller b ‘s information support for a, and vice versa. Under the condition of $k(a, b) \neq k(b, a)$, the basic fuzzy evaluation relationship of specific element fuzzy comprehensive evaluation algorithm is as follows:

$$k'(\mathrm{a}, \mathrm{B}) = \sum_{b \in B} k(a, b). \tag{12}$$

3.2. Algorithm Flow. Based on the above definition, we can describe the bottom-up algorithm as follows: C_0 stands for the core of the decision table and B represents the reduced attribute set. The fuzzy comprehensive evaluation algorithm makes $B = C_0$ gather the attributes with the greatest complementarity relative to B into B for traversal until it is the same as the attribute set of condition C, that is, $H(D/B) = H(D/C)$, and B at this time is the minimum relative reduction. The fuzzy process is shown in Algorithm 1.

Most of the existing fuzzy clustering algorithms are based on the specific element fuzzy comprehensive evaluation algorithm. The main problem of this kind of fuzzy performance evaluation algorithm is that the employee performance evaluation is a multielement and multilevel evaluation system, and the specific element fuzzy comprehensive evaluation algorithm lacks the overall research on the performance evaluation. Moreover, the algorithm lacks hierarchy, so the above two algorithms are not suitable for data mining of complex employee performance evaluation system.

4. The Proposed Method

4.1. The Design of the Algorithm. To determine the evaluation factor set, we assume that there are n evaluation factors in the evaluation of objects as follows:

$$U = \{u_1, u_2, \ldots, u_n\}, \tag{13}$$

where $u_i (i = 1, \ldots, m)$ stands for the i-th factor that influence the evaluation.

Evaluation Result Set. Assuming that there are m grades of evaluation results,

$$V = \{v_1, v_2, \ldots, v_m\}, \tag{14}$$

where $v_j (j = 1, 2, \ldots, m)$ represents level j.

Determining Factor Weights. Usually, the result is consistent with the actual situation. The weight set of primary factors relative to the evaluation object is

$$\begin{aligned} &W = \{w_1, w_2, \ldots, w_i, \ldots, w_n\}, \\ &i = 1, 2, \ldots, n, \ 0 \le w_i \le 1, \ \sum_{i=1}^{n} w_i = 1, \end{aligned} \tag{15}$$

where the weight set of two-level factors relative to one-level factors is

(1) Input decision tables $S = (U, C, D, V, f)$;
(2) Output relative reduction B;
(3) Step 1: Compute $H(D/(\{a\_i\}))$ and $H(D/C)$.
(4) Step 2: Calculate the core attribute set C_0 of the conditional attribute set relative to the decision attribute set and the candidate attribute set $A = C–C\_0$.
(5) Step 3: Calculate the complementary measure of each attribute pair.
(6) Step 4: If $|C\_O| \neq 0$, then set $B = C\_0$. Otherwise, set B to be empty and choose the attribute that is the minimum conditional entropy $H\ (D/(\{a\_i\}))$ into set B. If $|B| \neq 0$, go to step 6.
(7) Step 5: Select an attribute A with the largest compliment from $K'\ (a, B)$ and delete it from A.
(8) Compute conditional entropy $H\ (D/(B \cup \{a\}))$.
(9) If $H\ (D/(B \cup \{a\})) \neq H\ (D/B)$, then add a into B; otherwise, go to step 5.
(10) Step 6: Calculate conditional entropy $H\ (D/B)$. If $H\ (D/B) \neq H\ (D/C)$, then go to step 5; otherwise, stop the program and return the current B.

Algorithm 1: The fuzzy process.

$$
\begin{aligned}
W_1 &= \{w_1^1, w_1^2, \ldots, w_1^n\}, \quad \sum_{i=1}^{n} w_1^i = 1, \\
W_2 &= \{w_2^1, w_2^2, \ldots, w_2^n\}, \quad \sum_{i=1}^{n} w_2^i = 1, \\
W_3 &= \{w_3^1, w_3^2, \ldots, w_3^n\}, \quad \sum_{i=1}^{n} w_3^i = 1.
\end{aligned} \tag{16}
$$

While designing the system of fuzzy performance evaluation, the weights that exist in the evaluation index are the main core data. The weight of the evaluation index reflects the evaluation content of employee performance under different factors, evaluates according to different evaluation methods, and then makes a comprehensive decision, to conduct performance evaluation on employees more objectively. Each weight index in this process directly affects the comprehensive evaluation results of employees and is also very important to the employees' evaluation and decision-making. To a certain extent, the weight is assigned according to the manager's experience, which has a certain subjectivity, but through the subjective comprehensive evaluation of different evaluators, it can objectively reflect the actual situation.

The first mock exam is to establish a weighted specific element evaluation matrix. It is essential to first determine the membership grade of the individual factor for the employee performance evaluation. The factor u_i result is a fuzzy subset r_i. If the evaluation team has k members, each member will evaluate each factor to a grade, if the evaluation factor u_i level is

$$
R_i = \left(\frac{k_{i1}}{k}, \ldots, \frac{k_{\mathrm{im}}}{k}\right) = \left(r_{i1}, r_{i2}, \ldots, r_{\mathrm{im}}\right). \tag{17}
$$

When the members of the evaluation team are different, an evaluation team is composed of k people. The evaluation members are divided into P categories according to different types (leaders, colleagues, customers, etc.), of which the number of people in the $t$the t category is k; then

$$
k = k_1 + k_2 + \cdots + k_p. \tag{18}
$$

And the weighs are

$$
a = a_1 + a_2 + \cdots + a_p. \tag{19}
$$

If the evaluation factor is u_i, the various types of people with grade v_i are

$$
k = k_{ij1} + k_{ij2} + \cdots + k_{\mathrm{ijp}}. \tag{20}
$$

Then we can obtain

$$
R_i = \left\{\frac{\sum_{t=1}^{p} a_t k_{\mathrm{ijt}}}{\sum_{t=1}^{p} a_t k_t}, \ldots, \frac{\sum_{t=1}^{p} a_t k_{\mathrm{imt}}}{\sum_{t=1}^{p} a_t k_t}\right\} = \left(r_{\mathrm{i}1}, r_{\mathrm{i}2}, \ldots, r\_\mathrm{im}\right). \tag{21}
$$

Assuming that each factor can be represented by fuzzy quantity R_i, the evaluation results of n factors represented by fuzzy matrix are as follows:

$$
R = \left(R_1, R_2, \ldots, R_n\right) = \begin{vmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ r_{n1} & r_{n2} & \cdots & r_{\mathrm{nm}} \end{vmatrix}, \tag{22}
$$

where $i = 1, 2, \ldots, n;\ j = 1, 2, \ldots, m$.

Since we want to determine the performance evaluation results of the proposed algorithm, we need to follow the following steps. Therefore, the comprehensive performance evaluation formula based on composite elements is as follows:

$$
\begin{aligned}
B = W \cdot R &= \left(w_1, w_2, \ldots, w_n\right) \cdot \begin{vmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ r_{n1} & r_{n2} & \cdots & r_{m} \end{vmatrix} \\
&= \left(b_1, b_2, \ldots, b_m\right),
\end{aligned} \tag{23}
$$

where $b_j = V_{i=1}^{n}\left(w_i \wedge r_{\mathrm{ij}}\right),\ j = 1, 2, \ldots, m$, B is the comprehensive evaluation result, and b_j indicates the subordinate degree of the evaluation object to the grade in the evaluation set. If there are two same membership degrees in the evaluation results, the evaluation lacks objectivity. Therefore, the designed performance evaluation system uses the

Table 1: Fund performance evaluation index and weight of *X* scientific research project.

Index system	Primary indicators and weights	Secondary indicators and weights
Budgeting indicators	The rationality of budget preparation	Scientific research business expenses Experimental material cost Test, calculation, and analysis fee Instrument and equipment cost International cooperation fee Labor cost Indirect costs
Budget performance indicators	Budget implementation status	Authenticity of expenditure Rationality of expenditure Budget adjustment Total expenditure
Acceptance evaluation index	Budget and final accounts	Details of expenditure Fund utilization efficiency The benefit of fund use Asset acceptance
Tracking evaluation index	Budget balance	Use of budget balance funds

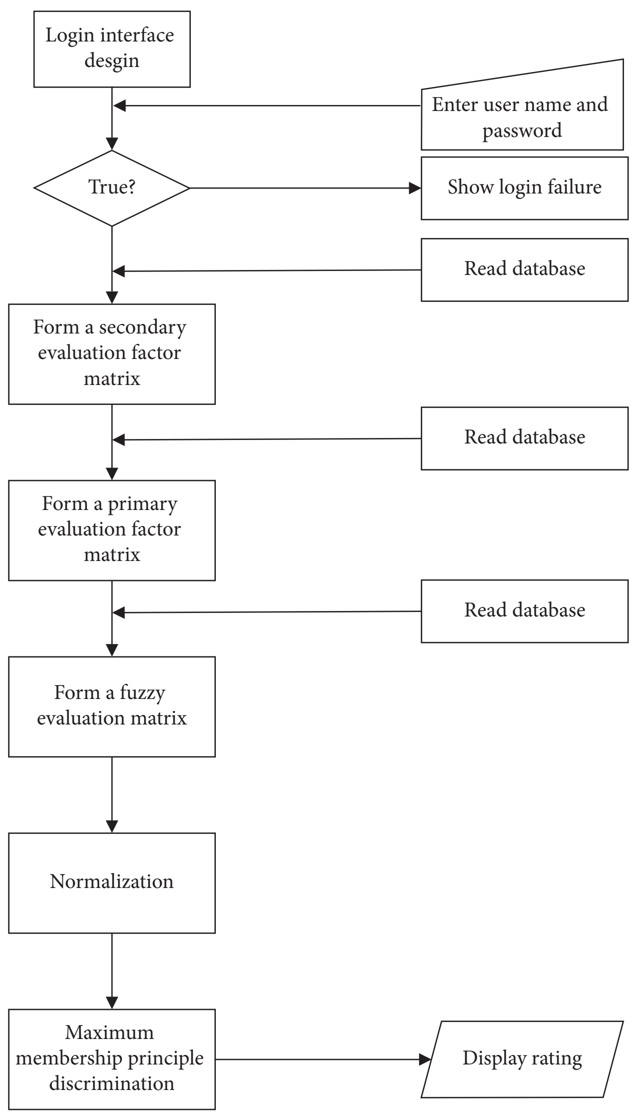

Figure 4: Programming flow chart.

weighted average algorithm to solve this problem. The specific design is as follows:

$$B = (b_1, b_2, \ldots, b_m). \quad (24)$$

The evaluation result set can be normalized to $B = (j_1, j_2, \ldots, j_m)$, where $j_i = (b_i / \sum_{j=1}^{m} b_j)$, $i = 1, 2, \ldots, m$. And the evaluation results is

$$V = \sum_{i=1}^{m} j_i v_i. \quad (25)$$

For example, according to the employee's performance evaluation survey, 100–85 points are excellent; 84–70 points are good; 69–60 points are medium; and less than 60 points are poor. We set the assigned matrix as R; then

$$R = \begin{bmatrix} [85, 100] \\ [70, 84] \\ [60, 69] \\ [0, 59] \end{bmatrix}, \quad \text{Where } R \text{ is integer.} \quad (26)$$

Through the improved fuzzy algorithm performance evaluation system, the comprehensive evaluation score of each employee of the company can be obtained by using a simple matrix multiplication formula. This score can objectively reflect the real situation of employee performance. Then, according to the four grades of excellent, good, medium, and poor, the full score of 100 is divided into 100–85 is excellent; 84–70 is good; 69–60 points are medium; and less than 60 points are poor, which can objectively measure the performance appraisal results of employees, to facilitate the enterprise to better manage the personnel of employees.

4.2. Program Implementation and Example. Although the idea of a fuzzy evaluation algorithm is simple, the computation method is complicated. The new method, in particular, applies the computation from the lowest to the greatest level. The number of indicators and levels determines how long each evaluation takes to calculate, and the calculation complexity has been considerably reduced. If manual calculation is time-consuming, laborious, and inefficient, it occupies effective financial human resources, and the accuracy of calculation results is also affected by financial staff. Editing the corresponding program according to the algorithm can improve the calculation efficiency; meanwhile, it can also promote the accuracy of the calculation results. Based on the improved fuzzy evaluation algorithm, visual Basic6 0 is a programming tool and uses the ACCs database in the office for data management.

We employed the performance evaluation of X scientific research project funds in a university as an example, and the program design process of the improved fuzzy comprehensive evaluation algorithm is analyzed. Suppose that there are 4 first-level indicators for the funding performance evaluation of X scientific research project and a total of 16 second-level indicators; there are a total of 5 personnel participating during the entire procedure of evaluation. The evaluation results affect the weight coefficients. The results are shown in Table 1.

The evaluation results are divided into four grades: excellent (90~100 points), good (76~89 points), qualified (60~75 points), and unqualified (<60 points): the weight coefficient corresponding to each index can be preset by the evaluation expert group according to the category of the project.

According to the algorithm steps of the improved fuzzy evaluation model and the grade of the evaluation index, the flow chart of the fuzzy evaluation executable program is shown in Figure 4.

5. Conclusion

Talent training is an important function of universities, and undergraduate education is the basis and foundation of universities. Education, teaching, and scientific research are two inseparable parts of universities. The training performance evaluation and analysis of educational technology talents in modern universities need to be continuously promoted according to the results of practice. In the age of continuous informatization and development, due to the great changes in science and technology and the big data environment, analyzing data for practical reasons is getting more and more difficult. In this study, we analyzed the training model of educational technology talents in modern universities with the help of big data from different angles and the framework of performance evaluation. A fuzzy evaluation algorithm based on composite elements is proposed. Experimental results illustrate the feasibility and effectiveness of the proposed algorithm. The proposed method is helpful to avoid information ignorance in modern universities and builds a solid platform for the transformation of modern education in Chinese universities. The algorithm is time expensively. Future work is required to reduce the computation time of the calculation method, and the method should be extended to incomplete and inconsistent systems.

Data Availability

The 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 conflicts of interest.

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