Evaluation of The Effect of Ideological and Political Education in Colleges and Universities Based on Fuzzy Comprehensive Evaluation Model

Xiang Gao[1, *], Jie Hu[2], Chuan Tian[3]

Jiangxi College of Applied Technology, Ganzhou, Jiangxi, 341000, China
[1]**Corresponding author's e-mail: qpp569@163.com*
[2]*asb0414@163.com*
[3]*jjjhu546@163.com*

Abstract:

The so-called fuzzy comprehensive evaluation refers to the fundamental method of engineering fuzzy systems, which is widely used. For example, it plays a very important role in quality control, performance evaluation, weather forecast, expert scoring system, medical diagnosis, economic management, psychological measurement and other fields. Fuzzy comprehensive evaluation has the following three links: determine the fuzzy relationship matrix, determine the weight, and select the operator. Gradually, with the rapid development of fuzzy comprehensive evaluation, the above links have been further improved in the continuous practical application. For example, the weight is corrected by the method of entropy, and the descending semi-trapezoid is replaced by changing the membership function to determine the fuzzy relation matrix. In terms of operators, power operators and nonlinear operators have also appeared. Through the research and analysis of a large number of relevant materials, this paper has a full understanding and grasp of the development information of fuzzy comprehensive evaluation. And carried out a very detailed overview and summary, and further improved the integrity and diversity of the fuzzy comprehensive evaluation method.

Keywords: *fuzzy comprehensive evaluation method; weight; fuzzy relationship matrix; prominent influence factor*

1 INTRODUCTION

With the rapid development and progress of science and technology, the fuzzy comprehensive evaluation method has also been greatly improved and improved in recent years. According to many relevant literatures, it can be found that the models are constantly being improved and improved: a disturbance fuzzy comprehensive evaluation model, a nonlinear fuzzy comprehensive evaluation model, and a fuzzy-matter-element comprehensive evaluation model [1].

For example, the following models play a role in perfecting and improving the weight determination method: the optimal transfer matrix is improved by the AHP method to calculate the weight, the revised cluster weight method is used to calculate the weight, and the relative distance method is used to calculate the weight. For example, the following models play a role of perfection and improvement in judging indicators: with the help of level eigenvalues as new indicators for judgment, it plays a pivotal role in the application of fuzzy comprehensive evaluation. The fuzzy comprehensive evaluation method occupies a very important position in the evaluation method [2].

2 THE CURRENT SITUATION OF IDEOLOGICAL AND POLITICAL TEACHING

For a long time, the country has always attached great importance to the development of party building and ideological and political work in the process of the development of college education. Party and government practice work has always been an important educational policy for the all-round development of colleges and universities. In the process of cultivating talents, colleges and universities need to start from the fundamental task of building morality and cultivating people. Therefore, we must pay attention to the innovative development of party building and ideological and political work in

colleges and universities. The article is mainly to study the strategies of Party building and ideological and political work innovation in colleges and universities. At present, there are corresponding dilemmas in Party building and ideological and political work in major colleges and universities. Therefore, it is necessary to carry out specific analysis on these problems. On the development of innovative concepts of party building and ideological and political work, and put forward effective implementation strategies. Using the fuzzy comprehensive evaluation method, we can make an accurate evaluation of ideological and political teaching, enhance the value of ideological and political teaching evaluation, and improve the effectiveness of ideological and political teaching.

For the country, colleges and universities are an important strategic territory for cultivating spiritual pillars. Therefore, it is necessary to strengthen the dissemination of ideological and political knowledge and the implementation of party building work in colleges and universities, so as to effectively allow students to obtain correct direction instructions from the ideological aspect. Allow teachers to improve their own ideological quality in the process of educating students. Colleges and universities must pay attention to the implementation of party building ideological and political work, in order to improve the quality of education in colleges and universities as a whole. Starting from supporting the party's principles and policies, it can not only improve the self-cultivation of educational work, but also let the students in colleges and universities know the responsibility and mission of the times they shoulder.

To deal with the implementation of party building and ideological and political work from the perspective of the management of colleges and universities, we should consider how to make teachers and students realize the importance of the party's policies and work instructions in a more reasonable way. We can't just blindly follow formalism, without implementing party building and ideological and political work in a real sense. Aiming at the educational thinking of the teacher group, the corresponding ideological guidance should be given to the teachers fundamentally, so that the party building and ideological and political work can enter the work mentality of the teachers. In the face of the state of teachers being slack and slack at work, leaders must find out the reasons. However, in many colleges and universities, many teachers are still in a state of slack and slack. In order to solve this problem, it is necessary to use advanced technical means to provide effective guidance for ideological and political teaching.

3 RESEARCH STATUS OF FUZZY COMPREHENSIVE EVALUATION MODEL

Fuzzy comprehensive evaluation is one of the basic methods of engineering fuzzy systems, also known as fuzzy multi-objective decision-making IX. The fuzzy comprehensive evaluation method has a wide range of applications [3].

In performance evaluation, expert scoring system, research learning system, weather forecast, medical diagnosis, economic management, psychological measurement, human resources evaluation, company safety management evaluation, service quality evaluation, major risk source evaluation, classroom light environment evaluation, teaching quality Evaluation, enterprise core competitiveness evaluation, engineering project bid evaluation, water quality evaluation, soil quality evaluation, air quality evaluation, equipment quality evaluation, software project risk evaluation and other fields all play a very important role.

The fuzzy comprehensive evaluation has the following three important links: determining the fuzzy relationship matrix, determining the weight, and selecting the operator. Gradually, with the rapid development of fuzzy comprehensive evaluation, the above links have been further improved in the continuous practical application [4].

For example, the weight is corrected by the method of entropy, and the descending semi-trapezoid is replaced by changing the membership function to determine the fuzzy relation matrix [5].

In terms of operators, power operators and nonlinear operators have also appeared. Through the research and analysis of a large number of relevant materials, this paper has a full understanding and grasp of the development information of fuzzy comprehensive evaluation. And carried out a very detailed overview and summary [6].

4 A NEW MODEL OF NONLINEAR FUZZY COMPREHENSIVE EVALUATION

The new model of nonlinear fuzzy comprehensive evaluation is the main content of this paper, and it also belongs to the main innovation point of this research. With the help of the detailed research and analysis of the nonlinear evaluation model, three new nonlinear fuzzy comprehensive evaluation models with prominent influencing factors are introduced. Specifically as shown in Figure 1.
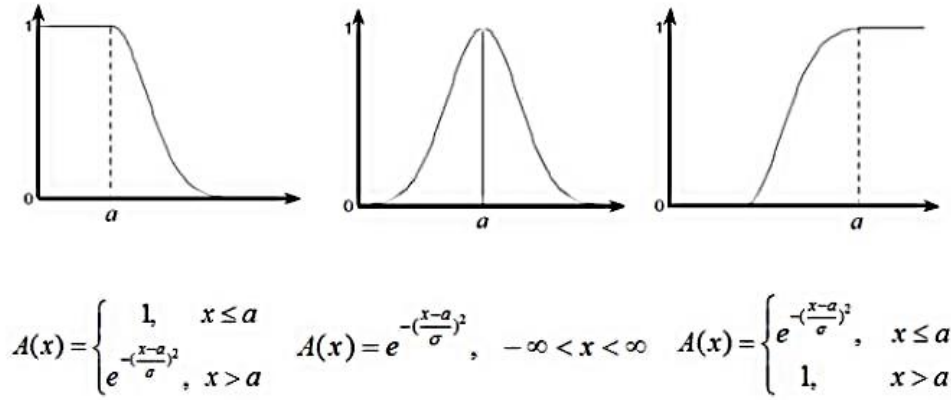
$$A(x) = \begin{cases} 1, & x \le a \\ e^{-(\frac{x-a}{\sigma})^2}, & x > a \end{cases} \qquad A(x) = e^{-(\frac{x-a}{\sigma})^2}, \quad -\infty < x < \infty \qquad A(x) = \begin{cases} e^{-(\frac{x-a}{\sigma})^2}, & x \le a \\ 1, & x > a \end{cases}$$

Figure 1: Nonlinear fuzzy comprehensive evaluation model

5 EVALUATION MODEL REFLECTING THE OUTSTANDING IMPACT OF INDICATORS

Because the essence of evaluation is this: it belongs to the intelligent activities of human beings. Generally speaking, it has nonlinear characteristics. This nonlinear feature is very prominent in the actual evaluation work. For example, some indicators have a prominent influence due to the nonlinear feature. The outstanding influence of the index is the influence of the index on the evaluation results, which cannot be fully reflected only by increasing the weight [7].

But the more common evaluation methods at present are: weighted average model, which also cannot reflect the outstanding influence of indicators. In layman's terms, it can be considered excellent when the value of a certain indicator is higher than that of other indicators [8].

However, due to the lack of the influence of weights, when the weighted average method is applied, the outstanding influence of the indicators cannot be fully reflected, which will lead to the overall evaluation results that are inconsistent with the actual situation. In order to solve these problems, an evaluation model is finally proposed by consulting a large number of relevant materials and carrying out complicated and tedious calculations. The model can not only regard the weighted average model as its special case, but also can reflect the prominent influence of indicators [9].

6 NONLINEAR FUZZY COMPREHENSIVE EVALUATION MODEL

Many evaluation practices have proved that there is a close relationship between the uncertainty of evaluation work and the nonlinearity of evaluation, and the two influence and restrict each other. Therefore, the nonlinear evaluation model is more in line with the actual evaluation. Generally speaking, evaluation problems are nonlinear [10].

Linear evaluation is just an approximation of nonlinear evaluation within a certain range [11]. In order to solve the drawbacks of the complementary linear weighting method, a nonlinear fuzzy comprehensive evaluation model with prominent influencing factors is proposed. Figure 2:

$$B = A \circ R = (a_1, a_2, \cdots, a_n) \circ \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ & & \vdots & \\ r_{n1} & r_{n2} & \cdots & r_{nm} \end{bmatrix} = (b_1, b_2, \cdots, b_m)$$

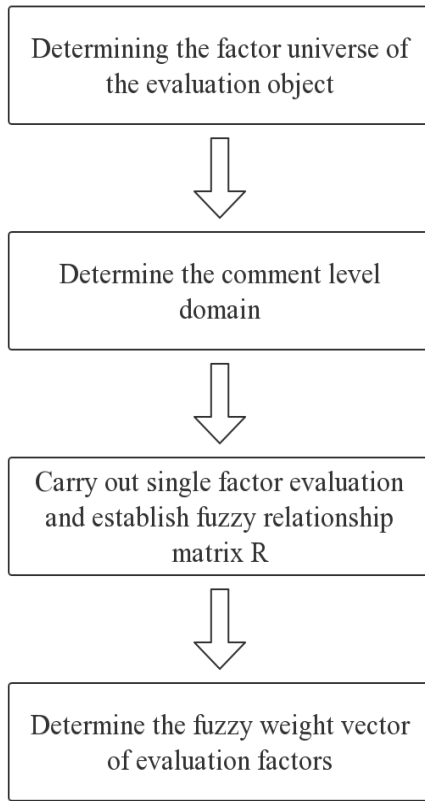**Figure 2:** Nonlinear Fuzzy Comprehensive Evaluation Model

Figure 3: Fuzzy comprehensive evaluation steps

7 FUZZY-MATTER-ELEMENT COMPREHENSIVE EVALUATION MODEL

In the fuzzy comprehensive evaluation method, there are often problems that the classification is unclear and the results are unreasonable. The reason for this problem is that the construction of membership functions in fuzzy mathematics has the characteristics of randomness, dissatisfaction and additivity [12]. Therefore, in order to solve this problem, the correlation function in the matter-element analysis method is introduced into the fuzzy comprehensive evaluation method, and the membership function is further perfected and improved, thereby establishing a fuzzy-matter-element comprehensive evaluation model. Figure 3:

$$B=I*R=I*\begin{bmatrix} I_1 R_1 \\ I_2 R_2 \\ I_3 R_3 \\ I_4 R_4 \\ I_5 R_5 \end{bmatrix}\circ$$

Figure 4: Fuzzy-matter-element comprehensive evaluation model

8 ADJUSTMENT OF INFLUENCING FACTORS BASED ON REAL DATA

For the problem of honeycomb and pockmarked surfaces on the surface of prefabricated components, the analysis and research were carried out from five perspectives, including human, machine, material, method, and ring. Finally, the following factors affecting the quality of components were obtained:

(1) Employee operation level

(2) Employee quality inspection efforts

(3) Equipment operation

(4) The degree of concrete pouring

(5) Concrete material ratio

(6) Template cleanliness

(7) Mold splicing tightness

(8) Temperature and humidity

(9) Other reasons

9 CONCLUSION

Because the essence of evaluation is this: it belongs to the intelligent activities of human beings. Generally speaking, it has nonlinear characteristics. The more common fuzzy comprehensive evaluation is basically a linear form.

In order to better solve the problems existing in the fuzzy comprehensive evaluation method, the research and analysis of the nonlinear evaluation model are used.

The research in this paper also constructs two new nonlinear fuzzy comprehensive evaluation models with prominent influencing factors. In the research of this paper, three new evaluation models are proposed to make up for the disadvantage that the linear model cannot reflect the prominent influence degree of the influencing factors. At the same time, the linear model can also be regarded as a special form of these three nonlinear models.

But the more common evaluation methods at present are: weighted average model, which also cannot reflect the outstanding influence of indicators. In layman's terms, it can be considered excellent when the value of a certain indicator is higher than that of other indicators.

However, due to the lack of the influence of weights, when the weighted average method is applied, the outstanding influence of the indicators cannot be fully reflected, which will lead to the overall evaluation results that are inconsistent with the actual situation.

In order to solve these problems, an evaluation model is finally proposed by consulting a large number of relevant materials and carrying out complicated and

tedious calculations. The model can not only regard the weighted average model as its special case, but also can reflect the prominent influence of indicators. This paper also carries out theoretical proof and case verification on the relevant theory of the new model to ensure its accuracy.

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