

Retraction

Retracted: The Evaluation Model of Students' Network Ideological and Political Education in the Internet Era

Wireless Communications and Mobile Computing

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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

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

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

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

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

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

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- [1] Z. Xu and L. Jia, "The Evaluation Model of Students' Network Ideological and Political Education in the Internet Era," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 9961957, 9 pages, 2022.

Research Article

The Evaluation Model of Students' Network Ideological and Political Education in the Internet Era

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In the network environment, two-course educators must enhance the awareness of the times, take the initiative to occupy the network position, and carry out two-course education for college students in the new position. At present, the educational needs of colleges and universities are integrated with information technology. In order to promote the establishment of the “Two Courses” education and teaching evaluation system in colleges and universities, this paper adopts some college evaluation theories to analyze the ideological education evaluation in colleges and universities. It constructs a model to promote the development of teaching evaluation in colleges and universities. At the same time, the evaluation of college teaching under the background of Internet is analyzed by neural algorithm. Through the optimization of the existing evaluation system, the optimization of the corresponding work is completed. This article has carried on the simulation verification; through the time characteristic analysis of the verification system, it provides the reference value for the establishment of the evaluation system of two-course education.

1. Introduction

Network technology is changing the world in a trend-like manner, creating a new living state, communication space, and development trend, and forming a brand-new network environment [1]. In the network environment, educators in colleges must enhance the awareness, take the initiative to occupy the network position, and carry out education for college students in the new position [2]. The network education in colleges, like the traditional education in colleges, is an important part [3]. The important task of cultivating the “four new talents” of all-round development in the cause of socialist modernization [4] is done. The party and the government have also attached colleges and have given support in all aspects [5]. Great achievements have been made in education in colleges [6]. However, the idea of “comprehensively strengthening the construction of campus networks and making the Internet an important means” is unclear. There is still a gap in the target [7]. What is the development of the network education work in colleges?

Whether it is developing towards the goal of cultivating the healthy personality of college students is still uncertain, and many deep-seated problems [8]. The construction of a scientific, objective, and feasible evaluation index system of network education in colleges is the core of evaluation work [9]. Figure 1 shows the two-course curriculum system in colleges [10].

It is an educational model based on the premise of exchanges between the two parties [11] and is not constrained by factors such as time, place, and object, which is exactly situation [12]. The learning characteristics of them to freely choose the educational information they want to receive according to their needs [13]. Through the network platform, college students can use online communication to communicate with teachers related to education, so that they can have an intuitive evaluation of the educational effect [14]. Teachers can also know students' ideological dynamics and characteristics, in order to formulate corresponding teaching plans, strengthen the pertinence of education, and then enhance the influence education [15].

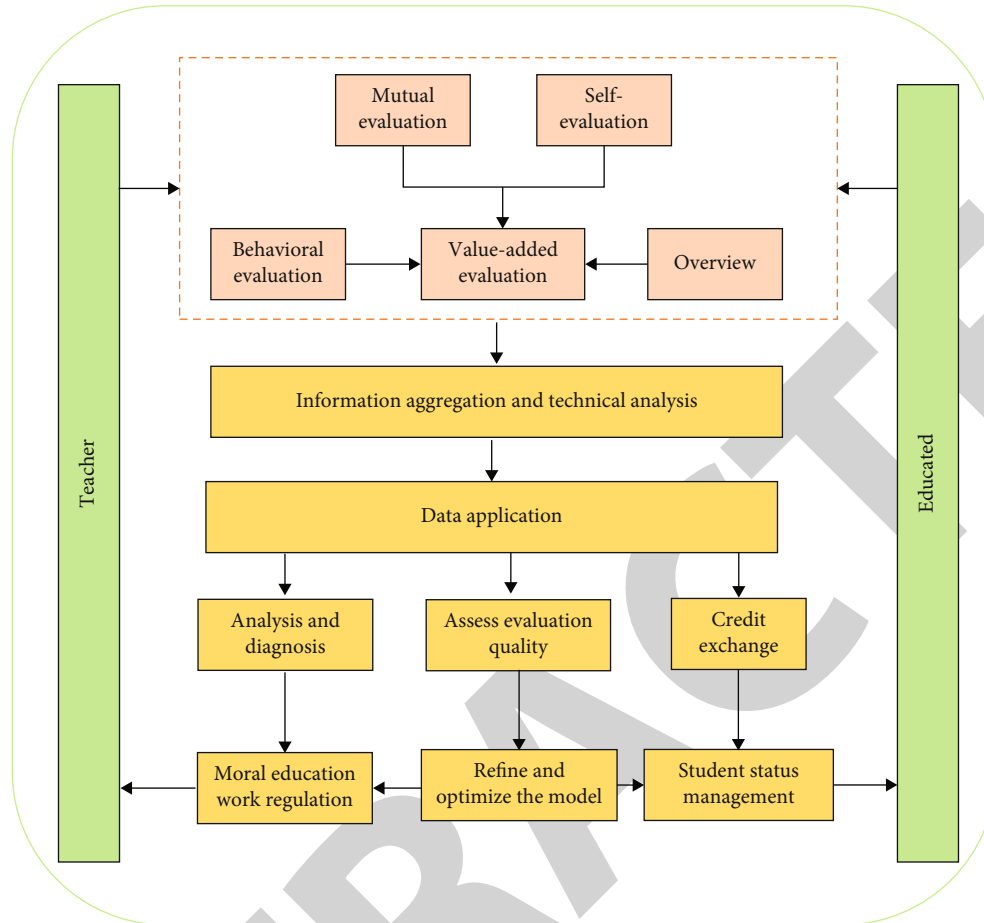


FIGURE 1: The two-course curriculum system in colleges.

The Internet education model, which is disseminated, graphics, audio, and video, can improve college students' understanding of the content of education [16]. Internet ideology and politics use the network platform to send current affairs, politics, social hotspots, and other related content in the first time, so that students can obtain current affairs information in time and have their own understanding and thinking, which can improve college students' awareness of social responsibility and moral quality [17]. Network education combines the excellent educational resources of colleges and universities. With the rapid development of science and technology, these educational resources can be updated and supplemented at any time, reflecting the latest scientific research achievements in time. If these achievements are incorporated into the teaching content, students can learn knowledge.

After summarizing the current research, it is found that there is no special literature on the evaluation of college network education [18]. This is a theoretical gap in the college network education for nearly two decades. It will help guide the network education in colleges in the future [19]. Although the evaluation of online education in colleges has not a relatively complete theoretical system, it takes moral education, measurement technology, and other theoretical foundations for its own disciplines and inherits the theory of online education in colleges [20]. The seventh chapter edi-

ted by Xia Xiaohong lists the evaluation of the Internet two courses work in colleges, mainly involving the significance and principles of evaluation, and does not involve specific evaluation indicators. The sixth chapter of "Research on Internet education in colleges" edited by Tan Jianglin expounds the evaluation system of Internet education, mainly including three aspects: the connotation, content, and evaluation methods of the evaluation of Internet education [21, 22].

Objectively speaking, performance evaluation is an important part. It is not only a necessary factor for the smooth progress of the whole education but also a key node for improving the effectiveness of education. Along with the scientific process of research, education evaluation research has also achieved a series of results. With the popularization of computer and Internet and the development of artificial intelligence technology, the application and research of intelligent technology in the field of education evaluation have been initially carried out. The mutual penetration of artificial intelligence and education measurement research has given birth to the emerging field of intelligent evaluation. Intelligent evaluation applies emerging technologies in the field of artificial intelligence to evaluation tasks such as ability evaluation, personality evaluation, curriculum risk evaluation, and learning process evaluation, which not only improves the efficiency and accuracy of evaluation and helps

to realize process evaluation and personalized evaluation but also integrates multidimensional information to comprehensively evaluate individual students. This is of great significance for solving the problems of education evaluation and promoting the development of intelligent education in China. 170 results (as of December 2017) were retrieved on CNKI under the title of “education + Evaluation.” The earliest related paper was published in 1984, but no information on Internet education has been retrieved. For evaluated research papers, in the only 5 literatures on the evaluation of online education, the researchers expressed the principle of the evaluation of online education and believed that the corresponding work should follow the “level and holistic, absolute the principle of combining with relative, qualitative and quantitative,” or explain the necessity of online education evaluation.

2. M State of the Art

2.1. Definition of Concept

2.1.1. The Connotation of Network Education in Colleges. Network education, as a new means of dissemination and implementation of education in colleges, presents different characteristics from traditional education. Network education in colleges means education in colleges is based on the network carrier, combined with the cognitive activities of college students, and imposes on college students content that a certain society and a certain class. The practice of forming good ideological and moral character. The application of network technology in distance education is characterized by anyone, any time, any place, starting from any chapter, and learning any course. The convenient and flexible “five any” of online education most directly reflects the characteristics of active learning in the learning mode and fully meets the needs of modern education and lifelong education.

2.1.2. The Connotation of the Two-Course Evaluation Index System. Evaluation is the evaluation and measurement; it is a comprehensive concept. The evaluation discussed in this article is to judge the value of educational activities, establish objective and fair evaluation standards according to certain standards, supervise and evaluate educational activities in the form of quantitative or qualitative, and effectively grasp the direction of educational practice, so as to reduce misleading caused by human factors, optimize the allocation of resources to the maximum extent, enhance the scientific nature of the plan, and make the educational activities always move towards the established goals.

An index is explained in the Modern Chinese Dictionary as “the goal set out in the plan”. In the system of online education in colleges, the index is to decompose the goals with typical characteristics step by step to form many subgoals. These subgoals have specific, measurable, and behavioral characteristics. In fact, the indicators are specific goals. To some extent, objectives and indicators are a pair of relative concepts. Objectives determine the composition of indicators. Without the objectives, there is no question of indica-

tors. At the same time, indicators are the guarantee of whether the objectives are concretely implemented. Goals are difficult to achieve. The target reflects the whole and is relatively stable, while the indicator reflects the part, which changes according to the specific situation on the premise of reflecting the target. The objectives of the evaluation object will be decomposed step by step and transformed into specific element indicators until the indicators are directly measurable. All these indicator systems are called indicator systems.

An evaluation index is a common concept in evaluation activities.

In the Dictionary of Education of the Sciences, the evaluation index is “the regulation of one aspect of the evaluation goal in the evaluation activity, which is a specific, measurable, behavioral and operational goal.” That is to say, the evaluation index is to carry out specific goals. The subjective stipulations made on the objectives of the evaluation activities are the evaluation activities and cannot be separated.

The evaluation system refers to “the whole composed of the evaluation index system reflecting the overall evaluation target, the corresponding index weight system and the index evaluation standard system.” The evaluation index system is a set of indicators with a hierarchical module structure (or a tree structure). Each index set is composed of several subsets, and each subset is composed of the next-level subsets, which can no longer be decomposed until the end, that is, the final-level index. The modular structure index system is composed of zero-level indicators (assessment targets). It has a significant advantage that when only a partial aspect of the target is evaluated. The corresponding modules (subsets) can be taken out for evaluation without having to redesign the evaluation metrics.

2.2. Literature Overview on Education

2.2.1. Overview of Research on Two-Course Education Evaluation. In view of the importance attached by the party and the government to the enthusiasm of the academic community, the evaluation of education has also achieved gratifying results. Entering “education Evaluation” in CNKI, you can find 43 related articles in the database, including 5 master theses. The most frequently cited are “Research on education Evaluation” by Wang Bin of Southwest Normal University and “Research on Some Theoretical Issues in education Evaluation” by Cao Kaisong of Xidian University. Among the special works, the representative ones are as follows: Xiao Mingzheng’s “Theory and Method of Moral Evaluation” (Fujian Education Press, 2000 edition), Dr. Qin Shanghai of Wuhan University “Research on Moral Education Evaluation in colleges” (China Social Sciences Press, 2006 Year Edition), Wang Maosheng’s “Research on education Evaluation” (China Social, 2006 edition), Zhao Zudi’s “Introduction to Moral Education Evaluation in colleges” (Zhejiang People’s Publishing House, 2003 edition), Zhang Yuhai’s “School Education Evaluation” (Central Minzu University Press, 1987 edition), and so on. In the relevant works on education research, the author lists special

chapters to discuss the evaluation of education: in “education” edited by Qiu Weiguang (Xuelin Publishing House, 1990 edition). The process of educational activities and the effect of education are three parts, of which the effect of education is the core. The evaluation of education is discussed of educational process indicators and educational effect indicators; Chen Yiping edited “Principles of education” (Anhui Province). University Press (2008 edition); the evaluation of education is listed as the management category of education, which involves the evaluation of educators, the evaluation of educated people, the evaluation of education activities, and the evaluation of education.

2.2.2. An Overview of the Research on Network Two-Course Education in Colleges. The most important influence of the “Two Courses” of the University on students is to improve their ideological and political quality, followed by improving their ability to understand and solve problems. For many years, the teaching of “Two Courses” in colleges and universities is mainly based on classroom teaching, which reflects the principle that Marxist theory can only be instilled from the outside. In addition, as a compulsory public course officially included in the teaching plan, it strengthens the importance of “Two Courses” teaching. Regarding the Internet education, the Ministry of Education also specially issued the “Several Opinions on Strengthening the Internet Work of education in colleges,” which clearly that “Occupy the Internet position with a correct, positive and healthy ideological culture, and prevent some people from using The dissemination of wrong ideas and information on the Internet has become a very important and urgent issue in the work of colleges.” Enter “Internet education in colleges” in CNKI, and you can find 305 related papers, including 37 master’s theses and 4 important conference papers in China. There are also a considerable number of monographs: Xu Jianjun’s “Theory and Method of Internet education for College Students” published by People’s Publishing House in 2010, Xia Xiaohong’s “Internet education in colleges” published by Taishan Publishing House in 2010, “Research on Internet education” published by Hefei University of Technology Press in 2007, etc. These papers and monographs have made a scientific and detailed discussion on the development process, connotation, methods, principles, operation, and guarantee mechanism of network.

2.2.3. An Overview of the Research on the Evaluation of Online Two-Course Education in Colleges. After summarizing the current research on network education in colleges, it is found that there is no special literature on the evaluation of college network education. This is a theoretical gap in the development of college network education for nearly two decades. It will help guide the network education in colleges in the future. Although it has not yet formed a relatively complete theoretical system, it takes moral education evaluation, measurement technology, and other theoretical foundations for its own disciplines and inherits the theory of colleges. The seventh chapter of “Internet education in colleges” edited by Xia Xiaohong lists the evaluation of the Internet, mainly involving the significance and principles

of evaluation, and does not involve specific evaluation indicators. The sixth chapter of “Research on Internet education” edited by Tan Jianglin expounds the evaluation system of education, mainly including three aspects: the connotation and methods of the evaluation of education. Some papers have some carrier of education, which has a great guiding role for the completion of this thesis.

3. Methodology

3.1. Principle of Network Evaluation Method Based on Gray Relational Analysis. For the factors between two systems, the measure of the degree of correlation that changes with time or different objects is called the degree of correlation. In the process of system development, if the change trend of the two factors is consistent, that is, the degree of synchronous change is higher, that is, the degree of correlation between the two is higher; otherwise, it is lower. Therefore, the gray correlation analysis method is a method to measure the degree of correlation between factors according to the degree of similarity or difference in the development trend between factors, that is, “gray correlation.” Gray analysis method is mainly used to evaluate poor information systems with some known information and some unknown information. The correlation analysis method is that it does not have too high requirements on the amount of data, that is, it can analyze both more and less data, and it does not require the data to show a typical distribution law. In this case, it is more practical. At the same time, when using the gray relational analysis method for comprehensive evaluation, the optimal value is selected from each index of the evaluated object as the evaluation standard, and the distance between each evaluated object and this standard is calculated. The standard is not fixed, but the selection result of the standard value is always the optimal value of the sample in the selected period. This method is a comprehensive evaluation method combining qualitative analysis and quantitative analysis.

Suppose there are m evaluation samples, n evaluation indicators, $x_i(k)$ is the indicator value, gray relational analysis must first formulate columns (maternal), the reference data column is often denoted as x_0 , generally expressed as

$$x_0(k) = \{x_0(1), x_0(2), \dots, x_0(n)\}, k = (1, 2, \dots, n), \quad (1)$$

$$x_i(k) = \{x_i(1), x_i(2), \dots, x_i(n)\}, k = (1, 2, \dots, n), i = (1, 2, \dots, m). \quad (2)$$

Let the gray correlation coefficient between the series be $\xi_i(k)$. For a reference data series $x_0(k)$, the comparison series $x_i(k)$ can use the following relationship to express the difference at each point:

$$\xi_i(k) = \frac{\min_i \min_k |x_0(k) - x_i(k)| + \zeta \max_i \max_k |x_0(k) - x_i(k)|}{|x_0(k) - x_i(k)| + \zeta \max_i \max_k |x_0(k) - x_i(k)|}, \quad (3)$$

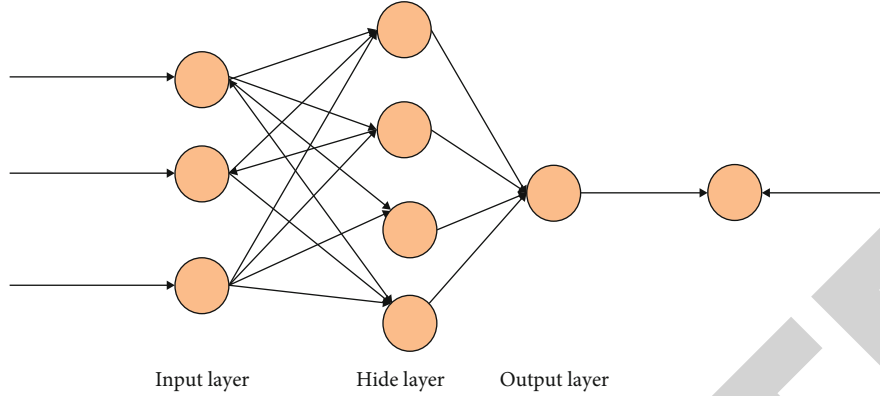


FIGURE 2: BP neural network structure.

where $\xi \in [0, 1]$, which is introduced to reduce the influence of extreme values on the calculation. In actual use, the resolution coefficient should be selected according to the correlation degree of the sequence time. Generally, it is most appropriate to take $\zeta \leq 0.5$.

Ruo Kee:

$$\Delta \min = \min_i \min_k |x_0(k) - x_i(k)|, \quad (4)$$

$$\Delta \max = \zeta \max_i \max_k |x_0(k) - x_i(k)|, \quad (5)$$

where $\Delta \min$ and $\Delta \max$ between x_0 and x_i at each moment. Thus, there are

$$\xi_i(k) = \frac{\Delta \min + \zeta \Delta \max}{|x_0(k) - x_i(k)| + \zeta \Delta \max}. \quad (6)$$

The correlation coefficient only indicates the degree of correlation between the data at each moment. The information is too scattered and inconvenient for comparison. For this reason, it is necessary to each moment into one value, and the average value is used as such. A method of centralized processing of information. Therefore, the general expression of absolute correlation degree is

$$r_i = \frac{1}{n} \sum_{i=1}^n \xi_i(k). \quad (7)$$

The degree r_i is to 1, and when $r_k \geq 0.5$, the correlation degree is significant. According to the degree of correlation, the index system is sorted, and the factors with smaller correlation degree are discarded.

3.2. Algorithm Based on BP Neural Network Model. BP (back propagation) neural network is a concept proposed by scientists led by Rumelhart and McClelland in 1986. It is a multi-layer feedforward neural network trained according to the error back propagation algorithm. It is one of the most widely used neural network models. The basic idea of BP algorithm is that the learning process consists of two processes: forward propagation of signal and back propagation

of error. BP is a complex network system that simulates the way the human brain processes information and performs parallel processing and nonlinear transformation of information. After the learning sample, the value is propagated each hidden layer and then uses the error inversion according to the theory. The forward gradually corrects with the repetition of the squares of the error. As shown in Figure 2, the BP is with three or more layers. It well makes up for the shortcomings of the gray relational analysis method for evaluators, which has a large amount of calculation, the evaluation efficiency, and makes the evaluation process more efficient. Models are easier to generalize.

In the BP, the nonlinear relationship between the output and input of each node is described by the Sigmoid function, namely,

$$f(x) = [1 + \exp(-x)]^{-1}. \quad (8)$$

In the input layer, that is, $x(-)ik = x_{ik}$, where k is the sample value. The output of the hidden layer sample pattern i is calculated as follows:

$$Y_{ij} = f\left(\sum_{j=1}^q w_{kj} \bar{x}_{jk} - \theta_j\right), j = 1, 2, \dots, q, \quad (9)$$

where θ_j represents the bias value of the j . The output of the output layer sample mode is calculated as

$$b_i = f\left(\sum_{j=1}^q w_j y_{ij} - \theta\right), \quad (10)$$

where θ represents the bias value of the output node of the output layer. The learning is a process of error back propagation and correction. The total error function of the actual output bp of m sample patterns, and the expected output bp is defined as

$$E = \sum_{j=1}^m \frac{(b'_j - b_j)^2}{2}. \quad (11)$$

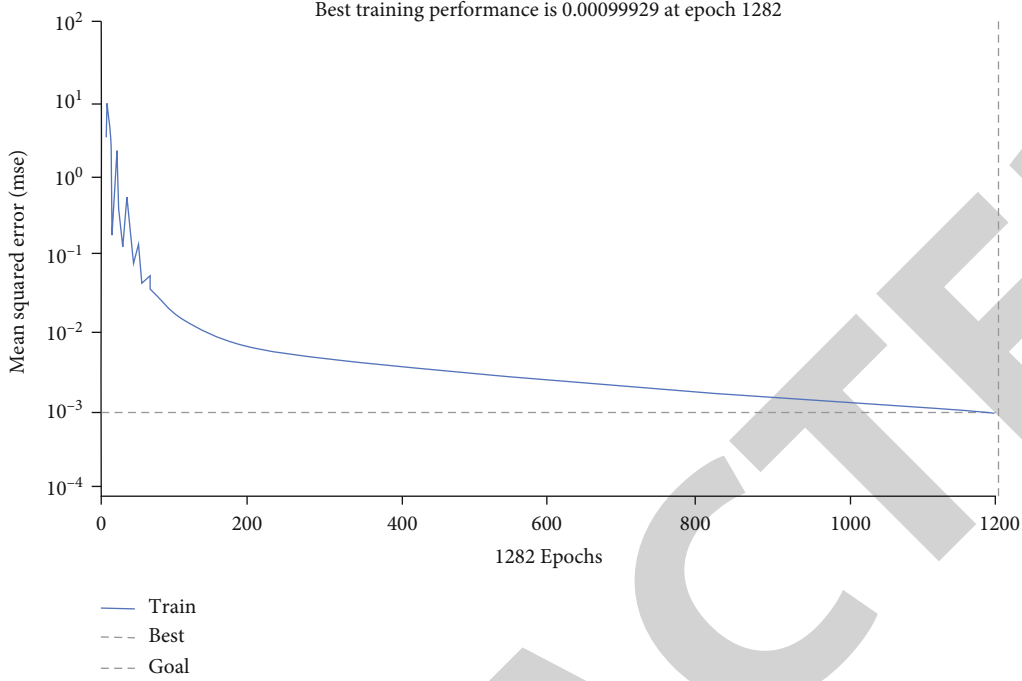


FIGURE 3: BP neural network training curve.

The neuron node (ω_{kj}, ω_j) and the bias value (θ_{kj}, θ) are adjusted and calculated according to the following rules:

$$w_j(t+1) = w_j(t) + \eta \delta b_{jt} + \alpha [w_j(t) - w_j(t-1)], \quad (12)$$

$$w_{kj}(t+1) = w_{kj}(t) + \eta \delta y_{ij} + \alpha [w_{kj}(t) - \Omega_{kj}(t-1)], \quad (13)$$

$$\theta(t+1) = \theta(t) + \eta \delta + \alpha [\theta(t) - \theta(t-1)], \quad (14)$$

$$\theta_j(t+1) = \theta_j(t) + \eta \delta + \alpha [\theta_j(t) - \theta_j(t-1)]. \quad (15)$$

In the formula, α is the momentum factor, $\alpha \in [0, 1]$ and t is the adjustment times. According to the weight coefficient improvement formula, after continuously performing the above iterative process until the set error limit requirements are met, a more accurate inner representation of the neural network can be obtained.

3.3. Multiobjective Fuzzy Evaluation Genetic Algorithm. Based on the nongenerational genetic algorithm for multiobjective optimization (GAMO) method proposed by Carlos CH, a multiobjective fuzzy evaluation method is introduced to obtain a multiobjective fuzzy evaluation genetic algorithm (MOGAFR). The steps are as follows:

- (1) Generate m chromosomes through the initialization process
- (2) Calculate the objective function value of each chromosome: f_{ik} , $i = 1, \dots, m$, $k = 1, \dots, n$ (n is the number of objective functions)

- (3) Evaluate each chromosome with fuzzy evaluation rules and get the evaluation value E_i , $i = 1, \dots, m$
- (4) Randomly select any two chromosomes $s1$ and $s2$, perform crossover and mutation operations on the chromosomes to generate two progeny $t1$ and $t2$, calculate the objective function of the progeny chromosomes, and evaluate them by fuzzy rules to obtain the evaluation value $E(t1)$ and $E(t2)$
- (5) Select the individual t with the largest evaluation value in the two offspring, if the evaluation value of t is better than the worst individual in the parent, replace the worst individual with t , otherwise, keep the parent individual

Repeat steps (4) and (5) until the termination condition is met.

4. Result Analysis and Discussion

4.1. Experimental Data and Environment. This article selects the School of Public Administration, School of Communication, College, and other 20 colleges are used as research samples. There are two main methods for collecting evaluation data. Objective data such as WeChat WCI Index, Weibo Influence Index, and Party Application Rate are directly counted and included. In the evaluation of education, the self-evaluation of the departments, the departments of the same level, and school evaluation leadership group are the evaluation of the evaluation members. At the same time, the entire implementation process can be regarded as a process of mutual communication between superiors and subordinates. Through

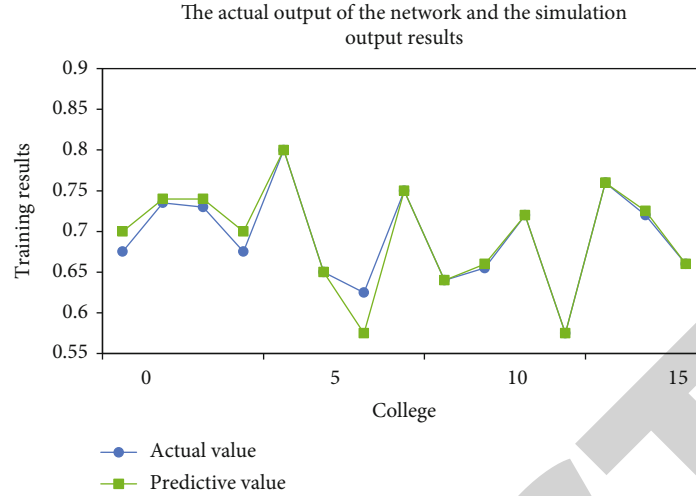


FIGURE 4: Actual output and expected output.

effective communication, the school's work in Internet education, and problems can be found and solved. The evaluation process is made public and the right to evaluate. Decentralization ensures the comprehensiveness, fairness, and impartiality of evaluation results.

The selection of the number of neurons is related to the accuracy and learning efficiency of the entire BP network. Therefore, when selecting the number of neurons in the hidden layer, the empirical formula is $q = (1 + c)^{0.5} + a$. After several parameter debugging and statistical observation one by one, the number of hidden layers is finally determined to be q , and the selected neural network is $l \times q \times c$ structure. And $l = 20$, $c = 1$, and a takes a constant between $[0, 10]$. After many parameter debugging and statistical observation one by one, it is finally determined as 12, so the selected neural network is a $20 \times 12 \times 1$ structure.

The experiment uses MATLAB 8.0 for BP neural network training and simulation. The maximum training times train - Param = 2000, the momentum factor is set to 0.4, and rng is set to default. Use the newff function to create a forward neural network to implement any mapping from the input to the network. The trainFcn function is used as the training function. The default value is hrainlm. Set net.trainFcn = trainbfg. with emulation.

4.2. Analysis. The training result is shown in Figure 3. The actual output shown in Figure 4 is very close to the value. As a result, the evaluations of different colleges on the gray relational and BP methods.

Figure 5 shows the output values of the test samples. 16-20 correspond to the five colleges of UC16, UC17, UC18, UC19, and UC20, respectively. The output values are 0.8234, 0.62130, 0.74967, 0.65145, and 0.79246. The performance evaluation level is excellent, good, good, good, and good, the test result is good, and the test result is satisfactory.

The normalized Gaussian membership function is used to search for the fuzzy. In Figure 6, the optimization results

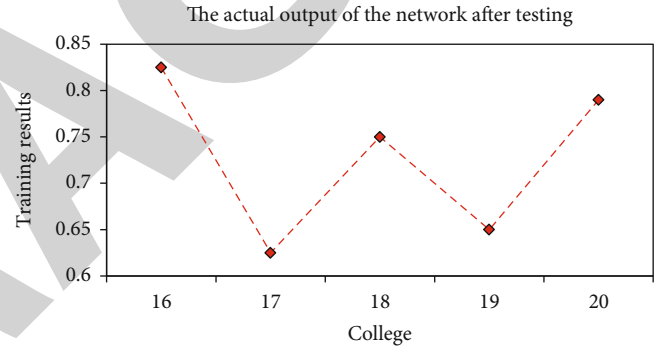


FIGURE 5: Output value of the test sample.

of the GAMO method are also shown in the figure. From the analysis of the results, iteration is small ($T = 200$), and the individuals are scattered more widely; after enough iterations, the convergence to the noninferior solution set and the individuals are concentrated in the A part of the set of noninferior solutions. Compared with the methods in the literature, fuzzy rules can also distinguish the pros and cons of individuals in the noninferior solution set, so that the most suitable solution in the noninferior solution set can be searched. The multiobjective fuzzy evaluation can complete the optimization and decision-making in one step and directly obtain the solution that the decision-maker wants.

Examining the influence of different evaluation rules on the results, it is assumed that the objective function $f1$ is more important, and another set of different rules is formulated. The calculation results are shown in Figure 7. The analysis of the results that different evaluation rules will obtain different results, but the obtained results are all part. The calculation shows that the multiobjective fuzzy evaluation genetic can search for the noninferior solution set. According to different rules, the

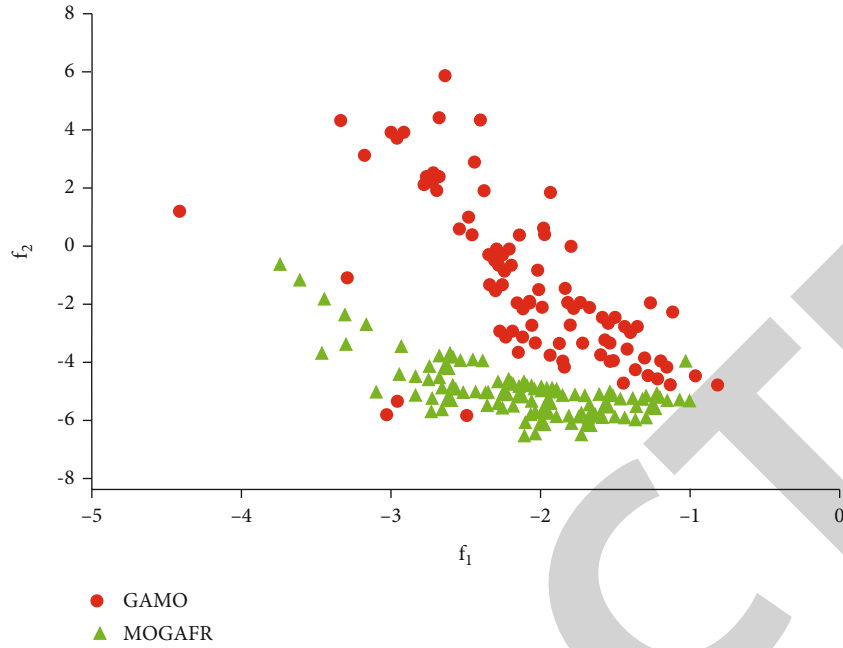


FIGURE 6: Comparison of the convergence results of the two algorithms.

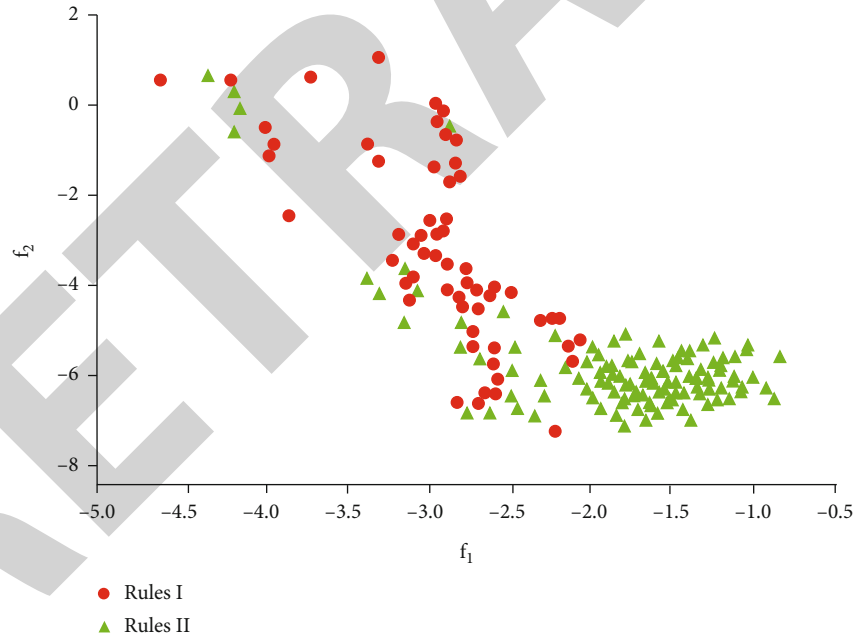


FIGURE 7: Comparison of convergence results with different rules.

algorithm will search for solutions in different parts of the noninferior solution set.

5. Conclusion

The paper studies current Internet education in colleges, constructs a “three-dimensional index system” for the evaluation of Internet education in colleges, and proposes a model

of Internet. Firstly, the gray relational theory is used to obtain their relational degree; secondly, the indicators of 15 research samples are selected. The value is used as the input value; the correlation value is used as the output value, and the BP is trained to obtain a model of the BP. Through experiments, it is found results of this model are very close to the results. The system as much as possible abandons the interference of unnecessary human factors. The level of

evaluation has been greatly improved, and through the BP model, which is maneuverable and has higher promotion value.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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