

Construction of Ideological and Political Education Evaluation System of New Media in Universities

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Abstract. This paper aims to construct the evaluation system of new media ideological and political education for evaluating the existing education system and improving the corresponding work. Nowadays, it has become an important way for ideological and political education to promote the educational level with the help of information technology. However, researchers pay less attention to evaluation of the ideological and political education according to new media in colleges and universities. As far as the characteristics we concerned on the new media, this paper introduces a novel index system for evaluation on ideological and political education according to new media in colleges and universities, combines grey correlation theory with BP neural network evaluation method, and establishes a feasible model for evaluation of ideological and political education based on new media.

Keywords: Ideological and political education evaluation; New media; BP neural network

1 Introduction

In recent years, colleges and universities across the country have widely built "two micro and one end" platforms and launched the "Internet + ideological and political education" model. However, how effective is the ideological and political education work of new media? It is necessary to construct a set of scientific and reasonable evaluation system. The National Conference on Ideological and Political Work in Colleges and Universities held in December 2016 proposed to "improve the evaluation system of ideological and political work in colleges and universities" and promote the institutionalization of ideological and political education in colleges and universities.^[1]This paper aims at the ideological and political education platform of new media, according to the characteristics of new media, to build the ideological and political education evaluation system of new media in colleges and universities, and then play its role as the "baton" of innovative ideological and political education.

2 The index system of new media ideological and political education evaluation in colleges and universities

Generally speaking, for the purpose of ensuring the excellent outcome of ideological and political education, it is necessary to guarantee the ideological and political education work in three aspects: the subject, the process and the result. In the field of new media ideological and political education, who is in charge of the ideological and political education platform, whether the quality and ability of the master is strong or not, is related to the direction of ideological and political education work; How to promote the ideological and political education of new media is related to the attraction of the ideological and political education based on new media; The result of ideological and political education of new media is related to whether the purpose of ideological and political education can be achieved, and can ensure that the positive and healthy content into the mind.^[2] Therefore, combined with the typical characteristics of new media, especially more popular nowadays "Yiban", "Weibo platform", "wechat platform", this paper establishes the novel evaluation index system of ideological and political education based on new media listed in table1.

The effectiveness of the educational process refers to the application of new media-related technologies as a means. The degree to which the expected goal of ideological and political education is achieved in the course of education and the accurate grasp of the process effectiveness index are regarded as the "function factor" of the whole evaluation index system.^[3] Although the ideological and political education of new media in different universities differs obviously in concrete form, the core is inseparable from three links. First, it is necessary to build an efficient communication platform, such as wechat public account, Weibo account, etc. The second is the need to produce high-quality, attractive network cultural products, such as a micro film, a group of photographs and so on; The third is the need for online and offline linkage. Therefore, under the index of the effectiveness of the educational process, three three-level indexes are set. The first is the platform construction index, measured by the third-level index b1-b5, which mainly examines the construction and use of Weibo, wechat, QQ, Yiban and Melong media, especially the initiative and influence of educators on major new media platforms.^[4] The second is the product development index, which is measured by the third-level index b6-b8, mainly examining the development team, product quantity and quality as the core content, which is a direct representation of the "hard power" of new media ideological and political education. The third is the communication and interaction index, measured by the third-level index b9-b10, which mainly examines the number and coverage rate of online and offline interaction activities within a certain period of time. Only when the interaction is based on the balance between supply and demand can the technological advantages of new media be truly brought into play.

Table 1. The index system

Primary index	Secondary index	Tertiary index
	Effectiveness of educational subject	Capital ratio
		Site ratio
		Personnel ratio

The index system	Effectiveness of educational process	Number of projects hosted Number of training participants Number of papers published New media platform activity Number of non-student workers participating Weibo influence Index Wechat WCI index QQ platform activity Turnover rate Whether there is media construction Core team ratio Quantity of products Quality of products Number of interactive communication activities Interactive communication coverage
	Effectiveness of educational outcome	Application rate for Party membership Participation rate of public welfare activities Failure rate Frequency of going to libraries May fourth Red Flag Youth League Committee Advanced collective of ideological and political education

3 Model optimization

Grey correlation analysis is a method for multi-factor analysis, which is applied for where most information is known while other information is unknown. The biggest advantage of relational degree analysis method is that the amount of data would not make a big difference. It is more practical when the system data is less and the conditions do not meet the statistical requirements.^[5] Furthermore, concerning with comprehensive evaluation, the optimal value is chosen for evaluation standard, and the distance is calculated according to each object and the

standard. This method can better reduce the influence of human factors and make the results more accurate.

BP neural network is a complex network system which simulates the way of human brain neural processing information and carries out parallel processing and nonlinear transformation of information. After the learning sample is provided to the neuron, the activation value of the neuron propagates from the input layer to the output layer through various hidden layers, and each neuron in the output layer obtains the input response of the network. Then, according to the "negative gradient descent theory", the error back propagation algorithm is used to gradually correct each connection weight and threshold. With the repeated error back propagation correction.^[6]It minimizes the sum of squares of errors between the expected output and the actual output of the neural network.

Our novelties lie in that we establish the relationship between multiple copies and factors in each sample and the learning adjustment ability reduces the impact on human factors. Furthermore, a large calculation based on the grey correlation analysis is made for improving the outcome of our model.

Let m be the sample number, n be the number of indexes. Data can be represented as:

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

Data being compared can be represented as:

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

Grey correlation coefficient is defined as follows:

$$\xi_i(k) = \frac{\min \min |x_0(k) - x_i(k)| + \Omega \max \max |x_0(k) - x_i(k)|}{|x_0(k) - x_i(k)| + \Omega \max \max |x_0(k) - x_i(k)|} \quad (3)$$

Training sample of neural network is defined as:

$$X_{ml} = \begin{bmatrix} X_{11} \dots X_{1l} \\ X_{21} \dots X_{2l} \\ \dots \\ X_{m1} \dots X_{ml} \end{bmatrix}$$

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

$$f(x) = [1 + \exp(-x)]^{-1} \quad (4)$$

Loss function can be chosen as follows:

$$y_{ij} = f\left(\sum_{j=1}^q \omega_{kj} x_{jk} - \theta_j\right) \quad j = 1, 2, \dots, q. \quad (5)$$

4 Results

There are mainly two methods for collecting data. Objective data such as wechat WCI index, Weibo influence index and Party membership application rate are directly counted and evaluated. For a few highly subjective data, the 360-degree assessment theory is adopted. In the evaluation of new media ideological and political education, it mainly consists of the self-evaluation of the department, the mutual evaluation of the departments at the same level, the evaluation of students' representatives, and the evaluation of the university's evaluation leading group. According to different functions, the evaluation results of each evaluation member are divided into weights.^[7] At the same time, the whole implementation process can be regarded as a process of communication between the upper and lower levels. The school can be regarded as an important part of new media ideological and political education. In addition, the evaluation process is made public and the evaluation rights are decentralized to ensure the comprehensiveness, fairness and impartiality of the evaluation results.

According to the correlation degree of each index, the index system is simplified, and the two indexes with correlation degree less than 0.5 are removed. Finally, 22 index evaluation systems are obtained. According to the reduction of evaluation indexes by grey correlation analysis theory, the obtained 22 index values of each evaluation object are taken as the input of BP neural network, and then the correlation degree of each evaluation object is obtained by grey correlation analysis, and it is taken as the expected output of BP neural network.^[8] At the same time, the 7 research samples are divided into training samples and test samples.

Table 2. Results of ideological and political education in universities of new media

College	Results	Classification	Expectation
C1	0.68	Good	0.71
C2	0.75	Good	0.77
C3	0.69	Good	0.70
C4	0.73	Good	0.75
C5	0.64	Good	0.68
C6	0.71	Good	0.74
C7	0.78	Excellent	0.81

5 Conclusion

As far as the characteristics of ideological and political education based on new media are concerned, this paper establishes a novel system for the evaluating ideological and political education on new media, combines grey correlation theory with BP neural network and with excellent experimental outcome.^[9] Firstly, the initial index system is simplified with the help of grey theory. Secondly, the grey correlation theory is applied for analyzing the samples. Thirdly, the index values of 7 samples are selected as input values and the correlation value as output values to conduct BP neural network training and obtain an evaluation model.^[10] Our system constructed in this paper abandons unnecessary human factors, making the the results more convincing and accurate and scientific level has been improved as well.

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