Research Article

Research on Improving the Accuracy of Ideological and Political Education in Colleges under Artificial Intelligence Technology in the Era of Big Data

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The construction of the index system is incomplete in the accuracy evaluation of ideological and political work in Colleges and universities, which leads to the poor effect of the accuracy evaluation of ideological and political work in Colleges and universities. Therefore, this paper proposes to introduce artificial intelligence big data technology to improve the accuracy of ideological and political work in Colleges and universities. Analyze and improve the starring participants in ideological and political work in Colleges and universities, determine the basic principles to improve the accuracy of ideological and political work in Colleges and universities, determine the importance indicators of ideological and political teachers’ teaching, students’ classroom learning, after-school practice, and school ideological and political work, and divide them into primary indicators and secondary indicators. The naive Bayesian model is used to decompose the accuracy indicators of ideological and political work in Colleges and universities, build the accuracy evaluation model of ideological and political work in Colleges and universities, and realize the research on improving the accuracy of ideological and political work in Colleges and universities. The experimental results show that this method can effectively improve the integrity of the accuracy evaluation index of ideological and political work in Colleges and universities and improve the accuracy evaluation effect of ideological and political work in Colleges and universities.

1. Introduction

The teaching research of various modes of ideological and political course in Colleges and universities conforms to the trend of the integration of information technology and ideological and political course teaching, based on the actual situation of students’ learning subjects, actively explores the stable mode formed after ideological and political course teaching [1, 2], and expands the relevant theoretical research on the teaching methods of ideological and political theory course in Colleges and universities [3, 4]. At present, how to improve the accuracy of ideological and political teaching in Colleges and universities is an urgent problem to be solved. To answer this question is inseparable from improving the teaching quality of ideological and political courses and changing the current situation of single teaching methods, lack of interaction and outdated curriculum resources [5, 6]. Research on the construction of mixed teaching mode of ideological and political course in Colleges and universities makes full use of the advantages of mixed teaching, innovates and constructs the teaching mode of Ideological and political course, and improves the teaching quality and effect of ideological and political course [7, 8]. Therefore, in view of the current accuracy reform of ideological and political work in Colleges and universities, relevant researchers have also conducted a lot of research to continuously improve the quality and mode of ideological and political work in Colleges and universities through a variety of effective modes.

Reference [9] analyzes the development direction, pain points, and practical strategies of ideological and political theory course in Colleges and universities in the era of
2. Analysis on the Basic Principles of Improving the Accuracy of Ideological and Political Education in Colleges

The accuracy evaluation of ideological and political education in colleges is a process that is dominated by internal factors and integrating internal and external factors of the curriculum. System Optimization and Construction Process. The optimization of precision of ideological and political education in colleges should follow the basic principle of inclusiveness, avoid possible direction deviation and law violation in development, consolidate the important links of course internal construction, and stimulate the endogenous power of course [11]. In the organic unity of principles, ideas, and construction practice, we should effectively improve the level of ideological and political education and promote the benign development of ideological and political education. The basic principle framework is shown in Figure 1.

Adhering to the party's leadership principles and carrying out work accurately are not only the basic experience of work development but also an important principle of practical development. We must actively expand the pattern of curriculum development under the leadership of the party. The coordination and guarantee of the basic pattern on the whole actively create a reasonable, effective, and cooperative work pattern and good atmosphere. This is bound to depend on the centralized leadership and vigorous deployment of the party organization, coordination, and guidance of human resources from the whole society and the whole university and effectively promote the positive interaction and cooperation of all forces [12]. Integrating this teaching concept into college teaching can promote the achievement of a more comprehensive and perfect framework system and create a high-quality teaching environment and atmosphere.

By innovating the ideological and political teaching mode in Colleges and universities, the efficiency of ideological and political teaching in Colleges and universities can be improved. Therefore, we should optimize the teaching mode and follow the scientific direction and goal according to the basic rules and norms of each work [13]. Ideological and political education in Colleges and universities is based on cultivating high-quality talents, optimizing teaching contents and teaching means, using diversified teaching methods, cultivating high-quality talents, and improving the accuracy of education. Therefore, through the optimization and reform of ideological and political teaching mode in Colleges and universities, we can give full play to the value of curriculum education and realize the effective combination of teaching curriculum and talent training, which also has certain positive significance. On the other hand, students should follow the law of life and growth and be taught Marxist truth, ideal, and belief [14]. Solve difficulties and problems in life with Marxist truth, ideals, and beliefs.

3. Specific Application of Artificial Intelligence Technology in Ideological and Political Education in Colleges and Universities

3.1. Construct the Index System of Ideological and Political Precision Education in Colleges and Universities. In order to improve the high accuracy of ideological and political work in Colleges and universities, after analyzing the basic principles of improving the accuracy of ideological and political work in Colleges and universities, this paper constructs an index system to improve the accuracy of ideological and political work in Colleges and universities and takes the teaching task data in the index system as the

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research object to realize the research task. There are many factors that affect the accuracy of ideological and political work in Colleges and universities, among which the more critical ones are mainly three aspects: ideological and political teachers’ teaching, students’ classroom learning, and after-school practice, as well as the importance of the school to ideological and political work [15]. The basis of its construction is to adhere to the correct political direction, have a solid theoretical foundation of Marxism, have good ideological and moral character, professional ethics, sense of responsibility, and professionalism, and be consistent with the Party Central Committee on issues related to political principles, political positions, and political direction. The framework of participants in the accuracy index system of ideological and political work in Colleges and universities is shown in Figure 2.

For the participants accuracy index system work, this paper constructs detailed indicators accuracy index system work universities and divides the indicators in the system into primary indicators and secondary indicators [16], which have a direct relationship. Table 1 shows the detailed accuracy index system.

According to the above constructed accuracy index system work in school, there are many indicators affecting the accuracy of relevant work. Therefore, it is necessary to determine whether the indicators determined in this paper meet the requirements of this study. This paper conducts a fuzzy comprehensive evaluation on the above-mentioned primary and secondary index data and makes an evaluation index system of educational accuracy, which scientifically and objectively reflects the accuracy of ideological and political education in colleges. The evaluation index system can give the evaluation results of teaching accuracy according to different factors and integrate the evaluation results [17, 18].

Let $A$ and $B$ be two finite theoretical domains:

$$A = \{a_1, a_2, \ldots, a_n\},$$
$$B = \{b_1, b_2, \ldots, b_n\},$$

(1)
The importance index of teacher’s teaching, student’s classroom learning, extracurricular practice, and work is determined, which includes primary indicators and secondary indicators.

In the process of fuzzy evaluation, a single first-level index \( a_{in} \) is set to set the first-level index of ideological and political work, which obtains

\[
A_{in} = (a_{i1}, a_{i2}, \ldots, a_{in}).
\]  

(2)

Based on the above determined fuzzy set of the first-level indicators of ideological and political work accuracy [19], the evaluation matrix \( W \) of primary indicators and secondary indicators can be constructed.

\[
W = \begin{bmatrix}
a_{11} & a_{12} & a_{1n} \\
a_{21} & a_{22} & a_{2n} \\
\vdots & \vdots & \vdots \\
a_{n1} & a_{n2} & a_{nm}
\end{bmatrix}.
\]  

(3)

Assume that the evaluation index weight is \( Y = \{y_1, y_2, \ldots, y_m\} \) on \( A \), the comprehensive evaluation result of the accuracy evaluation index of ideological and political education in colleges is the fuzzy set on \( B \) as \( \{b_1, b_2, \ldots, b_m\} \), which is calculated by \( Y = X \cdot P \). According to the calculation method of fuzzy set, the fuzzy evaluation of the accuracy index of ideological and political education in colleges can be realized. The fuzzy evaluation model is [14]

\[
\phi_i = \min_{i=1}^{n} b_m \times a_{in} \left( \Phi \sum_{i=1}^{n} W \right).
\]  

(4)

In the above formula, fuzzy plus is indicated by \( \Phi \); \( i \) indicates the evaluation factor of \( n \) evaluation factors is indicated by \( i \); \( b_m \) indicates the membership of the \( a \) th evaluation level.

In the construction of work accuracy index system, the importance of teacher’s teaching, student’s classroom learning, extracurricular practice, and work is determined, which includes primary indicators and secondary indicators.

3.2. Research on Accuracy Evaluation of Ideological and Political Education in Colleges under Artificial Intelligence Technology in the Era of Big Data. According to the educational accuracy evaluation index system constructed above, this chapter effectively carries out the educational accuracy evaluation of ideological and political courses with the support of artificial intelligence technology. AI big data technology is an algorithm that finds target data in a mass of data, including various artificial intelligence algorithms [15]. Before classifying any index system, the index data should be quantified, and it shall be classified and evaluated according to the quantified results. Therefore, this paper takes the evaluation membership value of the accuracy index as the input information [20] and takes the index as the evaluation level information; that is,

\[
D_{rate} = \frac{P_c}{U}.
\]  

(5)

where \( D_{rate} \) indicates the quantitative evaluation index membership degree, and \( P_c \) indicates the number of correctly input sample indicators.

After the quantification of the accuracy evaluation index of ideological and political education in colleges, the index should be input into the quantizer of membership degree value [17], and the index feedback data training set \( T \) should also be constructed, with \( T = \{t_1, t_2, \ldots, t_n\} \) to represent the set of first-level indicators of the precision of ideological and political education, the number of indicators is represented by the set of subscripts \( n \), \( C = \{c_1, c_2, \ldots, c_m\} \) is represented by a set of secondary indicators to measure the accuracy of work, and \( m \) in the lower corner is a number. The test sample \( x \) of the precision index of ideological and political education is \( \{x_1, x_2, \ldots, x_m\} \), and the quantitative degree of the precision index is calculated by the following formula:

\[
V(c_m|x_t) = \arg \max_{x} \frac{v(c_m|x_t)P(x)}{v(x)}.
\]  

(6)

According to the quantified accuracy index of ideological and political education, the network structure of naive Bayes classification model is used for index quantitative weight decomposition [21]. The basic decomposition model of naive Bayes is shown in Figure 3.

Through the naive Bayesian model, the root node \( C \) can be used to represent the membership variables of the accuracy evaluation index of ideological and political education, and the leaf nodes \( A_1, A_2, \ldots, A_n \) are set as the variables in the index system. Use the naive Bayesian decomposition model to remove the independent attribute of the ideological and political work accuracy index from the [18], and then, the naive Bayesian classification formula is

\[
Q(c_m|x) = \arg \max_{Q} Q(c_m|x)Q_{m-1},
\]  

(7)

where \( Q_{m-1} \) represents the decomposition coefficient and the prior probability of the indicator through \( Q \).

Take the graded accuracy index of ideological and political work as the evaluation object, and introduce artificial intelligence technology for effective evaluation. First of all, combined with the deep data mining technology, the following results are obtained:
\begin{equation}
\hat{z}(x) = \frac{e^x}{e^s}
\end{equation}

where the number of subcategories of ideological and political courses teaching evaluation indexes in colleges is represented by \(e_i\), and the number of data mining index samples is represented by \(e\).

Finally, with the help of convolution neural network in artificial intelligence algorithm, the accuracy evaluation model of ideological and political work in Colleges and universities is constructed. Convolutional neural network is an artificial neural network connected by a fixed neuron, which has a certain hierarchical structure [21]. The convolution neural network is constructed by imitating the visual perception mechanism of biology, which can carry out supervised learning and unsupervised learning. The parameter sharing of convolution kernel in its hidden layer and the sparsity of interlayer connection make the convolution neural network can learn lattice features, such as pixels and audio, with less computation, stable effect, and no additional feature engineering requirements for data. The convolution layer of deep convolution neural network is the range connecting the local, that is, the sensing domain of convolution layer. Its principle is shown in Figure 4.

In each spatial dimension, the movement of different convolution kernels can form corresponding feature graphs. After convolution operation, the number of convolution kernel channels in the convolution layer directly affects the formation of the characteristic graph. After convolution layer operation of convolution neural network, the \(K\) indicators of ideological accuracy in layer \(N\) are at the position \((i, j)\) in space:

\begin{equation}
f(i, j, k) = \alpha \beta^c \gamma^s \mu_i + \nu_y,
\end{equation}

where the activation function in the deep convolution neural network is indicated by \(\alpha\), the size of the receptive field is indicated by \(s\), \(l\), the number of channels in the input layer is indicated by \(b\), and the deviation term is indicated by \(y\).

Assuming that the input layer of the deep convolution neural network is \(r^{(1)} = a\), and the n-layer response is indicated by \(r^n\), which is expressed as

\begin{equation}
r^{(n+1)} = H^{(n)} r^{(n)} + \tau^{(n)}
\end{equation}

where \(e/v\) and \(\tau\) stand for the deviation vector of the response value, and \(H\) represents the matrix of weights.

In the accuracy evaluation of ideological and political education in colleges, \(N\) evaluation index samples of accuracy of ideological and political education are input into the convolutional neural network and produce output, and the mean square error should be the sum of error squares of each output unit, which is expressed as

\begin{equation}
\phi^N = \frac{1}{2} \sum_{i=1}^{m} (g_i^N - y_i^N)^2.
\end{equation}

### Table 1: Work accuracy index content.

| Participant | Level 1 indicators | Secondary indicators |
|-------------|-------------------|----------------------|
| College teachers | Teaching quality of ideological and political course | Class activity, number of questions, etc |
| | Satisfaction with ideological and political teaching | Degree of student identity |
| | Lesson preparation before ideological and political lessons | Teaching content logic, teaching content structure is complete |
| | Homework check status | Students’ homework content meets the classroom requirements and the seriousness of homework correction |
| College students | Classroom reaction | Whether to speak actively and listen carefully |
| | Satisfaction | Identify the teaching content |
| | Task performance | Careful completion and accuracy |
| Colleges and universities | Emphasis on ideological and political courses | Whether to agree with the course content and attach importance to the development work |
| | Supervision ability | Supervise teachers “teaching and students” performance |
| | Provide training ability | Whether to provide training opportunities for ideological and political teachers and whether to strive for practical opportunities for students |
When all the work accuracy samples are input once, the total error can be expressed as
\[
\xi_t = \frac{1}{2} \sum_{i=1}^{N} \sum_{l=0}^{m} (g_{l}^{N} - y_{l}^{N})^2.
\]  

(12)

Suppose \(\delta_i\) represents a connection weight in a convolutional neural network, according to the gradient descent method, the correction is
\[
\Delta \delta_j = -\frac{\partial \xi_t}{\partial \delta_j}.
\]  

(13)

In the training of convolutional neural network training stage and learning stage, assuming there are \(N\) ideological work precision index sample training samples, shilling a ideological work precision index sample input/output mode of sample index training and learning, convolutional neural network hidden layer in the \(i\) neurons under the action of ideological work precision index sample evaluation model is
\[
\varphi_{i}^{p} = \sum_{j=1}^{m} \eta_{ij}d_{i} - \theta_{i},
\]  

(14)

where \(\eta_{ij}\) stands for the input value and output value of the convolutional neural network input node \(j\) in the function of the ideological accuracy index sample. There is no difference between the two for the input nodes, \(d_{i}\) represents the connection weight of network input layer and hidden layer, and \(\theta_{i}\) is threshold for hidden layer neurons. The accuracy evaluation process is shown in Figure 5.

According to Figure 5, judge whether the index data are quantified. If it meets the requirements, preprocess and standardize the data. If the requirements are not met, the standardized index evaluation model is constructed. On this basis, the accuracy of ideological and political work in Colleges and universities is evaluated.

4. Experimental Test Study

4.1. Setting of Experimental Environment and Experimental Parameters. This study takes the freshmen in class A of a university as the research object to analyze the accuracy of ideological and political education. There were 90 students studying ideological and political courses in this class, including 35 boys and 45 girls. Carry out ideological and political education for the students of this class for three months. This class will set up three ideological and political courses every week and organize a week of social practice activities each month.

The experimental parameters are set as shown in Table 2. The experimental results are analyzed according to the experimental settings. To solve the problem of research limitations, the experimental data are analyzed for many times, and the accuracy of the data is checked according to the actual situation.

4.2. Analysis of Experimental Results. This experiment first analyzes the three-month written examination results of course teaching in the class, carries out a comparative analysis with the written examination results in the previous semester, and randomly selects 20 people in the class for comparison. The experimental results are as shown in Table 3.

Analysis of Table 3: the scores of the ideological and political written examination results of students in this test and those in the last semester have changed greatly. By comparing the scores of each student, we can find that the ideological and political written examination scores in this test have been qualitatively improved. Among the 20 randomly selected people, the written examination scores of ideological and political courses are qualified or above. It is verified that paying attention to the study of courses in this test will improve students’ scores, and the work tasks of teachers will be well improved. It can be seen from this that the selected index of course has a certain key degree, which is because this method determines the effectiveness of the selected index with the help of fuzzy comprehensive evaluation method.

Through the comparison with traditional method 1 (the method in Reference [9]) and traditional method 2 (the method in Reference [10]), the scientific and effectiveness of this research method can be further verified, indicating that this research method can significantly improve the accuracy of ideological and political education in Colleges. The results are shown in Figure 6.

Combined with the experimental results in the figure above, it can be seen that there are certain differences between this research method, method 1 (the method in Reference [9]) and method 2 (the method in Reference [10]) in the effectiveness of social practice teaching of ideological and political courses in colleges, and the teaching effectiveness coefficients are different. Among them, the validity coefficient of the proposed method is always higher than 0.9. Therefore, this research method has better evaluation effect on the accuracy of ideological and political education, which is helpful to improve the accuracy of ideological and political education and has strong practicality.

In addition, this study conducts a comparative analysis of the evaluation time of the accuracy of ideological and political education of different methods, further clarifies the
evaluation error accuracy of this research method, method 1 and method 2, and verifies the feasibility of the method proposed in this research. The experimental results are as shown in Figure 7.

According to the above figure, the accuracy evaluation errors of ideological and political education under the three different methods are different. From the variation degree of the experimental curve, we can know that the evaluation error of the method proposed in this study is relatively low, and the tangent is always less than 0.2%, which is significantly lower than method 1 and method 2.

This research method clarifies the key indicators of the accuracy evaluation of ideological and political education and constructs the evaluation model based on artificial intelligence (AI). The key indicators include ideological and political teachers, ideological and political student level, and colleges and universities focusing on ideological and political education.

**Figure 5: Accuracy evaluation process of ideological and political education in colleges.**

| Parameter | Content |
|-----------|---------|
| Number of people tested | 90 |
| Carry out ideological and political education courses/week/section | 3 |
| Ideological and political written test results test period/day | 15 |
| Ideological and political extracurricular practice performance test/day | 15 |
| Data sorting software | SPSS13.0 |
| Ideological and political course teacher class duration/min | 45 |
| Student satisfaction score/score | 100 |
| Evaluation accuracy/% | [0, 100] |
intelligence technology, which greatly reduces the evaluation error rate.

To sum up, in this test, paying attention to the study of ideological and political courses in this class will improve students' performance, and the work tasks of ideological and political teachers will be well improved. The index of improving ideological and political courses in Colleges and universities selected in this paper has a certain key degree. The effectiveness coefficient of the proposed method is higher than the other two traditional methods and is always higher than 0.9, so the evaluation effectiveness is better and more feasible. The evaluation error of this method is low, and the cut is always less than 0.2%, which verifies that the proposed method can be effectively applied in the accuracy of ideological and political work in Colleges and universities.

Data Availability

The author can provide all the original data involved in the research.

Conflicts of Interest

The authors declare that there are no conflicts of interest in the study.

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