Retraction

Retracted: Exploration and Practice of Moral Education Courses in Universities in Big Data Era

Advances in Multimedia

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] J. Liu, "Exploration and Practice of Moral Education Courses in Universities in Big Data Era," *Advances in Multimedia*, vol. 2022, Article ID 9366684, 9 pages, 2022.

Hindawi

Research Article

Exploration and Practice of Moral Education Courses in Universities in Big Data Era

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Since the moral education acts an important role in daily life, the construction of moral education curriculum will have important consequences on the final effect of moral education work through the management of curriculum objectives, curriculum structure, curriculum content, curriculum implementation, and curriculum evaluation. The development and application of big data bring new direction for the enhancement and progress. This work gives the definition of big data in the teaching of moral education in universities. Secondly, the application status of big data in moral education teaching in colleges is studied. According to the existing research, the popularization of big data technology has completely changed the teaching concept of moral education in colleges and universities. Based on the second part, abundant theoretical research has been achieved and successfully applied in the teaching of moral education. Finally, this paper designs targeted big data strategies and analyzes the differences of different big data technologies in the effects of moral education to improve the effects of moral education in modern colleges and universities. The research of this paper has both theoretical and practical significance.

1. Introduction

Tracing back the birth and development of colleges and universities, it has always been the national center of training talents, serving society, and inheriting culture. Moral education has always shouldered an important mission [1, 2]. Internet technology has not only brought great convenience to people's life, and also deeply penetrated into the field of moral education in universities, directly affecting the ideas and behavior of teachers and students. The curriculum resources belong to the curriculum category, which is the material. The main way to implement moral education activities in colleges is moral education curriculum. Therefore, the effective development of curriculum resources is a powerful support to moral education in universities. First of all, the effective development of curriculum resources is the basic requirement for progress and promotion the education in the 21st century, which is also necessary for moral education to cope with the impact of new network media. Secondly, the effective development of curriculum resources is a profound extension of moral education courses in universities, which is very important to enhance the develop-

ment of moral education in universities. Finally, the development of moral education curriculum resources in universities in the context that information age is helpful to the development of universities, providing sufficient resources for the realization of moral education goals, and providing more possibilities for moral education courses in universities. Improve the resource system, so that courses can be extended from campus classrooms to real life without time and borders [3, 4].

As the basic method to implement moral education, the development of moral education course has always been the focus of the country and society. At the policy level, it specifically includes the goal, content, principle, approach, evaluation, and implementation of moral education. It not only makes clear norms for moral education work in high schools but also realizes the systematization of moral education work. Therefore, to further cultivate more versatile talents for the country, colleges, and universities carry out comprehensive planning on the setting and management of moral education courses based on curriculum reform. In practice, after continuous exploration and improvement, the management of moral education courses in universities has achieved

great success by extracting previous experience. At present, most schools pay more people and more resources to the cultivation of talents on students' professional achievements, and pay little attention to the problems of moral education course management. The whole process of the implementation of moral education curriculum contains several key links, such as curriculum content, curriculum structure, and the neglect of any link will affect the smooth development of the final implementation quality of moral education work [5, 6]. Therefore, while enhancing the implementation quality of moral education is very important with practical significance in the practical exploration of ideological and political education in colleges [7, 8]. The theory of curriculum explains the advanced nature and necessity of ideological and political theory of curriculum to a certain extent, demonstrates the correctness and inevitability of the integration of curriculum teaching in universities. Firstly, it is an important subject of ideological and political education research in the new era to carry out theory research, which is in line with the fundamental requirements of the reform and reflects the fundamental task of cultivating morality and cultivating people in colleges and universities, and adapts to the needs of the development of ideological and political education theories in universities. Secondly, the construction of ideological and political theory of university curriculum is conducive to enriching and developing the basic theories of ideological and political education and pedagogy and other related disciplines, and providing certain theoretical support for the innovation and development of moral education in the new era [9, 10]. In recent years, the development of machine learning and big data has become more and more prosperous [11, 12].

In the new era, machine learning technology acts a new platform and opportunity for the development and construction of colleges and universities, which is particularly important for college education, especially the design and practice of moral education courses must be appropriately adjusted and changed to ensure the needs of modern colleges. Nowadays, how to better integrate the existing resources of moral education courses and further enhance the teaching methods of moral education courses has become an important method of current research. Analyzing the characteristics and application scope of big data technology is the premise and guarantee for the application of intelligent means in moral education courses in universities. Combined with big data technology, moral education courses in colleges can form transparent and efficient curriculum design scheme and evaluation annotation [13, 14]. Because the CNN method designed in this paper is only applied to moral education courses in colleges and universities, and the characteristics of moral education courses in primary and secondary schools are quite different from those in colleges and universities. Therefore, whether this method is applicable to moral education in primary and secondary schools needs to be verified by subsequent studies.

2. Related Work

Based on the actual development of our country, moral education mainly includes the three parts that are ideological

education, political education, and moral education in the educational practice, which are related and inseparable among each other, which have stronger applicability in practice. In other words, there is no simple moral education in practice, but it permeates political education and ideological education, which reflects the development law of educational practice and is more consistent with the development trend of education in the current multicultural environment [15, 16]. The process of moral education is a complex educational process, which will be affected by many factors, such as classroom education, campus, family, society and other places, teachers, students, administrators, and other subjects. Therefore, moral education cannot be completed by simple knowledge indoctrination, but should penetrate into all related fields of students' study and life. The contents of traditional university moral education work often flow into the simple indoctrination of moral education knowledge, the way is too direct and formalized, it is difficult to really meet the intrinsic renewal of college students, nor can it achieve good effects of changing students' quality and behavior [17, 18].

In recent years, many scholars have proposed a lot of research works on moral education courses in colleges and universities and achieved rich success. Through searching and consulting a variety of electronic databases such as China Academic Journal Network and database, as well as various textual documents, the author believes that domestic scholars' research on ideological and political curriculum mainly focuses on the basic theory, practical theory and applied theory of different subjects and different majors. The existing research is summarized and analyzed as follows: the academic circle's definition of ideological and political theory of curriculum presents different expressions due to different perspectives [19, 20]. Education course is not only a natural continuation of China's traditional education idea, achieved the combination of education and moral education but also explains the course education is a timely strengthening of the national education in new era, is confident of socialist culture with Chinese characteristics of nature, thus course education example consistency of khalid ents education concept.

On the practical research of curriculum moral theory, scholars keep exploring under the guidance of the methodology of seeking truth from facts and analyzing specific problems to achieve mutually beneficial effects. Some people think that the promotion of ideological and political curriculum should strengthen the theoretical guidance and pay attention to the value guidance. He points out that teachers are the key factor to generate the path, the construction of teaching materials is the important support to cultivate people and talents, and the mining of moral education resources of the curriculum is the prerequisite. The first is the subject classification guidance of moral courses in colleges. The second is the formation of the differential pattern of ideological and political courses in colleges and universities. The third is the three-dimensional arrangement of moral courses in and universities. The five key links to be grasped in the ideological and political construction of the curriculum are the foundation in the curriculum, the key in the teacher, the

center of gravity in the department, the effect in the students, and the new ideas and ideas are put forward in the understanding and practice. For course education brought about by the innovative ideas on education, some scholars proposed course education the key problem, the main management concept, reform measures, teaching method and mechanism system, etc., the correct analysis of these problems, to ensure the smooth undergoing of course education article summarizes the course education experience in the practice, and puts forward the path of the implementation of curriculum education thinking. It has high reference significance.

The poverty of material often comes from the poverty of ideas. Whether the effective development of curriculum resources is reasonable is closely related to the concept of curriculum resources [8, 21]. According to the data, some college teachers and students have rigid curriculum concepts, too narrow understanding of curriculum resources, and simply mistake moral education textbooks and teaching reference materials as curriculum resources. Even though some teachers have participated in the compilation of textbooks or teaching reference materials, they are unclear about the specific concepts [22, 23]. For a long time, the effective development of moral education curriculum resources in colleges and universities relies on education authorities, a few national subject experts, and local governments, etc. Most moral education teachers have no opportunity to participate in the development process, which leads to vague concepts and narrow understanding of curriculum resources, and their development ability and awareness need to be improved. It is undeniable that both teaching materials and teaching reference are course resources, but this does not mean that they are the only moral education course resources in universities. Single for a long time, moral education in colleges curriculum resources structure, mainly teaching material, the moral education carrier space, implementation, curriculum content and so on did not form system, coupled with the college leadership development consciousness, do not take the effective curriculum resources development, the concept of teachers and students in colleges and universities curriculum resources, the understanding of curriculum resources is one-sided [24, 25].

New media ideological and political curriculum resource is a special curriculum resource derived under the background of The Times, which has the dual nature of material and information. Meanwhile, it is also a constantly developing curriculum resource, which is reformed and renovated with the needs of society, and new types and forms appear to meet the subject and object needs of moral education. According to some survey data, at present, the development and innovation of new media moral education curriculum resources is insufficient, the level is shallow, and it lags behind the development trend of new media, which is quite different from the curriculum resources that students expect to be interested in. Some schools set up red websites for moral education in universities, which simply list the course resources and only serve as a publicity ground for mainstream values. As a result, the page views are low and the effect on students' education is not obvious [26, 27]. Limited

by traditional concepts and other factors, some classical and traditional moral education curriculum resources are not mined in time, and the integration with new media is not strong enough. The developed new media curriculum resources are not applied in the moral education courses in universities, and some hidden new media curriculum resources are not used enough. In addition, the quality of the developed new media curriculum resources is limited. First of all, the content of new media course resources is empty, the form is monotonous and boring, the campus red website plate is set less, and the innovation is insufficient [28, 29]. All of them are cookie-cutter propaganda of the national mainstream ideology, which is not closely linked with the background of Times and the concerns of students. Secondly, the updating efficiency of existing new media curriculum resources is slow, teachers and students are not timely enough to receive information, and the browsing time is long. Furthermore, it is also one of the most important essential characteristics of media. Once the essential characteristics are lost, it is equal to losing the initiative under the background of this era.

The concept of moral education does not exist in foreign education, and foreign studies are mostly reflected in moral education, civil rights, national education, and other contents [30, 31]. Hence, the study of the application of big data in college course teaching mainly selects the case of teaching intervention based on big data prediction in Georgia State University, taking the political science major of the university as an example to elaborate. With the rise of machine learning technology in recent years, many researches have gradually integrated big data technology and thinking into moral education in universities. From the initial theoretical discussion to the current application research at the specific technical level, it will be a key topic of concern in the domain of moral education [2, 32]. In the new era, there are a lot of researches on "the application of big data in moral education in colleges and universities" [33]. In the search of "Big data" and "moral education in colleges and universities" on CNKI, there are more than 1600 literatures as of the end of 2021. In 2015, big data began to appear in college teaching, and has been on the rise since then. The specific results are shown in Figure 1. Therefore, the research of this paper has excellent theoretical value and practical significance. And in the future period of time, this content will always be the hot spot and focus of design research.

However, most of them remain at the shallow level of information network and the use of new media fragments, which cannot really improve the effectiveness of moral education activities in colleges and universities by promoting the transformation and upgrading of moral education paradigm. At the same time, a considerable number of scholars do not link intelligent technology with ideological and political courses; they believe that in the level of emotion measurement. In addition, there are some scholars exists for smart technology concerns, hindering the development of the moral education curriculum it considers the current intelligent technology education from the strict sense, did not use other core elements of smart technology service for ideological and political education, makes the innovative
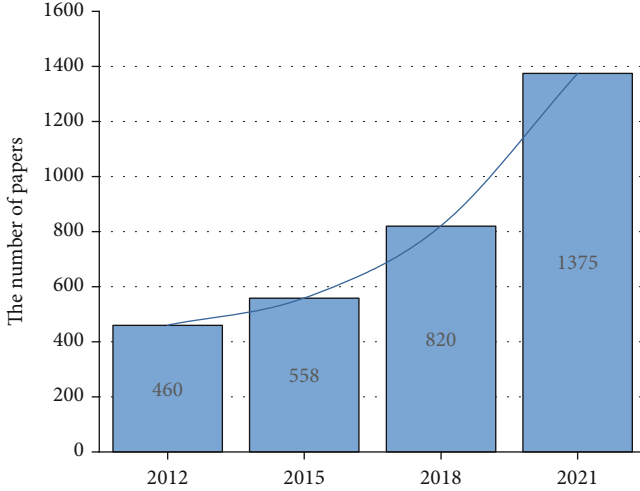
Figure 1: Literature publication trend chart.

development of college moral education process is very difficult. Besides, it is not difficult to find that many people have some misunderstandings about the orientation of moral education courses, and some even equate it with moral evaluation, which leads to the neglect of curriculum plans and activities. Therefore, this study should first clear the relevant conceptual misunderstandings. Based on the practice that moral education curriculum is based on contemporary moral education, the author makes an in-depth analysis of the evaluation objectives, contents, plans, and results of the performance evaluation of moral education curriculum, and reflects on the existing and common problems in contemporary moral education. It has great significance in the practice of our contemporary moral education, promoting students' moral development and carrying out the fundamental task of moral education. The main contributions of this paper are as follows:

(1) In this paper, a CNN model is proposed for the first time for exploration and practice of moral education courses in universities

(2) This paper not only has strong theoretical value but also has certain application prospect

3. Moral Education Course Data Analysis and Modeling by CNN

3.1. CNN Model Introduction. CNN is one of the representatives of the deep learning algorithm, it is a kind of structure containing convolution computation and has depth of feedforward neural networks, when compared with the general artificial neural network, and on the connection way of convolution of the neural network is not completely interconnection between adjacent layers. Each neuron can only interconnect with a few neurons in the previous layer, which greatly reduces the parameters of the model and makes the model training easy. CNNs are often used in image recognition, video recognition, speech recognition, and other fields.

It is worth noting that the lightweight CNN refers to a CNN model that has fewer layers of hidden layer and convolution layer and can give consideration to both running speed and model performance. Thus, the most representative results can be obtained.

CNN is mainly composed of four parts: convolutional layer, pooling layer, activation function layer, and fully connected layer. The main function of convolutional structure layer and data pooling layer is to extract the basic features of objects, while the function of activation function layer and fully connected layer is to be used as classifiers, which is shown in Figure 2. Since the feature detection layer of CNN learns from the training data, it avoids the feature extraction displayed when using CNN, and learns implicitly from the training data. Moreover, because the weights of neurons on the same feature map surface are the same, the network can learn in parallel, which is also a big advantage of convolutional network over the network of neurons connected to each other.

The main purpose of the convolution layer is to convolve and calculate the convolution kernels of different sizes in the window with all the input data, respectively, which is essentially an inner product.

$$CONV_{(ij)} = \sum_{i}^{m-1} \sum_{j}^{n-1} u_{ij} \times w + b \quad (i = 1, 2 \cdots m - 1; j = 1, 2 \cdots n - 1).$$
(1)

Pooling is also called undersampling or downsampling. In general, pooling layers are added periodically between successive convolutional layers. The space size of the data in the pooling layer can be greatly reduced, and the parameters in the network structure can also be reduced accordingly, saving the time and space resources consumed in the calculation process.

The purpose of adding activation function to the network is to introduce some nonlinear factors into the neural network model. The addition of nonlinear factors can help the network model to solve the complexity problem better. In a word, the existence of activation function layer can strengthen the neural network model. The input of the lightweight CNN model is moral education curriculum data, and the structure of the CNN model is given in Figure 2, thus the best results can be achieved by the current CNN model. The activation functions commonly used in CNN include Sigmoid function, Tanh function, and ReLU function. Then, the mathematical expressions are introduced one by one as following:

$$f(x) = \frac{1}{1 + e^{-x}}.$$
(2)

The Tanh function is

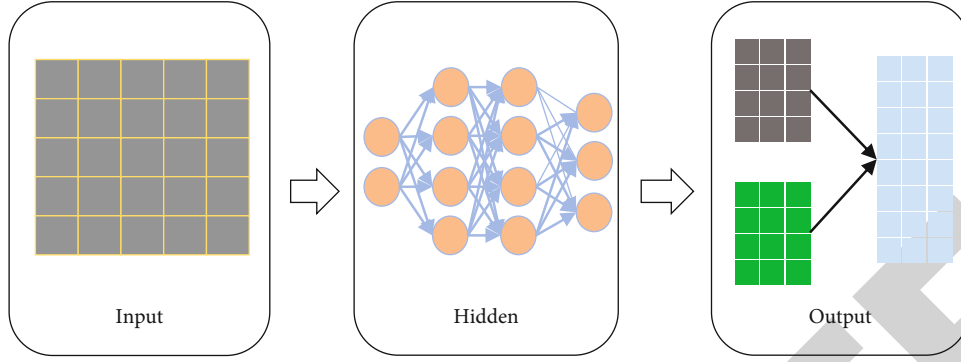$$f(x) = \frac{e^x - e^{-x}}{e^x + e^{-x}},$$
(3)

FIGURE 2: The structure of CNN model.

where the x is the set of real numbers, and $f(x)$ is belonged to [0,1].

The ReLU function is

$$f(x) = \max(0, x). \tag{4}$$

The Leaky-ReLU function is shown as

$$f(x) = \begin{cases} x, x \geq 0 \\ \alpha x, x < 0 \end{cases} \tag{5}$$

The theory introduction of Sig and Tanh are shown as following:

$$\begin{cases} sig(x) = \dfrac{1}{1 + \exp(-x)} \\ \tanh(x) = \dfrac{\exp(x) - \exp(-x)}{\exp(x) + \exp(-x)} \end{cases} \tag{6}$$

$$h_{w,b}(x_i) = \begin{bmatrix} p(y_i = 1 | x_i; w, b) \\ p(y_i = 2 | x_i; w, b) \\ p(y_i = 3 | x_i; w, b) \\ \dots \\ p(y_i = n | x_i; w, b) \end{bmatrix} = \frac{1}{\sum_{j=1}^{n} e^{w_j x_i + b_j}} \begin{bmatrix} e^{w_1 x_i + b_1} \\ e^{w_2 x_i + b_2} \\ e^{w_3 x_i + b_3} \\ \dots \\ e^{w_n x_i + b_n} \end{bmatrix}. \tag{7}$$

However, it is worth explaining that ReLU function has certain defects in the calculation process. When the data passes through the negative range of ReLU function, the output value is equal to 0. The Leaky-ReLU function can solve the above problem. The cross entropy (CE) formula is

$$loss = -\frac{1}{m} \sum_{j=1}^{m} \sum_{i=1}^{n} y_{ji} \log(\widehat{y}_{ji}). \tag{8}$$

The original form of the gradient descent method is

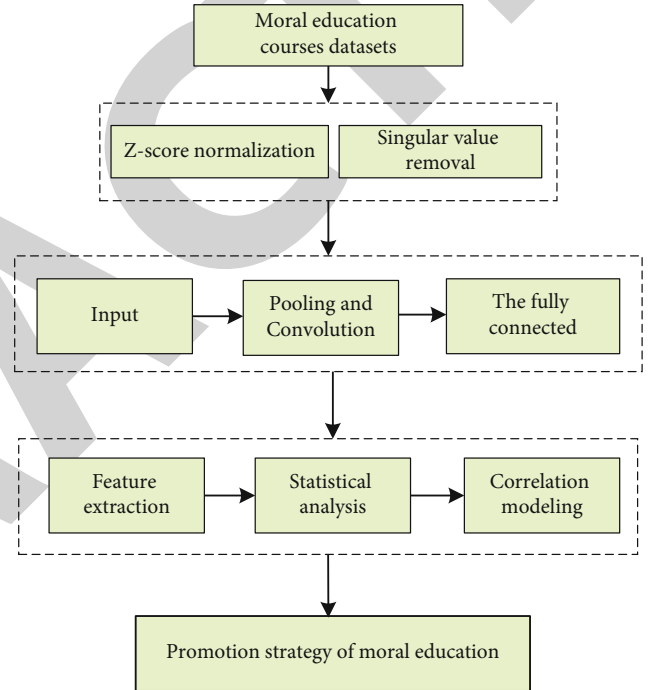$$\theta := \theta - \alpha \frac{\partial}{\partial \theta} J(\theta). \tag{9}$$

FIGURE 3: The framework of the new method for exploration and practice of moral education courses.

The Adam optimizer is

$$m_t = \beta_1 m_{t-1} + (1 - \beta_1) g_t, \tag{10}$$

$$v_t = \beta_2 v_{t-1} + (1 - \beta_2) g_t^2. \tag{11}$$

Convolution, pooling layer, layer activation function main purpose is the original sample data directly mapped to the characteristics of the hidden information space, the whole purpose of link layer is to learn the characteristics of distributed to said is mapped to a tag on the space, in order to complete the sample classification task convolution layer of output data contains the fundamentals of the characteristics of it. When these features can be flattened and closely connected to the output layer, adding a fully connected layer can learn these nonlinear combined features in a simple way. Because this paper only applies the conventional CNN
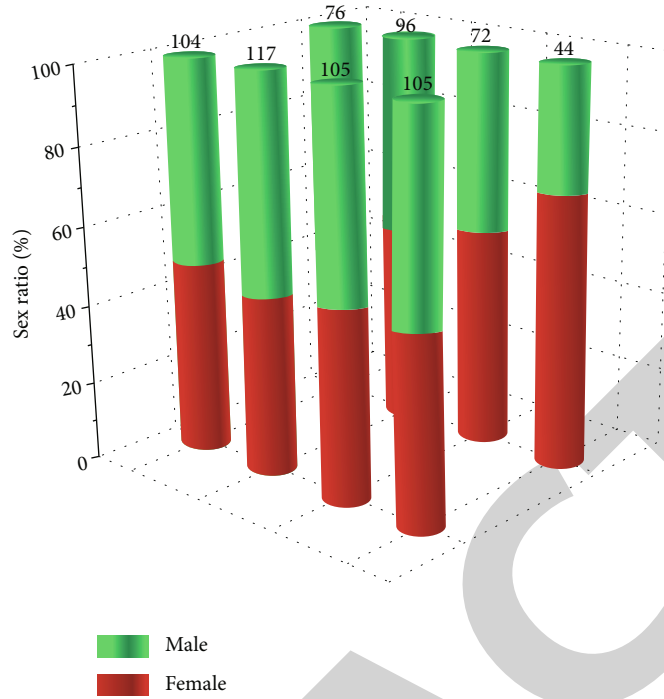
Figure 4: The ratio of male to female students in different groups.

model to the moral education in colleges and universities, and has achieved very good results. However, since the purpose of this paper is to prove the effectiveness of CNN model in moral education in colleges and universities, no other comparison algorithm is designed in this paper.

3.2. Establishment of Quantitative Evaluation Index. In addition to direct observation and comparison, some statistical indicators are introduced to test the validity of the variable structure cointegration model.

$$MAE = \frac{1}{n} \sum_{i=1}^{n} |y_i - y_i^*|, \tag{12}$$

$$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^{n} (y_i^* - y_i)^2}, \tag{13}$$

where y_i is the actual value of domestic tourism consumption, and y_i^* is the fitting value. The smaller the error value is, the better the fitting effect is. That is to say, the better the economic analysis performance of the model is. Based on the above discussions, the framework of the proposed method for exploration and practice of moral education courses is shown in Figure 3. It includes the moral education courses dataset, the data preprocessing and the feature extraction, statistical analysis and correlation modeling, and finally the promotion strategy of moral education. It is worth noting that there is a close relationship between feature extraction, statistical analysis and correlation modeling, in which feature extraction is the premise, statistical analysis

is the key, and correlation modeling is the goal. Hence, all three are indispensable.

4. Experimental Results and Analysis

4.1. Experimental Data Introduction. Deep learning track is often applied to mine the emotional tendency of users in the course comments to indirectly understand the pros and cons and characteristics of the course. Therefore, the collection of online course reviews is also an important step in the research of this paper. In this paper, an octopus collector was used to collect 13,281 moral education courses from a number of universities on the national online learning platform of MOOC.

Octopus web data terminal management system is applied in the domestic market relatively mature a web data automatic collection management software, the system with completely independent research and development of distributed cloud computing platform as the core, can be in a very short period of time from various websites or web pages easy web pages to get a lot of real-time normalized data automatically, realize the automation of data collection. It gets rid of the complex process of traditional manual data search and manual collection of massive data, greatly reducing the difficulty of obtaining information and improving the work efficiency.

4.2. Experimental Results Analysis. To prove the practicability of the approach in this work, Figure 4 shows the male-female ratio of the 8 groups of students in the experiment. It can point out from the figure; the total number of directors in the 8 groups is 76, 96, 72, 44, 104, 117, 105, and 105, respectively. This division allows the number of people

in each group to be different, thus ensuring the diversity and universality of the data sets. The purpose of this grouping is mainly to ensure the difference between the numbers of different groups to prove the universality of the proposed method under different data set sizes. In addition, red for girls and green for boys, the ratio of men to women in each group is about 1 : 1, to ensure that the number of men and women is approximately the same, so that the results of the experiment will not be affected by gender and ensure the robustness of the results.

Figure 5 shows that the change of information content of moral education courses in different years. We can see that in the picture, from 2015 to 2021, the information content of moral education courses showed a gradual increase. In particular, in 2015 and 2016, the amount of information was only about 90. After 2018, the amount of information showed a big increase, reaching about 95. As recently as 2021, there was 100.The main reasons are as follows: first, the advent of the era of machine learning leads to a larger information capacity in the classroom. Secondly, the popularization of intelligent teaching means leads to the increase of teaching informatization in moral education classroom. Therefore, it is necessary to study and explore moral education courses in colleges and universities under the background of big data. And the potential value of this study is proved from another perspective.

Generally speaking, students' attention reflects the quality and level of moral education class. Figure 6 gives the concentration degree of students in regular moral education course for 10 minutes at random. It can point out from the figure, students' concentration level in the current moral education course fluctuates, and even disappears and wanders for a short time, indicating that the quality of the existing moral education course is not very high. In particular, at the beginning of the course there is a decrease in concentration, and then a small decrease followed by a larger increase, then a subsequent increase and a decrease again. This curve can reflect the process of moral education course and the quality of students' learning to a certain extent. Therefore, it is necessary to propose advanced artificial intelligence technology to improve the reform and promotion of moral education courses in colleges and universities.

In order to further demonstrate the effectiveness of the CNN model-based exploration method of moral education courses in colleges proposed in this paper. Figure 7 shows the changes of the key indicators of moral education (attention, teaching effect, interest, achievement, and learning motivation). Among them, the light shade represents the conventional moral education curriculum, and the dark bar chart represents the moral education curriculum indicators based on the CNN model. It can point out from the figure, after CNN model processing, these key indicators of moral education courses in universities show varying degrees of increase, thus indicating that the quality of moral education courses has been greatly improved. In particular, the two indexes of students' classroom attention and students' learning motivation have the largest increase, which indicates the effectiveness and practicability of this method. It is worth noting that this paper only selects the above five
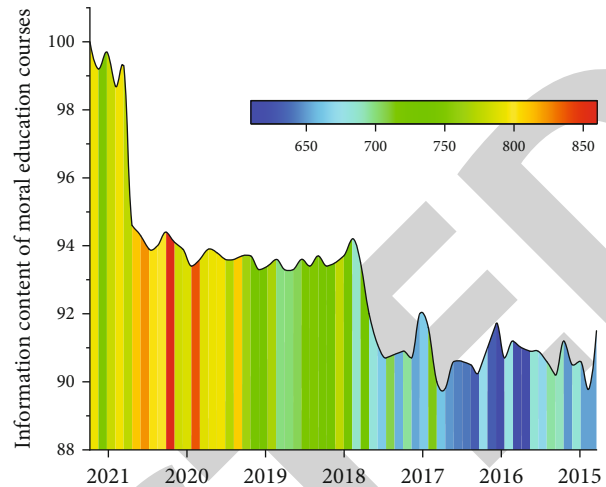

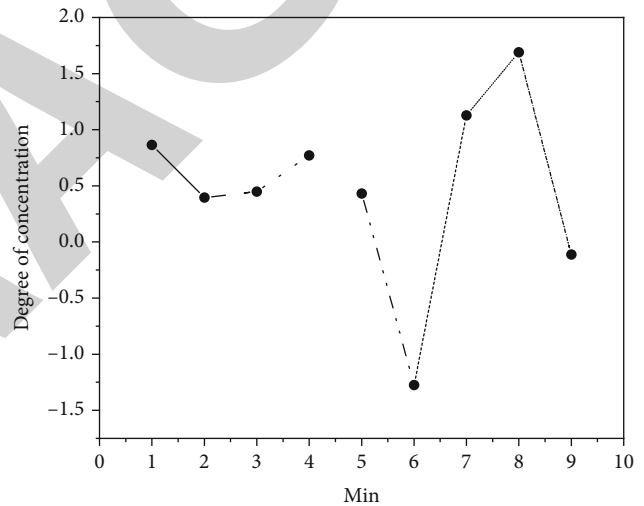FIGURE 5: The change of information content of moral education courses.

FIGURE 6: The concentration degree of students in regular moral education course for 10 minutes at random.

factors as the standard to evaluate the quality of moral education curriculum.

In order to give the ultimate improvement effect of moral education course in colleges under the method of this paper, Figure 8 shows the comparison of teaching effects of moral education courses with and without CNN. The x-coordinate is the moral education course quality, and the y-coordinate is the counts. It can point out from the figure, after the implementation of CNN model, the quality of moral education courses in colleges can not only achieve a higher teaching level but also the average level of all courses is much higher than the standard level of moral education courses in colleges. Thus, it verifies the effectiveness of this method, and also illustrates the positive role of big data technology in improving the level of moral education courses in universities.
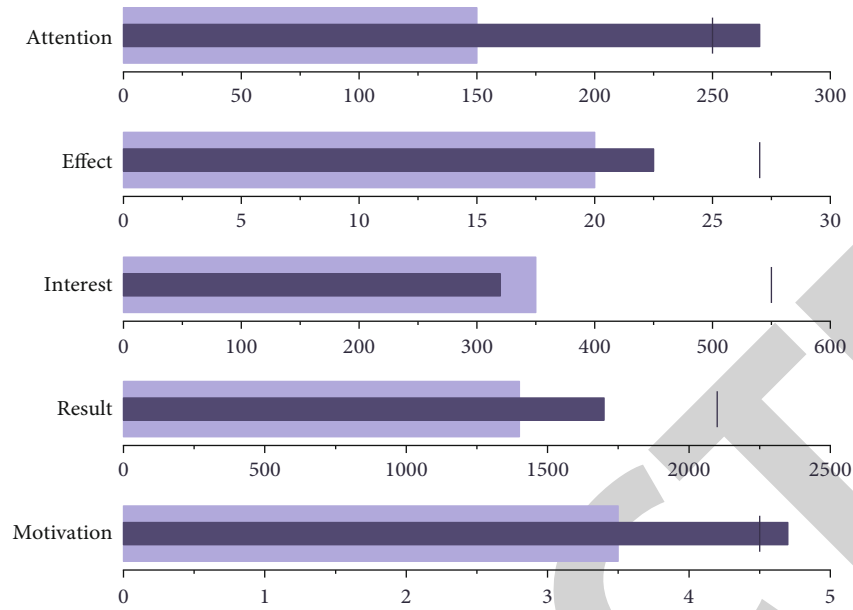
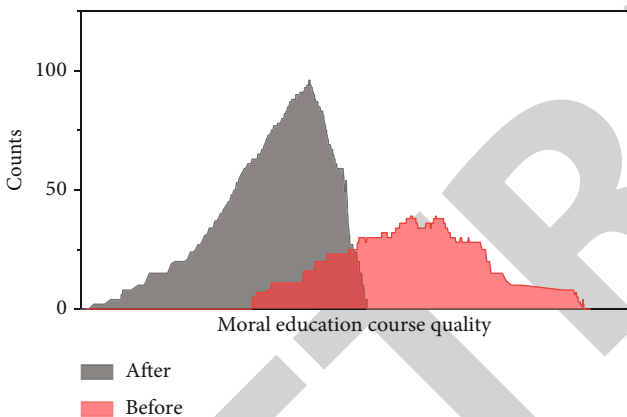FIGURE 7: The changes of the key indicators of moral education.

FIGURE 8: The comparison of teaching effects of moral education courses with and without CNN.

5. Conclusions

As the foremost position for college students to set up the world outlook, outlook on life, the course of moral education in colleges teaching system, the paradigm of university moral education is a general explanation of the complex activity of moral education and teaching. It includes two whole parts as follows: moral education teaching theory and teaching practice, and the intelligent technology education products formed by them have also begun to penetrate into the teaching activities of moral education courses in colleges.

To further cope with the needs of the moral education in universities, and promote the high-quality development of various courses in colleges and universities. Through courses in colleges practice strategy research of ideological construction, illustrates the importance and necessity of college course education, combed the comb college course difficult issues in the process of ideological construction, and according to the difficult problem based on CNN model of moral education in current universities curriculum practice and exploration methods, finally put forward the targeted practice strategy. Although the proposed method achieves good results regarding exploration and practice of moral education courses in universities. In the future, the CNN with deeper structure and the application of big data scenarios are worth studying.

Data Availability

The datasets used during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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