Retraction

Retracted: Exploration of Intelligent Teaching Methods for Ideological and Political Education in Colleges and Universities under the Background of "Mass Entrepreneurship and Innovation"

International Journal of Antennas and Propagation

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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.

References

[1] K. An, "Exploration of Intelligent Teaching Methods for Ideological and Political Education in Colleges and Universities under the Background of "Mass Entrepreneurship and Innovation"," *International Journal of Antennas and Propagation and Propagation*, vol. 2022, Article ID 2294908, 10 pages, 2022.

Hindawi

Research Article

Exploration of Intelligent Teaching Methods for Ideological and Political Education in Colleges and Universities under the Background of "Mass Entrepreneurship and Innovation"

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The core subject matter of the development of innovative and entrepreneurial talents in higher vocational colleges, as well as the solution to the social employment issue, is the investigation of intelligent teaching methods for ideological and political education in colleges and universities against the backdrop of "mass entrepreneurship and innovation." Artificial intelligence presents challenges of lack of emotion in the process of ideological and political education innovation in colleges and universities under the background of AI. AI does not provide information resources, technology, and thinking opportunities for the innovation of ideological and political education in colleges and universities. Therefore, this research presents a facial expression recognition approach based on facial recognition technology to address the emotional problem in intelligent teaching methods. This method can effectively and accurately identify the facial expressions of students during learning so that intelligent tools can identify students' emotions in time, make corresponding adjustments quickly, and improve teaching efficiency. According to this study's experimental findings, the facial expression recognition approach based on the upgraded AlexNet achieves an average recognition accuracy of around 75%, while the fine-tuning method based on the VGG-Face model achieves an average recognition accuracy of about 88.5%. The method based on the VGG-Face model is better suitable for face recognition in intelligent education, which can determine the status of students in real-time and alter the lesson plan, as seen by the facial expression recognition accuracy rate based on the enhanced AlexNet being 13% higher.

1. Introduction

The path of "mass entrepreneurship and innovation" is what propels China's economic growth and advances in science and technology. It is also a crucial strategy for reshaping the country's economy, modifying the industrial structure, and extending the reform. The concept of innovation and entrepreneurship has important practical significance. Against the background of the global economic downturn and China's GDP growth rate breaking 7% for the first time, encouraging innovation and entrepreneurship has become an important engine driving the economy. Universities play a significant role in China's higher education system, with the goal of developing innovative and applied technical skills for the nation and contributing significantly to its economic growth. Currently, the state places a high value on students'

capacity for creativity in their academic work, personal lives, and future careers. The spirit of creativity that serves as the unrelenting force behind social advancement and human development is where higher vocational students' creative endeavors begin. The level of innovation consciousness of vocational students determines their innovation ability, the possibility of their own development, and their ability to adapt to innovation or lead innovation in future work.

In recent years, the research and development of affective computing technology with speech emotion recognition as the core has been successfully applied in artificial intelligence, intelligent human-computer interaction, and other fields. This allows people to use affective computing technology to track the emotional state of learners and provide personalized services. Students have more avenues and opportunities to learn new information and skills in the

context of the artificial intelligence era. The enormous and complex information impact in the age of big data also has some bearing on college students' ideological perspectives. Thus, in light of the new context of the big data era, encouraging students to develop a comprehensive and accurate worldview through ideological and political education in colleges and universities, consciously adhering to the fundamental principles of Marxism and socialism, and achieving the objective of establishing morality and establishing people have all become crucial themes of ideological and political education in modern colleges and universities. The novel aspect of this study is the use of facial expression detection in the intelligent teaching methodology of ideological and political education in colleges and universities, allowing for a better understanding of students' learning state and more effective instruction. The VGG-face model-based fine-tuning approach and the improved AlexNet-based facial expression detection are compared.

2. Related Work

Intelligentizing teaching strategies is crucial given the growing importance of ideological and political education at prestigious colleges and universities. According to Zhang, intelligent education is a platform that incorporates the right educational ideas and technological advancements, including the Internet of Things, big data, and cloud computing. In order to assess the final score, he also used multiple regression techniques [1]. Gong W investigated the development of an intelligently optimized remote multimedia educational system for ideological and political education. He made the system's index, logical database, query structure, and other components more efficient. According to the findings, the intelligent multimedia ideological and political teaching system performs better and can significantly increase teachers' productivity [2]. According to Wang, full-featured intelligent terminals have become essential tools for people's life, research, and leisure as a result of the rise of artificial intelligence and the development of network technology. However, many colleges and universities continue to employ the antiquated traditional teaching approach in ideological and political education, which cannot produce effective teaching outcomes [3]. He H discovered that the traditional ideological and political education teaching capacity evaluation findings are comparatively unscientific and lack the importance of evaluation indicators. He created a secondary index system based on the talent training process and ability requirements of colleges and universities, and combined data gathering to establish the weight of evaluation indicators in order to increase the efficiency of ideological and political education evaluation [4]. The intelligent recognition and instruction of ideological and political writings through parallel projection and region extension was the subject of extensive investigation and analysis by Liu created a polysemy vector model based on non-negative matrix factorization, which extracts positive point-by-point mutual information between words and contexts using the non-negative matrix factorization [5]. All scholars have proposed to apply intelligent means to the teaching of ideological and political education. This proposal is very good, and it also effectively solves the problem of time and space limitations of traditional teaching models, however, scholars did not mention specific intelligent teaching methods.

With the popularization of intelligent teaching methods, people rely more and more on the network platform for learning, which also leads to a lack of emotion in students. Therefore, the integration of emotion recognition technology into intelligent teaching will be more conducive to the improvement of teaching efficiency. According to Coskun, face emotion recognition has greatly advanced and is now a useful instrument for assessing facial emotion recognition in children in elementary school. Children's response options were drawn from the images of faces he created. Item analysis results indicate that all items can be correctly identified [6]. Yu discovered a wide range of possible uses for face expression recognition technologies. For instance, facial expression recognition technology aids teachers in understanding students and gauging their emotions in various situations during ideological and political instruction. Through data mining, he assessed the quality of the instruction, and an experimental study demonstrates that the built-in model performs well. To improve on current classroom teaching practices, Cheng coupled artificial intelligence technology with ideological and political teaching analysis approaches. Taking emotion recognition as an example, combined with the actual operation, the visual analysis results were obtained. Based on artificial emotion detection and a high-speed hybrid model, Zhang examined and filtered a number of variables impacting the teaching of ideological and political education in order to enhance students' ability to learn about ideologies and politics [7]. Emotion recognition does have a high recognition rate, and academics feel it can effectively address the issue of the lack of emotion in intelligent teaching approaches, but they lack particular trials and evidence to support their claims.

3. Intelligent Teaching Mode Based on Emotion Recognition

Spoken language, blackboard writing, and textbooks are the most common traditional teaching media. With the advancement of information technology, the application of artificial intelligence in intelligent education systems has become more and more extensive [8]. Many new instructional media such as television, video, computers, and other technological devices have been developed in the classroom. The teaching method presents the development trend of three-dimensional, multi-channel, long-distance, real-time, interactive transmission, which greatly expands the transmission method and space of teaching information, especially with the emergence of multimedia technology, network technology, and virtual technology, the roles of modern and traditional teaching media in education are not mutually exclusive. The combined use of the two is conducive to the dissemination of teaching materials, the smooth promotion of teaching reform, and the expansion of teaching influence [9]. Emotion recognition is the intelligent
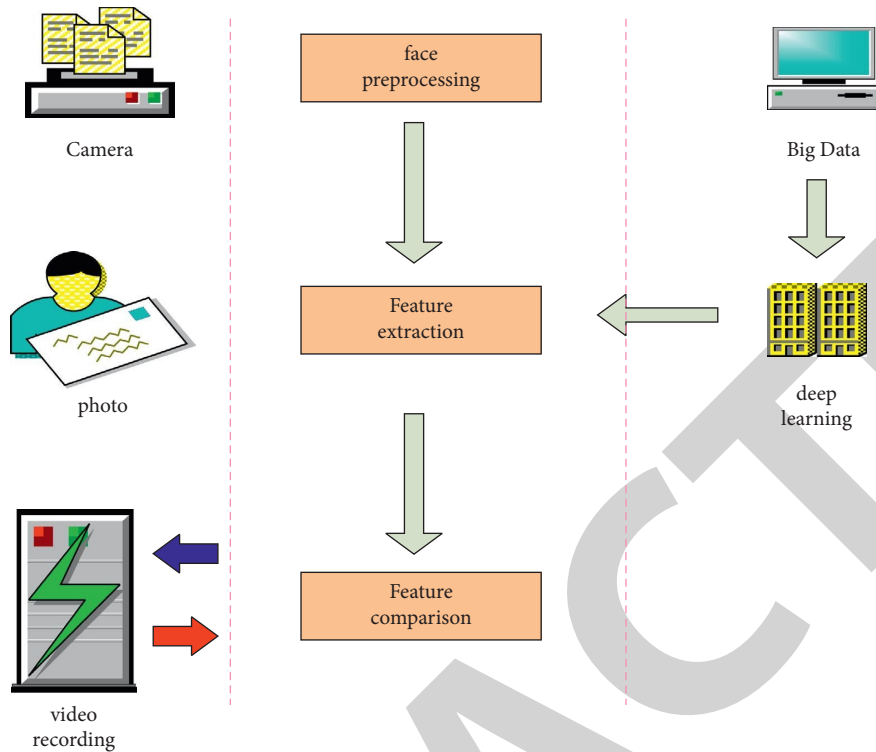
Figure 1: Facial expression recognition system.

recognition of human emotions. It is a complex recognition, which is based on multiple levels of comprehensive recognition, including facial, speech, and physiological emotion recognition.

3.1. Facial Expression Recognition Based on Improved AlexNet.

Generally speaking, intelligent teaching in the developing stage still has the educational tendency to ignore emotion, but it is worth noting that people must pay attention to the overall development of students [10]. In particular, it is not recommended to focus only on intelligence education, and only regard the learning process as the process of students acquiring knowledge, skills, and developing intelligence. It should also promote the simultaneous development of students' values, learning attitudes, and emotional responses. As an important part of online education, emotion can make full use of various technologies such as computer network, multimedia technology, communication, etc., and combine traditional education and emotional education properly through online education. The facial expression recognition system is shown in Figure 1.

As shown in Figure 1, through the constructed expression recognition model, the learning status of learners can be checked in intelligent teaching, and intelligent adjustments can be made according to learners' different learning emotions. In the field of artificial intelligence, facial expression recognition is a hot topic. Machine-assisted facial expression recognition can improve the friendliness and intelligence of human-computer interaction. It is an important part of intelligent human-computer interaction.

The principle of the Gabor transform is very similar to the visual stimulus-response of a single cell in the human eye, which has a positive impact on the extraction of frequency domain information in local space [11]. The essence of Gabor transform is actually convolution of two-dimensional images. Therefore, the efficiency of the two-dimensional convolution operation directly determines the efficiency of the Gabor transform. Since the contour of the receptive field is usually used to extract facial texture information, Gabor transform is often used.

If a Gaussian function is chosen as the window function, the short-time Fourier transform is the so-called Gaussian transform. The Gabor transform is defined as Expression (1):

$$G_f(\sigma, \tau, \omega) = \int_{-\infty}^{\infty} f(t) g_\sigma(t-\tau) e^{-1} dt. \tag{1}$$

Among them, window function $(t-\tau)e^{-1}$ is the Gaussian function, σ is the standard deviation of the Gaussian function, and the parameter τ is used to translate the window. In this study, two-dimensional Gabor filtering is used to extract image texture features [12]. This is because it has good spatial locality and direction selectivity, as in equation (2):

$$G(a, b) = g_\sigma(a', b') e^{-2}. \tag{2}$$

Among them, a' is the coordinate after rotation, and g_σ is the width of the Gaussian window along the coordinate axis. The Gabor function is composed of two components, the real part and the imaginary part, and the image filtered by the spherical function is equation (3):
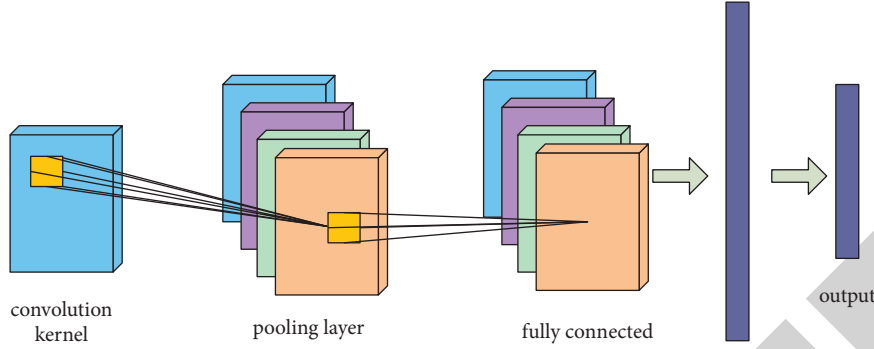
Figure 2: Basic structure of convolutional neural network.

$$h(a,b) = \sqrt{(G_R * I)(a,b)^2 + (G_I * I)(a,b)^2}. \qquad (3)$$

$G_I * I$ represents the convolution of image I and the filter. Then, $h(a,b)$ is smoothed with a Gaussian function, and the feature image extracted by the Gabor filter is obtained [13].

Two-dimensional Gabor filters are very suitable for extracting local features of images [14]. The extracted features are more precise and can adapt to certain changes in the target object, such as translation, scaling, rotation changes, lighting, and shadows. Specifically defined as equation (4):

$$G_{m,n}(a,b) = a^{-m}G(a',b'), \quad a>1. \qquad (4)$$

a^{-m} is the scale parameter and G is the direction parameter.

Facial expression is a modality that can best reflect human emotions. The goal of this work is to investigate how deep learning may be used to recognize facial expressions. First, the traditional AlexNet model was enhanced, and a convolutional neural network-based method for recognizing facial expressions was suggested [15, 16] AlexNet is mainly used for image classification, including several relatively new technical points, and AlexNet also uses GPU for computing acceleration. Given that there are only seven fundamental types of human emotion—anger, disgust, fear, happiness, sorrow, surprise, and neutrality—the traditional AlexNet network structure has been improved as a result of the research on AlexNet. The basic configuration of the convolutional neural network used in this study to recognize facial expressions is depicted in Figure 2.

The enhanced convolutional neural network contains five layers total, including three convolutional layers and two fully connected layers, as depicted in Figure 2. The main structures of convolutional neural networks are the convolutional layer, pooling layer, and fully connected layer. A convolutional neural network is formed by stacking these layers. Convert raw images to class scores, where convolutional and fully connected layers have parameters, and activation and pooling layers have no parameters. Parameter updates are achieved through backpropagation. The output of the convolution is smaller and the features produced are sparser as the convolution stride increases. It is typically

possible to zero-pad the edges of the input during convolution in order to regulate the size of the feature map [17], which satisfies the following equation:

$$W_2 = \frac{(W_1 - F + 2P)}{(S+1)}. \qquad (5)$$

The pooling layer acts on each input neuron independently and aggregates the features of the convolutional layer after excitation. Commonly used ones include max pooling and average pooling [18], which is the following equation:

$$H_2 = \frac{(H_1 - F + 2P)}{S+1}. \qquad (6)$$

The most common form of pooling layer is to use a 2×2 filter. A downsampling operation with a step size of 2 is performed on each depth slice of the input along the width and height, discarding 75% of the eigenvalues, and the depth of the input remains unchanged [19]. The output schematic diagram under the action of the pooling layer is shown in Figure 3.

As shown in Figure 3, the best method for data preprocessing is whitening preprocessing, but its disadvantage lies in a large amount of calculation. Therefore, the method in this study is different from whitening preprocessing in that it chooses to perform preprocessing operations on each feature of the input separately [20] Data whitening is performed after data normalization. Before whitening the data, it is required to perform feature zero-meaning on the data. Suppose the d-dimensional input of a certain layer of the network is as the following equation:

$$a = \left(a^{(1)} \ldots a^{(d)}\right). \qquad (7)$$

The normalization for each dimension of data is as follows:

$$\hat{a}^{(k)} = \frac{a^{(k)} = E\left[a^{(k)}\right]}{\sqrt{\mathrm{Var}\left[a^{(k)}\right]}}. \qquad (8)$$

Considering that only the normalization in the above is performed on the input of each layer, the feature distribution extracted by the current previous layer will be changed to a certain extent. On the basis of equation (8), the transformation and reconstruction are carried out, the learnable
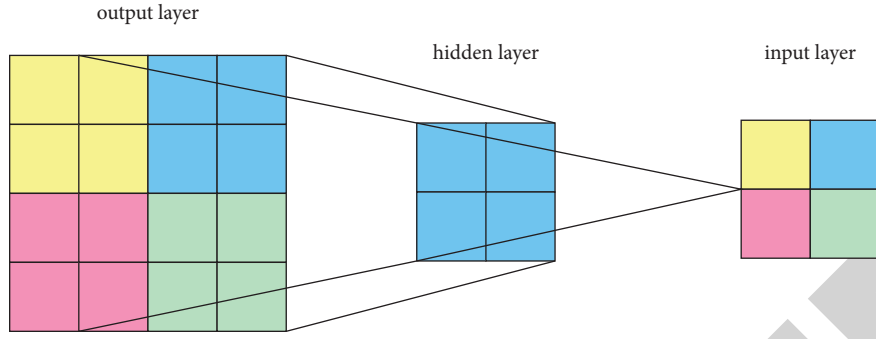
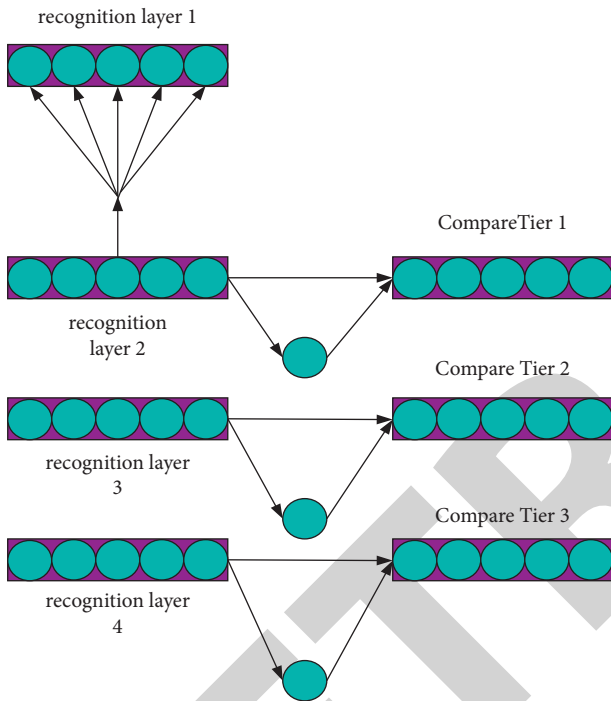FIGURE 3: Schematic diagram of the output of the pooling layer.

FIGURE 4: Neural network fine-tuning principle.

parameters 1 and 2 are introduced, and the expression becomes

$$b^{(k)} = \gamma^{(k)} a^{(k)} + \beta^{(k)}. \tag{9}$$

Its benefits allow for the recovery of the initial feature distribution achieved by the network's preceding layer. Since both the stochastic gradient descent algorithm chosen for training and the data sent during training are sent in batch units, the process is known as batch normalization [21], as follows:

$$\mu_\beta \longleftarrow \frac{1}{m} \sum_{i=1}^{m} a_i. \tag{10}$$

The criteria for choosing training parameters are loosened by using this technique, which also makes deep network training easier. Additionally, it can be used to control network characteristics, which has a slight replacement effect on dropout.

3.2. Facial Expression Recognition Based on VGG-Face Model Fine-Tuning.

Deep learning is a machine learning technique based on neural networks that have emerged with the boom of big data and cloud computing, as may be inferred from the development process of deep learning. It is worth noting that in practical applications, researchers rarely train deep convolutional neural networks from scratch, mainly because they cannot get enough valid data sets. The corresponding solution is to first pre-train the network with a very large related dataset, and then use the pre-trained network model as the initialization weight or feature extractor of the current training task. Such methods can be collectively referred to as transfer learning.

Fine-tuning is a practice of transfer learning algorithms in supervised learning, in addition to the option to train the final classifier, the backpropagation algorithm can also be used to adjust the parameters of each layer as needed. A basic diagram of fine-tuning is shown in Figure 4.

As shown in Figure 4, the fine-tuned object can be all the network layers or a specified layer. In cases where the dataset used for fine-tuning is not sufficiently large, it is usually just a fine-tuning of the parameters with a higher number of layers in the network to prevent overfitting and the large difference in the extracted features as the convolution depth increases. Facial expressions are analyzed based on facial images of faces, and the samples in the dataset are all facial images of faces. Based on this point, this article does not choose a model pre-trained with the help of imageNet database, but chooses to fine-tune the VGG-Face model with a large amount of face data as the training subject.

The purpose of VGG-Face is to construct a deep face recognition model. However, such a versatile model needs to be built, and the data is the first to bear the brunt. The VGG-Face model does improve the accuracy of facial expression recognition overall. Therefore, it can be considered that the model has good learning and representation ability for human face images, and has good adaptability to the facial emotion database with small data volume.

The purpose of the principal component analysis is to convert high-dimensional datasets into "active" feature components of fewer dimensions, but to preserve as much of the information contained in the original data as possible, that is, to achieve a dispersion of statistical validity. The basic principle is as follows: there are n samples, each sample

extracts 1 feature, then the original data feature matrix such as follows

$$A = [a_1, a_2, \ldots, a_{m1}]^T. \tag{11}$$

The original data are normalized to the mean, which is as follows:

$$\begin{aligned}
\widetilde{A} &= A - u_a \\
&= [a_1 - u_a, a_2 - u_a, \ldots, a_{m1} - u_a]^T.
\end{aligned} \tag{12}$$

A matrix decomposition is performed on the covariance matrix to obtain an eigenvalue of λ_i, arranged from largest to smallest as $\lambda_1, \lambda_2, \ldots, \lambda_{m1}$, and the cumulative contribution rate defined is as follows:

$$\sum_{i=1}^{m_2} \lambda_i \left(\sum_{i=1}^{m_1} \lambda_i \right)^{-1}. \tag{13}$$

When the contribution rate reaches a certain proportion, it can replace the original data. The first λ_i eigenvectors are obtained by calculating the eigenvectors according to the eigenvalues, and the projected data can be expressed as follows:

$$B = [b_1, b_2, \ldots, b_{m2}]^T. \tag{14}$$

Lower-level convolutional neural network features are versatile to image data and can be thought of as edge detectors or patch detectors. As the number of layers increases, the feature will contain more details about the current dataset.

Almost all optimization algorithms used in deep learning belong to the stochastic gradient descent method. They are iterative algorithms that train the network in steps. Instead of using all the data in one iteration, the stochastic gradient descent algorithm randomly selects a portion of the data in each iteration. This not only saves memory but also speeds up the convergence of the optimal values. Taking neurons as an example, the loss function can be defined as follows:

$$E = \frac{1}{2}(b_{\text{target}} - b)^2. \tag{15}$$

The gradient of the loss function regarding the specified weight w_i can be expressed as follows:

$$\frac{\partial E}{\partial w_i} = \frac{\partial E}{\partial b} \cdot \frac{\partial b}{\partial u}. \tag{16}$$

According to the stochastic descending algorithm, the iterative equation for the weights is shown in equation (17), where each variable is in the form of a vector.

$$w^{\text{new}} = w^{\text{old}} - \eta \cdot \left(b - b_{\text{target}} \cdot b(1 - b) \right). \tag{17}$$

Among them $\eta > 0$, the gradient descent step size controls how much weight decays for each iteration. The neural network is trained to achieve the ideal weights, which can generate the present network's optimal solution to the job at hand, with the use of the stochastic gradient descent algorithm and the backpropagation algorithm. The parametric

TABLE 1: Basic grades of 200 college students.

Score	Group A	Group B	Total
Excellent	15	14	29
Good	16	17	33
Pass	30	32	62
Failed	39	37	76

model obtained from the trained network allows the new input to be analyzed to obtain its classification.

4. Experiments on Intelligent Teaching Methods Based on Facial Emotion Recognition

4.1. Experiments on Traditional Teaching and Intelligent Teaching in Ideological and Political Education. The application field of artificial intelligence technology continues to expand, which plays an important role in the development of society and is also an effective symbol of the continuous development of human science and technology. A new information resource environment for ideological and political education is made possible by the development of artificial intelligence technology, which also offers new ideas and platforms for the innovation of ideological and political education. Artificial intelligence's rich information resources also effectively support this development.

This article divides 200 college students into 2 groups of 100 people each. Among them, Group A conducts traditional teaching, and Group B teaches intelligent teaching methods. The 12-week period of ideological and political education through traditional teaching methods and intelligent teaching methods was compared. Their basic grades before the experiment are shown in Table 1.

As shown in Table 1, 15 people with excellent results in Group A and 14 people with excellent results in Group B before the experiment; The number of people with good results in Group A was 16 and the number of people with good results in Group B was 17; The number of passers in Group A was 30 and the number of passers in Group B was 32; The number of people who failed in Group A was 39 and the number of people who failed in Group B was 37. It can be seen that there is not a big difference in the proportion of achievements between the two groups at each stage.

After 12 weeks of testing, the final test results of the two groups are shown in Figure 5.

As shown in Figure 5, in Group A, which studied ideological and political education through traditional teaching methods, there were 20 people with excellent grades, 27 people with good grades, 33 people who passed the test, and 20 people who failed. In Group B, which studied ideological and political education through intelligent means, there were 35 people with excellent grades, 34 people with good grades, 26 people who passed, and 5 people who failed. It can be seen that the performance of students who have received intelligent means of learning has risen faster.

There are still significant issues with the ideological and political education provided by colleges and universities in the present big data era. The complicated internal and external environment throughout the time of social transition
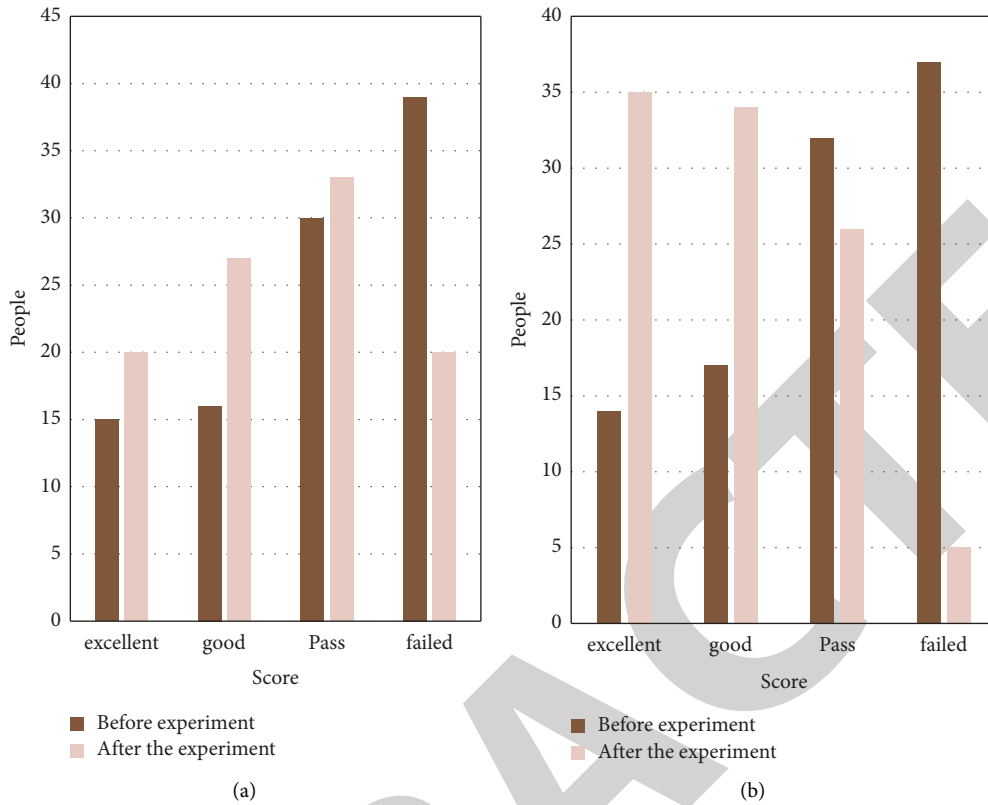
FIGURE 5: The final test scores of the two groups. (a) Group A test score. (b) Group B test scores.
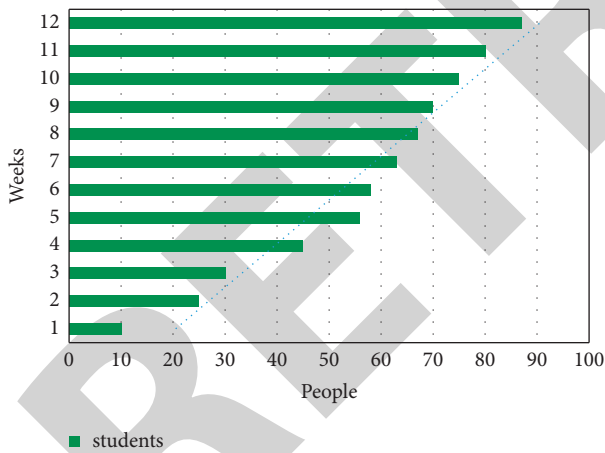

FIGURE 6: Group B was found to be unable to express its emotions effectively.

has presented difficulties for the ideological and political education in colleges and universities, seen from the perspective of the social environment. In terms of educational topics, college students' psychological growth is rather unstable, and they are susceptible to the effects of numerous pieces of information in the context of artificial intelligence, which can lead to a loss of values. The existing ideological and political education at colleges and universities is still based on the old teaching method, which is insufficient to meet the requirements of the current educational model.

However, there is a lack of positive communication in intelligent means, which will make students have bad emotions, and the survey of group B that believes that they cannot effectively express their emotions is shown in Figure 6.

As shown in Figure 6, for learners, the teaching mode of intelligent means is more convenient, but this method ignores the emotions of students. They are unable to communicate face-to-face with teachers, creating positive emotions. Students' own learning status and learning effectiveness are also affected by emotions. Since students have complete control over the learning process and learning content when it comes to online teaching and learning, each student's learning is given greater weight. The learning process of online teaching is greatly influenced by the learners' personal emotions. For instance, positive and gratifying emotions can increase students' motivation to study, focus on the material being learned, and confidence in their ability to overcome challenges.

4.2. Experiments on Intelligent Teaching Methods Based on Facial Expression Recognition. This chapter mainly simulates the facial expression recognition proposed in the previous article. And among them, the most efficient and best-performing method is selected for facial emotion recognition. In this paper, four databases—FER2013, RML, AFEW6.0, and eNTERFACE′05—that were primarily employed in the experimental procedure are briefly

Table 2: FER2013 database situation.

Emotion category	Number of samples	Percentage (%)	Effective percentage (%)
Angry	4842	13.5	13.5
disgust	535	1.5	1.5
Fear	5110	14.3	14.3
Happy	8978	25.1	25.1
Sad	6187	17.3	17.3
Surprise	6066	17.0	17.0
Neutral	4011	11.3	11.3

Table 3: Basic emotional situation of 200 students.

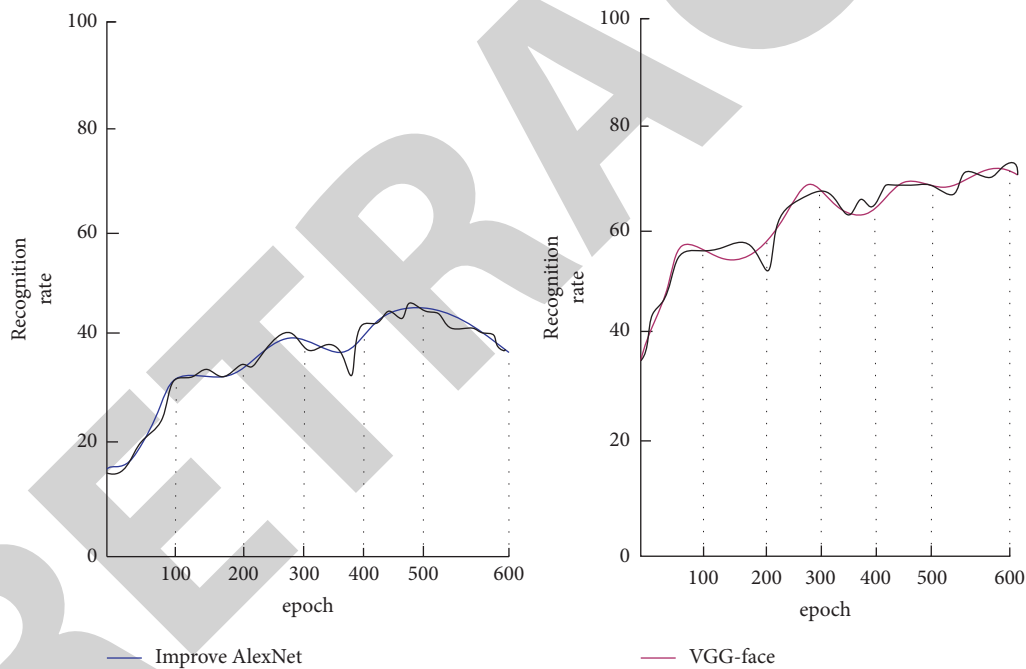| Emotion category	Number of samples	Percentage (%)	Effective percentage (%)
Angry	20	10	16
disgust	32	16	8.5
Fear	17	8.5	29.5
Happy	59	29.5	12.5
Sad	25	12.5	14
Surprise	28	14	9.5
Neutral	19	9.5	16

Figure 7: Two methods identify rate conditions.

introduced. The FER2013 database is a database of facial expressions, whereas the other three are databases of bimodal emotions. The FER2013 database contains a total of 35,729 facial expressions, and the number of pictures of each expression is evenly distributed. Table 2 shows the distribution of each of these categories.

As shown in Table 2, in the FER2013 database, there are 4842 angry expression pictures, accounting for 13.5%, and 535 disgusting pictures, accounting for 1.5%, among which happy expression pictures account for the highest proportion, accounting for 25.1%. The main feature of FER2013 is that all facial expression samples are automatically collected

via the network. It covers a wider range of areas and is currently a database with a large amount of data in the publicly available facial expression database. In addition, unlike the data collected by the laboratory, its facial expressions are mostly spontaneous, more vivid and natural, and have higher research value, which also brings greater challenges to facial emotion recognition. As the majority of the experiments in this article focus on image processing, Keras and TensorFlow were selected as the two primary deep learning frameworks.

As shown in Table 3, the initial value of the actual set number of episodes is 600, that is, the training process ends
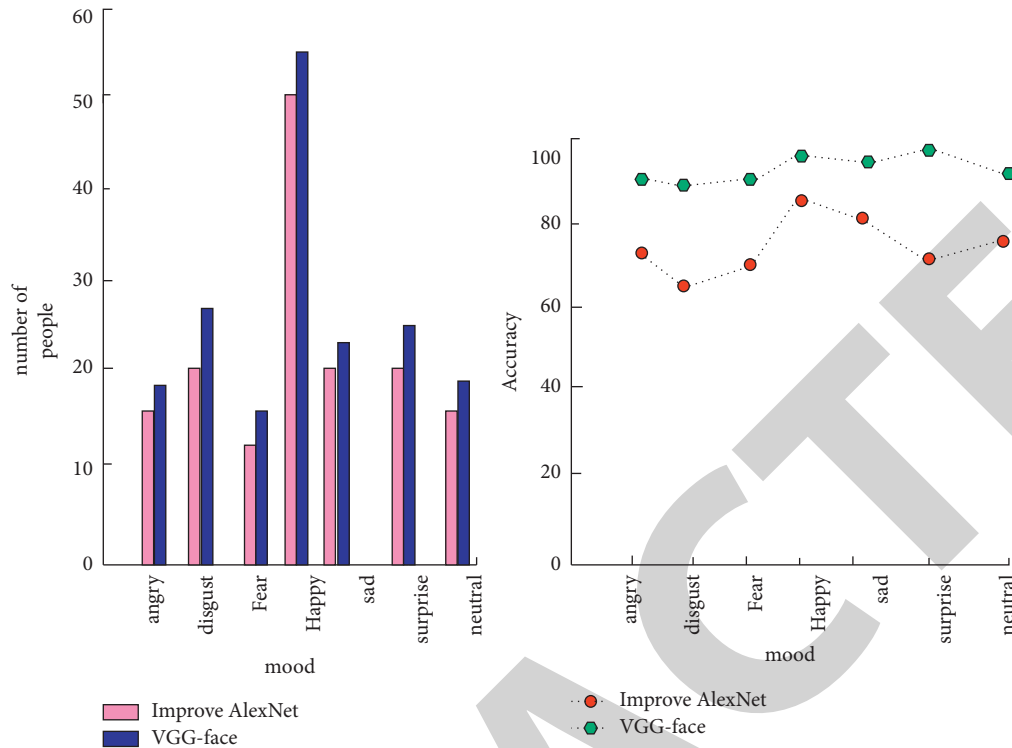
FIGURE 8: Two methods of identification results.

after the entire dataset is traversed 600 times. During the experiment, it was found that when the training reached about 200 epochs, the recognition rate tended to be stable, and the loss function no longer changed significantly, indicating that the training of the network could be terminated in advance. The two method changes are shown in Figure 7.

As shown in Figure 7, the results of the analysis experiment can be found that the effect of fine-tuning based on the VGG-face model is better than the effect of direct training on facial expression recognition based on improved AlexNet, so in the later intelligent teaching mode of facial emotion recognition, the convolutional neural network directly selects the fine-tuned VGG-Face network. The highest accuracy rate of facial expression recognition of improved AlexNet is about 40%, and the recognition rate based on VGG-face model fine-tuning is about 75%. The above experimental results have shown that the recognition effect based on the VGG-face model is obtained, and the effectiveness of facial expression recognition based on the VGG-face model is verified. Among them, the VGG-face model performs best on three different databases.

In order to verify that facial emotion recognition proposed in this study can play a role in intelligent teaching, this study selected 200 students from a university who received ideological and political education for experiments. Two methods were used to identify their emotions when they received intelligent ideological and political education, and the basic emotional situation of 200 students is shown in Table 3.

As shown in Table 3, of the 200 students' emotions, 20 were angry, and the percentage was 10 percent; The number of disgusted people was 32, or 16%; The number of people

who were afraid was 17, or 8.5% of the population; The number of happy people was 59, or 29.5%; The number of sad people was 25, or 12.5%; The number of surprised people was 28, accounting for 14%; The number of neutrals was 20, or 19%. It can be seen that the proportion of positive emotions is still relatively large.

The findings of two ways to identify their emotions are shown in Figure 8.

As shown in Figure 8, the number of people angry, disgusted, afraid, happy, sad, surprised, and neutral identified based on the improved AlexNet facial expression recognition method was 15, 20, 12, 50, 20, 20, and 15, respectively, and the recognition accuracy rate was 75%, 62.5%, 70.6%, 84.7%, 80%, 71.4%, and 75% respectively. It can be seen that the accuracy of the facial expression recognition method based on improved AlexNet is still high. Based on the fine-tuning method of the VGG-face model, the number of people identified as angry, disgusted, scared, happy, sad, surprised, and neutral was 18, 28, 15, 55, 22, 25, and 17, respectively, and the recognition accuracy rate was 90%, 87.5%, 88%, 93%, 88%, 89%, and 85% respectively. It can be seen that the accuracy of fine-tuning recognition based on the VGG-face model is higher, so this method is more suitable for emotional recognition in the intelligent teaching mode of ideological and political education.

5. Conclusions

Strengthening ideological and political education will help to enhance the political quality of the people and escort the realization of the Chinese dream of the great rejuvenation of

the Chinese nation. In colleges and universities, ideological and political education strives to lead the educated through a variety of suitable means and ways in order to reach the goal of greater freedom and all-around growth of students. In addition to being a crucial component of the educational system for Chinese talents, the state and the modern party place a high value on this educational connection. It must integrate the times and intelligentize them if it wishes to raise the standard of ideological and political education. In order to recognize students' faces, this study suggests two methods: one based on fine-tuning the VGG-face model and the other based on upgrading AlexNet. It also discusses the benefits and drawbacks of intelligent means of instruction. In the experiment, both methods were found to have higher facial recognition accuracy, but methods based on VGG-face model fine-tuning had higher recognition rates. Therefore, this article will choose the latter as a means of recognizing students' faces in intelligent teaching methods, which makes the quality of teaching improved. In this study, only 200 students were experimented with, and the data obtained were more limited, and more samples should be selected for experiments in future work, so as to make the conclusions more realistic and reliable.

Data Availability

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

Conflicts of Interest

The author declares that he has no conflicts of interest.

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