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Retraction

Retracted: Analysis of Ideological and Political Classroom Based on Artificial Intelligence and Data Mining Technology

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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

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

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

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

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

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

References

[1] Z. Huang, C. Feng, and Z. Feng, "Analysis of Ideological and Political Classroom Based on Artificial Intelligence and Data Mining Technology," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 7081165, 9 pages, 2022.

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Research Article

Analysis of Ideological and Political Classroom Based on Artificial Intelligence and Data Mining Technology

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With the continuous innovation of science and technology, the teaching system at home and abroad has also been reformed and optimized in combination with artificial intelligence, big data, and other technical means. As the main part of teaching activities, students' emotional change in classroom activities is one of the important indicators that affect their learning effect and comprehensive learning achievement. Accurate analysis and judgment of students' emotional changes are the main basis for teachers to evaluate teaching quality and improve teaching methods. Based on the above situation, this paper uses artificial intelligence and data mining technology to explore the emotional change process and influencing factors of students in ideological and political teaching classroom. Firstly, the artificial intelligence neural network algorithm is used to construct the face recognition model to improve the problem of low accuracy in the traditional recognition process. A dynamic minimum algorithm is designed to improve the operation speed of students' emotion analysis. Finally, data mining technology is used to obtain students' behavior data in the big data environment to provide data support for students' emotional analysis model in ideological and political class. The results show that the student emotion analysis model based on artificial intelligence and data mining technology can be applied and run in various teaching environments.

1. Introduction

In order to better adapt to the development of the new era and meet the needs of the people in a modern society, we need to continuously improve the application technology of the education industry [1]. Starting from the educational content, reconstruct the modern educational model. As a key course of cultivating socialist successors in colleges and universities, ideological and political course is the main research topic of contemporary educators. In the environment of artificial intelligence and big data, there has been more in-depth exploration on how to use intelligent equipment and computer technology to improve teaching methods and improve teaching quality [2]. The development of artificial intelligence technology and the opening of the intelligent era have had a significant impact on the talent training objectives, the construction of teachers, and the teaching mode of ideological and political courses in colleges and universities. With the strong support of the new generation of artificial intelligence technology, the teaching objects and processes of ideological and political courses in colleges and universities can be perceived and interconnected to realize intelligent teaching. Artificial intelligence can provide more development space for ideological and political courses in colleges and universities and embody ideas and ideas in science and technology. In the face of students' learning effect, we can start with students' behavior characteristics and achievements [3]. Then, students' emotional analysis has become one of the main means to evaluate the quality of teaching. In particular for the ideological and political teaching classroom in the era of artificial intelligence and big data, we should pay more attention to students' emotional changes and thinking activity tracks [4]. With the support of artificial intelligence technology, teachers can quickly and accurately understand students' learning habits and thinking state in each course and carry out effective interaction and communication. Through the big data analysis of ideological and political course results,

we can also grasp the difficult problems faced by the student group [5]. The big data environment provides data support for students' psychological description information.

In the traditional classroom, the lesson preparation process of ideological and political course is mainly arranged according to the teaching needs and teaching materials. Teaching design cannot be targeted in combination with students' personality characteristics [6]. The content of traditional ideological and political education focuses on inculcating theoretical knowledge, and the content is relatively simple; the rigid form is mainly the process of theoretical indoctrination from the educator to the educated; the effect of education directly depends on the main body of education. Although teacher discussion and other methods are included in lesson preparation, this simple interaction will not take into account the actual situation of students and the background of today's era [7]. The information source of curriculum teaching is relatively single, and teachers have a shallow grasp of each student's learning process. The use of artificial intelligence technology and data mining technology can well solve the above problems [8]. In the big data environment, the activity data of students in ideological and political class can be obtained by using data mining technology. Analyze students' dynamic characteristics and judge whether students are effectively integrated into the classroom [9]. Teachers can judge students' mastery of knowledge and content according to the learning situation shown by the learning model, so as to make targeted teaching arrangements. How to make artificial intelligence machine model automatically obtain students' emotional changes has always been a hot topic in the field of education [10]. Students' body behavior, facial structural changes, and physiological characteristics are data information that can be recognized and analyzed. The amount of information generated in the above aspects can reach more than 50%, and the remaining changes in emotional characteristics account for less than 10% [11]. Therefore, the use of artificial intelligence technology can effectively analyze students' emotional changes in teaching activities.

2. Based on Artificial Intelligence Technology, Classroom Students' Emotional Analysis, and the Development Status in Various Fields

The use of artificial intelligence in the teaching process needs to be regarded as a technology and applied to classroom activities [12]. First of all, we need to pay attention to the positive effects and obstacles of artificial intelligence technology in teaching activities. Artificial intelligence technology will bring three benefits to the field of education. One is that with the help of artificial intelligence technology, a lot of human and material resources can be released. Teachers will use their energy to stimulate students' innovative ability, solve students' various psychological problems, and so on. Second, with the help of artificial intelligence technology, students' learning efficiency will be improved to a certain extent, and students can be taught in accordance with their aptitude. Third, with the help of artificial intelligence technology, students' thirst for knowledge will be fully stimulated, and students' learning will change from passive to active. On the other hand, artificial intelligence technology can only replace teachers to monitor part of students' behavior activities and cannot fully represent the main part of teaching classroom evaluation [13]. In the 1970s, artificial intelligence recognition and coding system was applied in teaching classroom. This tool for recognizing facial changes can divide students' expression into multiple unit information. Artificial intelligence recognition technology refers to the technical means of automatically acquiring and identifying target instructions, data, and other information through computers, cameras, scanners, and other equipment. Artificial intelligence face recognition technology is based on intelligent recognition of the human face, scientific and reasonable inspection of different structural features of the human face, and finally clear judgment and recognition of the actual identity of the examiner. Finally, the following conclusions are drawn: each student can determine the unique expression feature when facing different knowledge modules, and the facial information also moves along the track according to a certain law. According to the above research, it is finally summarized into the most common expressions: joy, anger, surprise, sadness, disgust, and confusion. As more and more experts in the field of education put more energy into the research of students' emotion, facial expression has become their primary problem. Students cannot control the changes of facial expressions during learning, so they can judge their emotional traces according to this data information [14, 15].

With the advent of the computer age, artificial intelligence technology represented by the neural network machine model has entered a period of rapid development [16]. Using artificial intelligence technology for emotion analysis has gradually become one of the main means in the field of education. The United States has developed more frequently in the field of e-commerce, and the transaction scale is also relatively broad. In the E-commerce teaching classroom, the interaction between consumers and business personnel is the main learning knowledge. Now, some call center staff can receive prompt of auxiliary software in real time. This software analyzes their conversations with customers and provides corresponding guidance. For example, when they are talking to someone, the software may advise them to slow down or not to interrupt the conversation or even warn that the person on the other end of the phone seems to be unhappy. AI software can help customer service representatives judge the emotional reaction of users in the conversation, so as to improve the quality of service. Business negotiation is the main part of the course content [17]. Traditional negotiation methods cannot meet the needs of increasing consumption and expanding interests. Therefore, negotiation emotion analysis using artificial intelligence has become the main means to solve problems. They analyze the emotional activity trajectory of consumers in the model construction and use artificial intelligence to process data to increase the user experience, so as to improve the success rate of negotiation. This new teaching mode can enhance e-commerce students' understanding

and mastery of professional knowledge. At present, Japan has many patents using artificial intelligence technology in text emotion analysis. They provide data support by means of big data analysis and take the deep learning model as the main framework. After functional analysis, case analysis, and other operations, the emotional feature capture in text language is realized. In the field of medical education, artificial intelligence technology is very helpful for students to judge the inaccurate physical condition of patients with lack of behavioral ability [18]. In the classroom simulation, the patient is in the state of needing help. At this time, artificial intelligence will automatically identify and process the alarm reminder. In addition, some patients with physical disabilities cannot communicate with doctors normally. They cooperate with treatment through some facial expressions. Therefore, using the artificial intelligence emotion recognition system can not only help students experience doctor-patient interaction in teaching but also increase the simplicity and accuracy of medical work. Russia's industrial sector has developed rapidly [19]. Their automatic driving is a major technical problem in recent years. Although a large amount of financial support and human support is invested, there is still a certain gap from full application. With the use of the computer artificial intelligence auxiliary system, the system is added to the auxiliary link of the car, which can judge the driver's emotional changes and intelligently monitor whether the driver is in a dangerous state or drunk and tired state. Based on the above development status of artificial intelligence in various fields [20, 21], this paper combines artificial intelligence and data mining technology to study the emotional changes of students in ideological and political teaching classroom.

3. Research on Students' Emotion Analysis in Ideological and Political Teaching Classroom Based on Artificial Intelligence and Data Mining

3.1. Research on Facial Emotion Acquisition of Students in Ideological and Political Classroom Based on Artificial Intelligence and Neural Network Technology. The traditional facial emotion recognition structure is mainly divided into data acquisition, data analysis, facial recognition monitoring, feature extraction, and classification. The expression characteristics of students in ideological and political class can affect the accuracy of emotion analysis results. Therefore, students' facial feature analysis and dynamic acquisition are the main links of emotion analysis. Local variable method and spatial acquisition method can be used in feature extraction. Local variables determine the effective data in a target area for targeted acquisition, and the spatial acquisition method is to process facial expressions as a set. The spatial coordinate projection of data information is carried out by using calculation formulas and rules to improve the accuracy of emotional characteristics. Because students will encounter complex changes in different tasks in the learning process, the traditional emotion analysis cannot eliminate useless interference factors, which reduces the performance of the whole model. With the development of artificial intelligence neural network and the progress of big data technology, it is gradually applied to various fields. The artificial intelligence neural network can automatically extract a large number of students' facial expression data according to the needs of the task. The core processing function of the computer is used to establish a gigabit data stream, which successfully simplifies the complex operation of traditional emotion analysis.

Based on the artificial intelligence neuron model, this paper analyzes the combination of nerve cells controlling facial changes. The experiment shows that the two neurons establish a convex structure for data transmission. The information transmission is expressed as the change of axis, and the received data becomes a tree state. When neurons generate different electrical differences, they complete the data transmission task, as shown in Figure 1.

As can be seen from Figure 1, we show the structure of biological neurons and the structure diagram of the neuron model, respectively. This is a model style that includes input and output states. Compared with biological neurons, the calculation of data information is equal to the transformation of nerve cells. The model calculates the weight of the input data, obtains the activation function, and adds nonlinear work. The artificial intelligence neural network model is built through the layer structure of neuron unit superposition. This model changes layer by layer and can fit and calculate the obtained data information. We sorted out the calculation formula of data input and back and forth propagation as follows:

$$a_1^2 = f(w_{11}x_1 + w_{12}x_2 + w_{13}x_3 + b_1), \tag{1}$$

$$a_2^{(2)} = f\left(w_{21}x_1 + w_{22}x_2 + w_{23}x_3 + b_2^{(1)}\right), \tag{2}$$

$$t_3 = F(w_{i+b}x_1 + w_{i+b}x_2 + w_{i+b}x_3 + b_i), \tag{3}$$

$$t_3^{(2)} = F\left(w_{i-b}x_i + w_{i-b}x_b + w_{i-b}x_{i*b} + b_i^b\right). \tag{4}$$

The above formula is the calculation and learning of sample data by the artificial intelligence neural network. Use the error sorting algorithm to update the weight coefficient and offset coefficient. This method needs to first calculate the gap between the output result and the actual data and make the output data close to the actual value according to the trapezoidal descending order to obtain an accurate solution. This paper uses an artificial intelligence multitask neural network algorithm in the research, which can take into account the speed and accuracy of recognition in classroom teaching. This multitask neural network can automatically generate some shadow areas in the recognition process and use the candidate exclusion method to further deepen the facial emotion analysis. In practical application, it can complete many tasks, such as facial expression classification, region candidate, and key point location. Each task module can calculate the lost data coefficient to form a total data set. The formula is as follows:

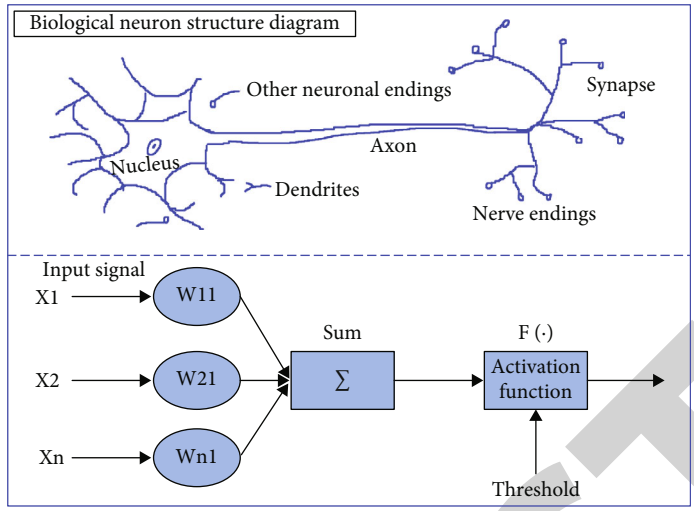

Figure 1: Structure diagram of the neuron model.

$$L = -(y_i * \log(pi)) + (1 - y_i)(1 - \log(p_i)). \quad (5)$$

There is a corresponding mark for each sample set in the formula. When the mark is 0, the expression data in the information is empty. When marked as 1, it means that the data contains expressions. By judging that the facial candidate frame is close to the accurate range, the model uses four-dimensional space to represent the region, and the numerical values of the prediction results are distributed on the length and width coordinates. We use the loss data and weighting function to calculate the coefficient deviation. The formula is as follows:

$$L_i^{\text{box}} = \left\| y_i - y_i^{\text{box}} \right\|^2. \quad (6)$$

y_i represents the position of the expression selection box in the model, and y_i^{box} represents the real coordinate data. The key point task needs to detect the feature distribution position of students' actual expression. We define eyes, nose, and mouth and use key features to calculate distance:

$$L_i^{\text{landmark}} = \left\| y_i^{\text{landmark}} - y_i^{\text{box}} \right\|_2^2. \quad (7)$$

If the detection frame is originally a real area, the two intersection points are accurate data features. We matched the data by comparing the cross range with the face size. If the threshold is close to 0, it means that the two do not coincide at all, and if the threshold is close to 1, it means that the accuracy of the detection data is high. The specific formula is as follows:

$$\text{IOU} = \frac{\text{area}(\text{box\_1}) \cap \text{area}(\text{box\_2})}{\text{area}(\text{box\_1}) \cup \text{area}(\text{box\_2})}. \quad (8)$$

The whole calculation process finally shows a pyramid style. Pictures take different ways from resolution and pixel structure. The model formed in this iterative style will not stop until the acquisition conditions are met. Each link is formed by sampling according to the above objects. By taking the facial expressions of students in ideological and political class as an example, the obtained pictures are displayed in layers according to the key points, and the structure shown in Figure 2 can be obtained.

As shown in Figure 2, the image pyramid can quickly detect the stacking changes of students under different sizes. If only the fixed range is calculated, the error between the actual results and the calculated results is large. Our scaling method can effectively solve the problem of fixed size recognition. The figure also includes the scaling process of artificial intelligence multitask neural network in calculation and acquisition.

3.2. Research on Prediction of Students' Behavior in Ideological and Political Teaching Classroom Based on Data Mining Technology. The development of artificial intelligence puts forward new requirements for ideological and moral norms. The norms of students' behavior in colleges and universities are not invariable and effective but achieve teaching objectives through different teaching courses. The scientific and technological society is gradually covering the original traditional society, and the spiritual needs of students are gradually diversified. With the support of computer and intelligent technology, teachers can accurately and quickly understand the current state of mind of students and take targeted interaction and puzzle solving. In the above research, this paper proposes to use artificial intelligence technology to analyze students' emotional changes in the classroom, in which the required data source is in the data environment mode. Every behavior of students in the ideological and political teaching classroom will more or less affect their academic performance and interest in learning. Simply obtaining data cannot get the information hidden in the data, for example, the relationship between the rise of performance and classroom interaction, the impact of curriculum difficulty on students' interest, and the promotion of students' emotional change on academic performance. Therefore, we need the help of artificial intelligence to mine a large amount of emotional information in the

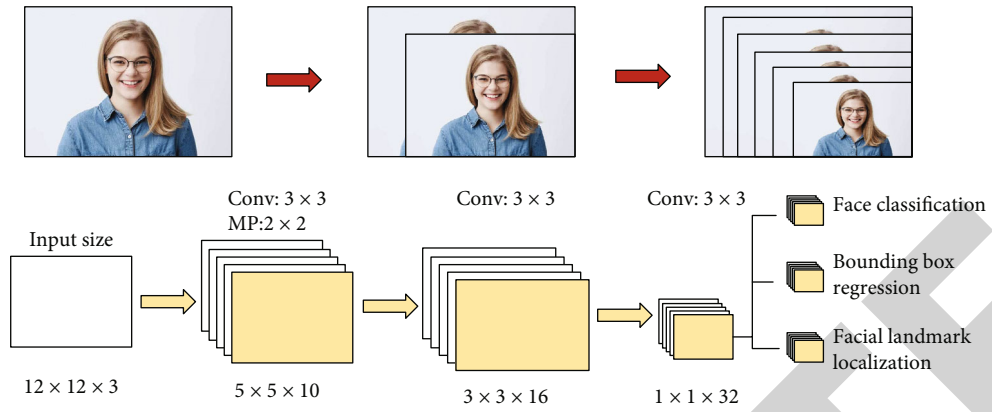

Figure 2: Image scaling pyramid structure.

actual class. And realize the summary of the influencing factors of students' emotional changes on their academic performance and daily behavior activities.

We use the decision tree algorithm to calculate the probability of interest behavior, construct the expected value change curve, and analyze the applicability of this method. The core part of this algorithm is to select the corresponding key features according to the data changes on each tree node and improve the structural model through cascade recursion. Starting from the bottom node, the overflow quotient of each data is obtained by using the function. The element nodes are established in different value ranges according to the characteristics. We use the student database to obtain the main experimental information in the big data environment. Preprocess according to the actual behavior of students in ideological and political class. First, investigate the classroom test of students under the emotion of no. 3 middle school, as shown in Figure 3.

It can be seen from Figure 3 that with the increase in the number of students, most students have better classroom test scores when they are happy. When they are depressed, their performance in classroom testing is poor, and a small number of students are in a state of abnormal play. After preprocessing according to the above measurement data, the decision tree algorithm is used for data mining. Assuming that the number of consecutive units of each sample is fixed, the downward order is used. The formula is as follows:

$$T_i = \frac{a_i + a_{i+1}}{2}. \tag{9}$$

Select the coordinate position with the greatest data benefit for secondary separation and classification. If the maximum point obtained is a_t, it belongs to the same category. When preprocessing the source data, it is also necessary to align the feature points of each subset to facilitate the second recursive operation of the sample data until each unit data belongs to the same category. The larger the number of features, the larger the corresponding coefficient. We use weighted calculation to obtain the data gain ratio. The final ratio of the coefficient to the sample set is as follows:

$$\text{entopy}(E) = -\frac{a_1}{a}\log_2\frac{a_1}{a} - \frac{a}{a}\log_2\frac{a_2}{a} = x_1, \tag{10}$$

$$\text{entopy}(N) = -\frac{b_1}{n}\log_2\frac{b_1}{n} - \frac{b}{n}\log_2\frac{b_2}{n} = x_2, \tag{11}$$

$$\text{entopy}(X) = \frac{b_1}{n} * X_2 - \frac{b_2}{n} * X_3 = x_4. \tag{12}$$

When the actual quotient of the data results is uncertain, the greater the uncertainty coefficient, the greater the quotient. If a student is selected as the experimental data source for classification, the amount of information collected will be smaller than that before classification, because redundant and duplicate data are automatically removed in the calculation. In the subsequent calculation, it is also necessary to judge the influence of the number of feature points on the accuracy of information acquisition. First, define the initial formula as follows:

$$\text{Gain}(X) = x_1 - x_4 = x_5. \tag{13}$$

In the formula, $\text{Gain}(X)$ represents a selected target individual, and the data information formed by the splitting of feature points is calculated as follows:

$$\text{Split\_Info}(X) = -\frac{b_1}{n}\log_2\frac{b_1}{n}\log_2\frac{b_2}{n} = x_6. \tag{14}$$

The overall yield of the calculation result is

$$\text{Gain\_Ratio}(X) = \frac{x_5}{x_6} = x_6. \tag{15}$$

In the above calculation, we obtained the student behavior data in the big data environment. Through the calculation of the location of feature points and income of the data source, we can know that the change of students' emotional characteristics is nonlinear. And the influence of students' emotional fluctuation on teaching effect is very obvious. This paper randomly selects a senior class, marks the students of different ages and genders, and records their facial emotional changes in the ideological and political class. During data recording, compare the accuracy of

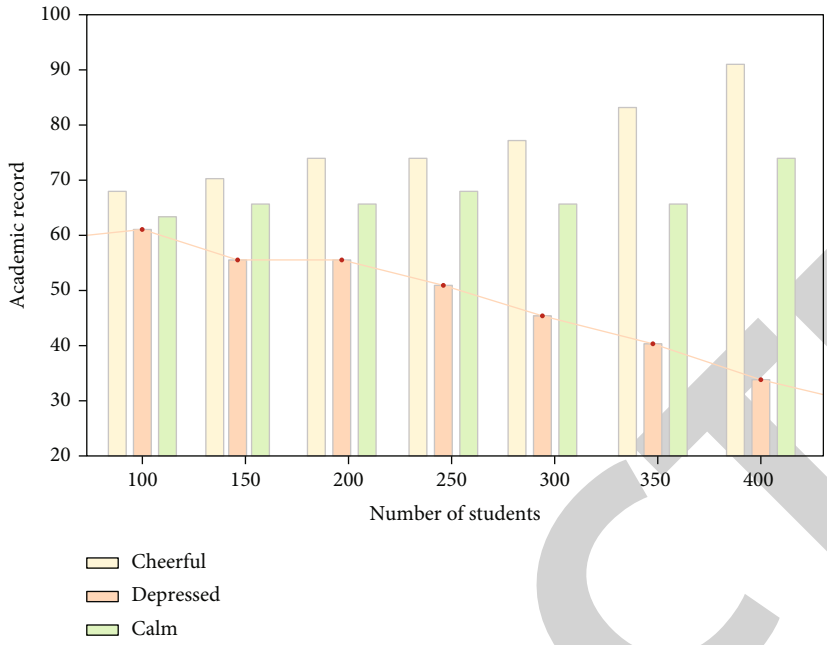

Figure 3: Students' classroom test under the emotion of no. 3 middle school.

information before and after using data mining technology, as shown in Figure 4.

As can be seen from Figure 4, with the increase in the number of students, the number of capture of pleasant emotions and confused emotions in the traditional facial emotion recording operation decreases sharply, indicating that the traditional method cannot process data in a complex environment. The feature source processed by data mining technology can maintain the stability of work in the process of recording. It provides effective information resources for the follow-up analysis of students' emotional changes.

4. Analysis of Research Results of Students' Emotional Changes in Ideological and Political Classroom Based on Artificial Intelligence and Data Mining

The ultimate purpose of this paper is to analyze the emotional changes of all students in the ideological and political teaching classroom, extract the state data on their way to class, and finally achieve the purpose of optimizing teaching methods. The accuracy of data mining affects the effect of experimental results to a certain extent. We use data mining technology to get students' daily behavior information from the large database and analyze their performance changes in different learning environments. Thus, artificial intelligence recognition technology is used to capture and distract students' classroom expressions and calculate the trajectory and law of students' emotional changes. In the ideological and political class, students will basically have three normal expressions: pleasure, confusion, and depression. With the in-depth change of students' listening level, the three normal expressions will also extend microchanges from different angles. Firstly, from the perspective of psychology, students' facial expressions can be related to their inner emotions. Mental state can be judged from listening, resistance, understanding, confusion, and divergence. However, how to effectively obtain expression features, classify, and determine the feature area is our main research content. According to the above analysis results, we randomly selected college students to interview to understand their real feelings in the ideological and political class. At the same time, the following conclusions are drawn: students are more confused in class, and the two feelings of resistance and divergence are not obvious, so they can be removed in the experiment. After the emotion category is determined by students' visit, the corresponding graphic data are collected to build an artificial intelligence neural network analysis model.

In the process of collecting samples, we need to investigate students' personality hobbies and learning needs and provide each student with courses that meet their own interests. Play the prerecorded course video, and record the students' listening status with the video recorder. Each student records two videos, respectively, for comparison, with a duration of 15 minutes. The whole process needs to fully simulate the class state without any manual intervention. The image acquisition of facial expression has contrast in brightness and structure. The specific process is shown in Figure 5.

As can be seen from Figure 5, there is a certain error between the gray value of the image captured in reality and the contrast image. The calculation formula of gray error is as follows:

$$S(1,2) = f\left(l(1,2)c(1,2)s(1,2)\right) = \frac{\left(2u_x u_y + c\right)\left(2\sigma + c_2\right)}{\left(u_x^2 + u_y^2 + c\right)\left(\sigma_x^2 + \sigma_y + c\right)}. \tag{16}$$

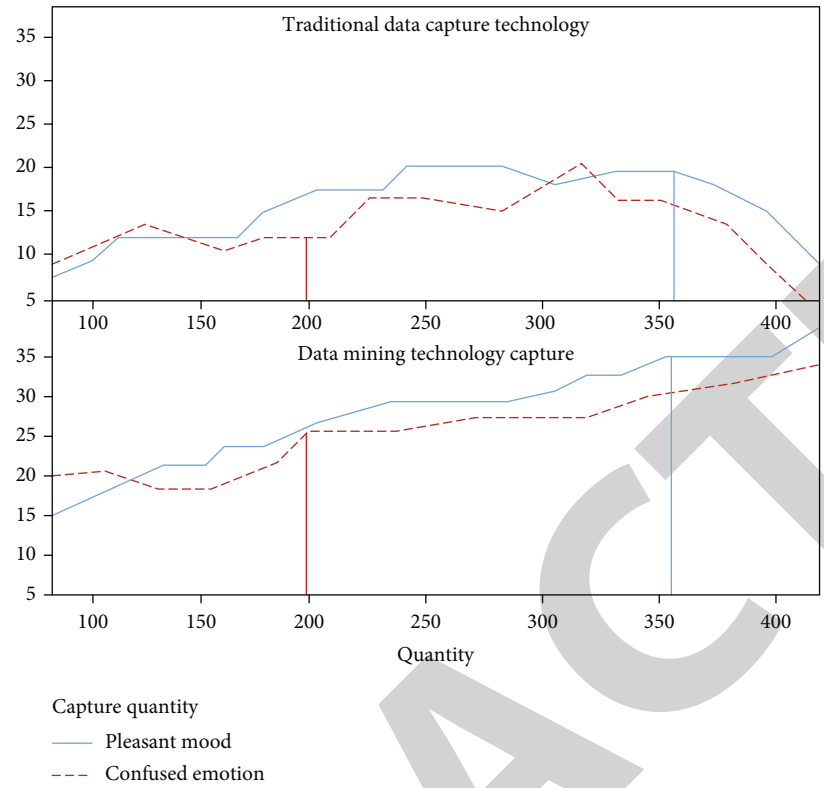

Figure 4: Comparison chart of information accuracy before and after using data mining technology.

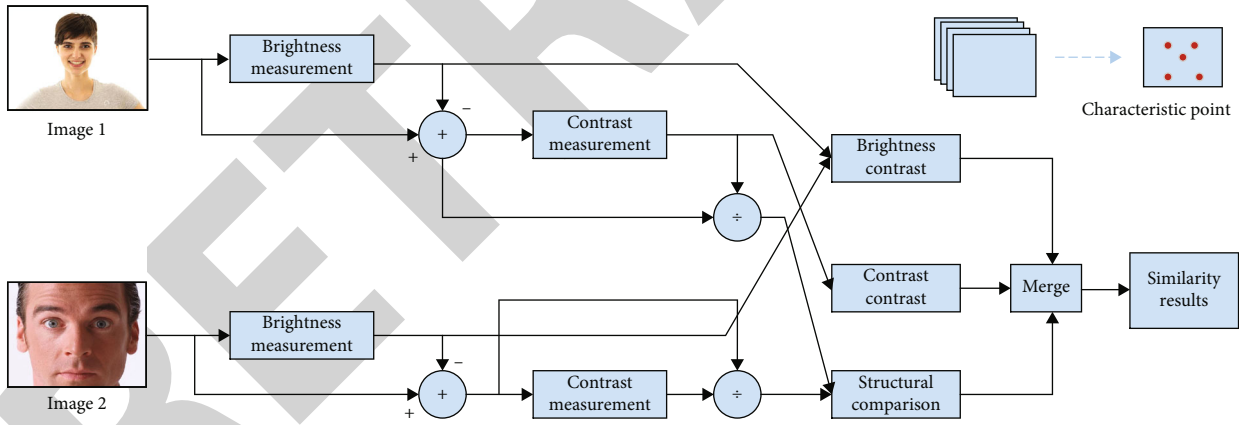

Figure 5: Specific process of facial expression acquisition.

According to the above formula, the expression image with obvious feature points can be obtained, and the image information can be saved into the data processing set as the sample of the experiment. The sample information set includes four kinds of expression features: pleasure, confusion, depression, and conflict. The remaining expression features account for a small proportion in the influence of the experimental results, so we will not analyze and explore them. Finally, after the hierarchical iteration of the neural network model, several students are randomly selected to show the facial structure changes of different emotions, as shown in Figure 6.

It can be seen from Figure 6 that the emotional changes of each student in the classroom learning process of ideological and political teaching are fully reflected in the facial expression. The experimental environment selects C++ as the language to train the network model intelligently. In order to verify the effectiveness of data in each iteration, we use data mining technology and traditional data acquisition to compare the accuracy of data. The training sample set is the facial emotion change information of students in ideological and political classroom, including 4 categories and 5000 data. Set a control group for the processing results using data mining technology to explore the accuracy

Figure 6: Changes of facial structure under different emotions.

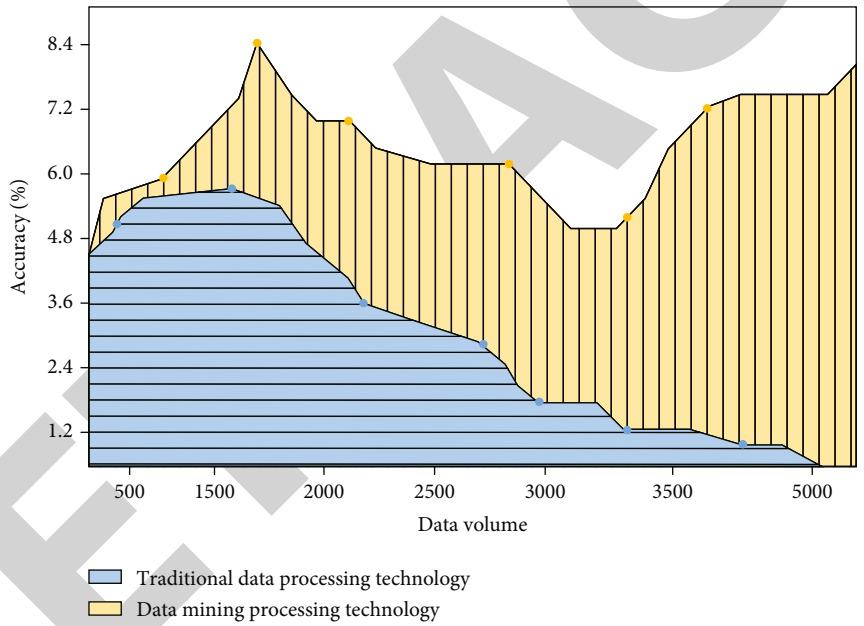

Figure 7: Accuracy comparison of two methods in practical application.

changes of the two methods in practical application, as shown in Figure 7.

As can be seen from Figure 7, with the increase in data volume, the accuracy of traditional data processing technology is significantly reduced, while the accuracy supported by data mining technology is stable above the standard range. Based on the analysis of the above experimental results, we conclude that students' emotional changes in class are mainly reflected in behavior and expression. The expression data can accurately feedback the students' listening state. Therefore, this paper uses the artificial intelligence neural network model to simulate students' listening data and further comes to the conclusion that emotional changes have a direct impact on students' grades.

5. Conclusion

In the era of artificial intelligence and big data, how to integrate computer technology with teaching is the main research topic of scholars all over the world. Nowadays, ideological and political education is the main link affecting students' value orientation. The research path of ideological and political teaching under the background of artificial intelligence mostly focuses on the optimization and innovation of teaching resource mode, including the perspective of multidisciplinary integration and innovation and the perspective of integrated media communication. With the further application of AI technology in the construction of the teaching system, AI has gradually played a role in the

transformation of thinking, platform operation, data processing, and information dissemination in ideological and political teaching. Analyzing students' emotional changes in ideological and political teaching classroom can accurately judge the trend of students' performance and whether the learning effect has reached the expected goal. Based on the above situation, this paper uses artificial intelligence and data mining technology to explore the emotional change process in students' ideological and political teaching classroom. Firstly, it analyzes how to obtain students' emotional state in real time and the characteristics of emotional state. It can be found that the students' facial expression and behavior at the moment can be investigated according to the situation of the interview. Use data mining technology to analyze the emotional feature points that affect students' performance in the sample. Provide accurate data for the artificial intelligence neural network model. Finally, the face detection technology is used to determine the facial expression coordinates and optimize the traditional detection mechanism. A multitask convolution network is used to generate iterative images at different levels. The results show that data mining technology has more accurate performance than traditional data processing. The artificial intelligence neural network model can dynamically capture students' facial expression in classroom teaching and analyze the law of students' emotional change according to the characteristics of expression.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

[1] Z. Xiaojing and H. Yuejun, "On the challenge and response of ideological and political course in colleges and universities enabled by artificial intelligence," *Journal of Suzhou University of Science and Technology (Social Science Edition)*, vol. 39, no. 2, pp. 15–19 + 107, 2022.

[2] Y. Liping, L. Hua, and Y. Xiaoping, "Ethical research on the application of artificial intelligence technology in ideological and political teaching," *Modern Vocational Education*, vol. 10, pp. 13–15, 2022.

[3] L. Zhonghua and C. Lihua, "Integration of intelligence and humanism: the development trend of artificial intelligence + ideological and political teaching in colleges and universities," *Future and Development*, vol. 46, no. 2, pp. 45–49, 2022.

[4] L. Jia, "Research on the innovation of situational teaching mode of Ideological and political course in colleges and universities under the condition of artificial intelligence technology," *Guide to Ideological and Theoretical Education*, vol. 11, pp. 100–103, 2021.

[5] H. Cheng, D. Yang, C. Lu, Q. Qin, and D. Cadasse, "Intelligent oil production stratified water injection technology," *Wireless Communications and Mobile Computing*, vol. 2022, pp. 1–7, 2022.

[6] H. Cheng, P. Ma, G. Dong, S. Zhang, J. Wei, and Q. Qin, "Characteristics of Carboniferous Volcanic Reservoirs in Beisantai Oilfield, Junggar Basin," *Mathematical Problems in Engineering*, vol. 2022, pp. 1–10, 2022.

[7] B. Haoxuan, W. Xing, and Y. Yahan, "Application of artificial intelligence technology in teaching quality evaluation of ideological and political course," *Drama House*, vol. 16, pp. 114–116, 2020.

[8] H. Cheng, J. Wei, and Z. Cheng, "Study on sedimentary facies and reservoir characteristics of Paleogene sandstone in Yingmaili block, Tarim basin," *Geofluids*, vol. 2022, Article ID 1445395, 14 pages, 2022.

[9] M. Wei and Z. Li, "Research on the strategy of semantic emotion analysis in network public opinion content based on artificial intelligence technology," *Science and Technology Communication*, vol. 12, no. 14, pp. 165–167, 2020.

[10] X. Tianyu and X. Chao, "Application and research of facial emotion analysis based on feature point detection," *Computer and Information Technology*, vol. 28, no. 3, pp. 13–16, 2020.

[11] Z. Pengwei, J. Yufeng, L. Qiang, S. Xiaoqing, and S. Jingpu, "Research on text emotion analysis technology based on data mining technology," *Information and Communication*, vol. 1, pp. 77-78, 2020.

[12] W. Zhang, W. Cheng, H. Cheng, Q. Qin, and M. Wang, "Research of tight gas reservoir simulation technology," in *IOP Conference Series: Earth and Environmental Science*, vol. 804, article 022046, IOP Publishing, 2021.

[13] A. Peng Xiaojiang, "Review of affective computing based on multimodal information," *Journal of Hengyang Normal University*, vol. 39, no. 3, pp. 31–36, 2018.

[14] L. V. Ting and Z. Shanli, "Case study on online learning behavior of higher vocational students from the perspective of data analysis," *Computer and Information Technology*, vol. 30, no. 1, pp. 66–69 + 76, 2022.

[15] N. Wenfang and S. Jianhua, "Design and application of student behavior analysis platform based on massive data," *Information and Computer (Theoretical Edition)*, vol. 34, no. 3, pp. 162–164 + 168, 2022.

[16] S. Jinxiao, "Analysis and prediction of students' learning behavior based on educational big data," *Electronic technology and software engineering*, vol. 3, pp. 247–250, 2022.

[17] W. Junsong, B. Huisong, and Z. Xiaofeng, "Research on online learning behavior modeling of college students based on big data," *Informatization Research*, vol. 47, no. 6, pp. 11–17 + 29, 2021.

[18] H. Haibing and L. Xing, "Analysis of college students' behavior based on big data technology," *Electronic Components and Information Technology*, vol. 5, no. 11, pp. 131-132, 2021.

[19] F. Wenjun, "Research on online teaching students' questioning behavior based on data analysis – taking the online questioning data of "material structure and nature" as an example," *Chemistry Teaching and Learning*, vol. 17, pp. 10–13, 2021.

[20] Z. Liyuan and H. Ruxia, "Research on students' online learning behavior based on data analysis," *Journal of Yuzhang Normal University*, vol. 36, no. 2, pp. 87–91, 2021.

[21] J. Han, H. Cheng, Y. Shi, L. Wang, Y. Song, and W. Zhang, "Connectivity analysis and application of fracture cave carbonate reservoir in Tazhong," *Science Technology and Engineering*, vol. 16, no. 5, pp. 147–152, 2016.