Research Article

Model Analysis of Applying Computer Monitoring to College Students’ Mental Health

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In the past 20 years, although there are many achievements in the model analysis and research, there are still problems of low data utilization and low accuracy. This paper analyzes the mental health level of college students based on chaotic algorithm. At the same time, the application of computer monitoring algorithm to students’ real life psychology is discussed. According to different types of mental health analysis models, the high-precision matching analysis of different students is realized. At the same time, according to the personality characteristics and psychological changes of different students, the model is established and analyzed. Finally, an experiment is designed to carry out practical application and data analysis of the mental health analysis model. The results show that the intelligent analysis model based on computer chaos algorithm has better classification effect. In addition, the algorithm can also make different evaluation strategies according to the different personality of students and can carry out multidimensional classification for college students of different majors. It has effectively increased the proportion of college students’ mental health groups. Compared with the current mainstream algorithms, the algorithm used in this study can adaptively classify college students of different majors. The accuracy of the experimental results is improved by at least 37% compared with the traditional method, and the error is low.

1. Introduction

The emergence and development of mental health education in colleges and universities in China have experienced a tortuous process. It is influenced not only by national politics, economy, and culture but also by the international mental health movement. With the unremitting efforts of the majority of psychological workers, mental health education in colleges and universities in China has begun to take shape and becomes an indispensable educational content for cultivating high-quality talents for socialist construction. Psychological education is an indispensable quality education course in higher education [1]. At present, college students are prone to various psychological problems because of their great psychological pressure [2]. Although there are many researches on college students’ mental health at home and abroad, there are still no good research results that can be directly applied, and many methods still need to be analyzed in combination with specific psychological problems [3].

This paper combines computer monitoring technology and data to better study, discusses the internal psychological expression of students, and realizes the expression analysis of high-quality characteristics of psychological education [4].

Based on this background, this paper studies the application of computer chaos algorithm in intelligent analysis, which is mainly divided into four chapters. The first chapter briefly introduces the application background and computer monitoring technology and the chapter arrangement of this study. Chapter 2 briefly introduces the research status of college students’ mental health model at home and abroad and summarizes the shortcomings of the current research. The third chapter constructs the analysis model of college students’ mental health based on computer chaotic algorithm. Through the disturbed intelligent analysis of different types of college students’ psychological data, it realizes the high-
intensity representation of its internal correlation and carries out centralized control according to its internal error to improve the accuracy of the model. In Chapter 4, the practical application effect of the intelligent analysis model constructed is tested. By analyzing its high-intensity analysis of different data and interactive data coupling processing, the accuracy verification and analysis of the model are realized. The experimental results show that compared with the common mental health analysis matching model dominated by human interference, this paper makes a chaotic analysis of students’ mental health. The results show that the modified method has high accuracy and low error rate.

The innovation of this paper is to use chaotic algorithm to analyze students’ psychology. According to the psychological performance characteristics of students of different majors, the district distinguishes students of various majors. It creatively realizes psychological iterative analysis. The results show that chaos algorithm and coupling analysis can improve the accuracy of group psychoanalysis algorithm.

2. State of the Art

In recent years, scholars have made great achievements in the research of college students’ mental health, but there are still many areas to be improved in different types of mental health analysis models and corresponding computer monitoring applications, such as high accuracy matching and differential feature construction of mental health analysis models [5]. In the process of studying, researchers Son et al. found that different types of health problems need different methods to solve. Therefore, they proposed a high-intensity and multitype synergetic mental health analysis system, which can effectively improve the efficiency of different types of psychotherapy [6]. Wang et al. found that different types of data groups have different differentiation characteristics, so they provided a traceable mental health network [7]. According to the characteristics of computer monitoring system, Barik et al. intelligently analyze different types of mental health models, classify different data, and use “meta learning” algorithm for in-depth analysis [8]. Zou et al. proposed a psychological analysis model of facial emotion recognition. According to the age characteristics of different students, different correlation schemes of psychological problems are put forward [9]. Kaveh et al. have adopted an intelligent adaptive allocation strategy for college students according to different types of college students’ psychological thinking. The experimental results show that this strategy can carry out feature recognition and intelligent analysis according to its internal differences, which is more suitable for the psychological health treatment [10]. According to the differences in thinking of college students in different majors, Li et al. adopted neural network analysis strategy and adopted different types of mental health therapy [11]. Fu et al. rely on different types of high-end databases of mental health to carry out mental health communication and treatment for college students of different majors and put forward an adaptive mental health analysis model [12]. Georgieva et al. carry out intelligent matching and tracking of different types of databases according to different strategies of mental health therapy, and their internal relevance has good analysis and boundaries. Therefore, they can better complete the diagnosis and analysis of different mental health, but many parameters need to be determined in advance [13].

To sum up, it can be seen that the currently constructed intelligent analysis models of college students’ mental health cannot efficiently complete the targeted treatment analysis of college students, and different model data need to be classified. Therefore, there are improvements in convenience and universality [14–16]. On the other hand, there are few research results combined with computer monitoring technology [17–19]. Therefore, it is very necessary to apply computer monitoring model to students’ psychological analysis.

3. Methodology

3.1. Application of Monitoring Method Based on Computer Chaotic Algorithm in Intelligent Analysis of College Students’ Mental Health. Chaos theory is an active frontier field developed in recent decades. It is an important branch of nonlinear science. It is known as three important scientific discoveries in the 20th century together with quantum physics and relativity [20]. Chaos is a disorder determined by order, which is similar to a random phenomenon. Chaos is a common phenomenon in nature and human social systems, but it is not easy to study. It is only due to the development of nonlinear science and the improvement of computer that chaos research becomes possible, forms a preliminary theory, and then begins to explore its practical application value [21]. In terms of solving the mental health problems of college students, computer chaos algorithm needs to conduct coupling analysis on different types of data groups first and then discrete processing. Therefore, this kind of algorithm is more marked and targeted than other artificial intelligence algorithms, and its basic thinking principle is shown in Figure 1 [22]. On the other hand, with the development of intelligent technology, different types of computer monitoring algorithms have different characteristics in analyzing different types of data groups, and their internal relevance will be different [23]. In the process of splitting mental data information, its internal relevance will also show the characteristics of high-intensity discrete difference analysis [24]. By using computer chaotic algorithm and image processing technology, its internal relevance and pertinence will also be different to varying degrees, and decentralized jurisdiction will be realized according to its internal unique characteristics, which is easier to realize the early analysis of mental health problems [25]. This analysis method shows the advantages of more convenience and speed.

3.2. Establishment Process of Psychological Intelligence Analysis Model Based on Computer Chaotic Algorithm. After the data groups of different types of mental health problems are divided, the differentiation characteristics of the internal correlation data groups show different types of decentralized characteristics, and different types of data groups appear,
which can realize the early specific behavior analysis of different mental health data groups. Therefore, it is simulated and analyzed in combination with the computer monitoring network. The data simulation and analysis process is shown in Figure 2.

It can be seen from the simulation analysis results in Figure 2 that although the trends of mental health training data sets of different ages and majors are similar, their corresponding common problem types and pyramid level proportion are different, and the difference is obvious. This is because after the combination of different types of computer monitoring networks and chaotic algorithms, its internal ultra-high-intensity matching analysis data group will carry out feature classification, and its internal model features will combine the advantages of Chaotic Hybrid Algorithm to realize pyramid hierarchical intelligent management and data differentiation and then show the change characteristics with similar trend. The difference of college students’ mental health is mainly reflected in the corresponding color difference after the mental health problems are converted into data. It can be represented by color histogram, in which the color histogram $P$ can be expressed as

$$
P = \frac{\sum_{i=1}^n b_i^2!}{1 + \sum_{i=1}^n b_i^2!}, \quad (1)$$

where $b$ is the strength of computer chaotic nodes. After the analysis of different types of data groups, their internal relevance and true intensity have obvious differential classification features. It is very important to extract quantitative features from images and analyze them. Figure 3 shows the quantitative model analysis results.

According to the results of Figure 3, after the computer chaotic algorithm and monitoring network are used to classify the mental health data, its internal relevance and differentiation can be quickly divided and reflected through the pyramid hierarchical structure. This is because different types of computer monitoring networks and computer chaotic algorithms can complete better data classification and data retrieval according to different types of data groups, so as to deal with college students’ mental health problems in advance.

$$
HSV = \frac{\sqrt{P} + \sqrt{\sum_{i=1}^n b_i^2!r!(g-r)!}}{\sqrt{rW}}. \quad (2)
$$

The bundle histogram of chaotic space is used to reflect the vector characteristics of chaotic space, and multiple vectors in monitoring space are standardized and quantified. The component corresponding to the vector algorithm of each monitoring space is synthesized into a normalized eigenvector, and its expression is

$$
L = \frac{\lim_{s \to \infty} \sqrt{rW^2 + bP^2}}{\lim_{s \to \infty} \sqrt{bW^2 + rP^2}}. \quad (3)
$$
Figure 2: Data training process based on computer chaos algorithm.

Figure 3: Pyramid-level classification results of computer network monitoring simulation analysis.
where $L$ is the quantitative response value of the chaotic vector and the monitoring vector, and its size reflects the mutual interference degree and the discrete frequency between the chaotic vector and the monitoring vector. Different types of mental health data sets have $L$-dimensional vectors. The chaotic square function is a hypercentric discrete function, and the formula is expressed as

$$R(S_k) = \lim_{k \to \infty} n_k, \quad (4)$$

where $S_k$ represents the standard degree of discretization and $n_k$ represents the width limit of the square function. After completing the standardized analysis, it is very important to analyze and sift out mental health data. The formula is

$$R(S_{k+1}) = \sqrt{R(S_k)^2 + n^2}, \quad (5)$$

where $n$ is analyzed according to the standard degree and error deviation degree of chaotic vector and $R(S_{k+1})$ reflects the accurate frequency of the matching degree between chaotic square function and college students’ mental health analysis. After scoring the mental health data of college students, the saturation function $U_{L1}$ is extracted with the help of chaotic analysis structure:

$$U_{L1} = \sqrt{\sum_{i=1}^{n} P(S_i)} / W(\sqrt{2S_1}). \quad (6)$$

Assuming that $U_{L1}$ can be normalized by combining the modulus and direction of chaotic vector, its internal relevance and mental health matching degree will also show different changes. Therefore, extract and analyze the maximum value of the corresponding chaotic vector from $U_{L1}$ and set it as the upper limit of the standard reference interval, then the basic reference value of $R(S_k)$ value in chaotic space can be set to 0.1, and the simulation analysis results are shown in Figure 4.

As can be seen from the figure, in different students’ psychological data, the corresponding monitoring results and chaotic analysis frequencies are different, and the reference standard value will also show different change trends, because different types of data groups analyze different types of coupling data. It is necessary to carry out high-intensity fitting with the help of chaotic space matching analysis network. Therefore, after completing the high-intensity analysis of mental health, it is also necessary to carry out accuracy analysis combined with chaotic space vector. The mental health standard vector of college students specified in chaotic space belongs to $h(x)$, and $x$ is used to represent the label of different types of mental health data groups. Then, the corresponding standardized chaotic discriminant function can be expressed as

$$h(x) = \frac{w \sqrt{x} + bx}{w + b}. \quad (7)$$

Under the high-intensity mental health analysis model, in order to ensure the accuracy of its analysis, the following conditions need to be met:

$$\frac{y_i[h(x) + n]}{b\sqrt{w} + w\sqrt{b}} \geq 0. \quad (8)$$

Under the computer monitoring system and chaos analysis algorithm, the corresponding analysis matching truth function $T(x)$ is

$$T(x) = \text{sgn} \left\{ \left( \sum_{i=1}^{n} a_i y_i(x) + b * \right) \right\}. \quad (9)$$

In order to further improve the accuracy of college students’ mental health analysis, it is necessary to add significance classification conditions under different monitoring models:

$$\frac{y_i[h(x) + n]}{b\sqrt{\zeta_i}} > 0. \quad (10)$$

Under the limitation of significance, the formula corresponding to the collimation function $\phi(w, \zeta)$ is

$$\phi(w, \zeta) = \sqrt{\left( \frac{\left( 2/3 \right) M \left( \sum_{i=1}^{n} \zeta_i \right)}{b + w} \right)}, \quad (11)$$

where $M$ represents the chaos degree determination function.

It is necessary to add a standardized coupling factor expression system. At this time, the corresponding standardized judgment function in the corresponding computer monitoring network system will be transformed into

$$T'(x) = \text{sgn} \left\{ \left( \sum_{i=1}^{n} a_i y_i(x) + b * \right) \right\}, \quad (12)$$

$$T''(x) = \text{sgn} \left\{ \frac{\left( \sum_{i=1}^{n} a_i y_i(x) + b * \right)}{b^2} \right\}, \quad (13)$$

$$T'''(x) = \text{sgn} \left\{ \left( \sum_{i=1}^{n} a_i y_i(x) + b * \right) \right\}. \quad (14)$$

After analyzing the mental health data groups of different types of college students, combined with their significant characteristics, it is necessary to conduct value scale analysis
in different types of mental health models. At this time, the corresponding value scale function is

\[
Z(x_i, x_j) = \lim_{\delta \to 0} \left\{ \left( (\delta + 1) \sqrt{|x_i - x_j|} \right) / \delta^2 \right\} \frac{|x_i - x_j|}{|x_i - x_j|}. \tag{15}
\]

After calculating the value scale, it is necessary to conduct high-intensity characterization analysis on different mental health model data groups, and the simulation analysis results of computer monitoring under different differentiated conditions are shown in Figure 5.
As can be seen from Figure 5, when the number of samples of college students’ mental health data increases, the threshold of its corresponding incremental function changes significantly, but the curve change law corresponding to the three groups of simulation results is consistent, because different types of data groups have obvious differences in their internal relevance under the analysis of computer chaotic neural network. However, there is little difference in the correlation between groups, so it presents the characteristics of “overall similarity and local difference.”

4. Results

4.1. Analysis of Psychological Model under Chaotic Algorithm. Accurate matching analysis of the psychological characteristics of different student groups in chaotic algorithm is a limited problem to be solved. It is necessary to carry out differential analysis and processing of their internal relevance. The processing strategy used in this experiment is the hybrid strategy of computer monitoring network and computer chaotic analysis network. The matching degree
of this strategy ensures that when different types of college students’ mental health problems are analyzed, their internal relevance and differences are more clearly analyzed and quantified in the form of numbers. Figure 6 is the preliminary experimental results of the computer chaotic algorithm analysis model.

In the three groups of data in Figure 6, the branch accuracy indexes of the results corresponding to the computer chaos method in the process of processing and analyzing the data of three different groups are also different, but when different types of data groups realize the expression of “spacing,” their internal relevance also shows great differences, and such results also meet the experimental expectations. In addition, in the computer monitoring system, combined with the actual analysis of college students’ psychological problems, both compact design and multifunctional design can be adopted to minimize the instability of the computer chaotic pyramid. Therefore, the computer chaotic algorithm can effectively combine the characteristics of deep learning to realize its differential analysis and error control.

4.2. Results and Analysis. On the basis of students’ psychoanalytic health model computer monitoring application proposed in this study, the evaluation index is used as a reference. In the process of iteration and evaluation, if the frequency of the output of the network and the chaos distance of a memory vector is 0 (or close to 0), it can be considered that this mental health problem is successfully identified by the chaotic vector. If the output of the network and the chaos distance of multiple memory vectors are more than 1, it is considered that the probability of successful recognition of mental health problems is low. Therefore, data monitoring and chaos analysis strategies play an important role in classification, which will directly affect the analysis accuracy. The experimental analysis results are shown in Figure 7 (RGB and HSV evaluation strategies).

As can be seen from Figure 7, when analyzing different types of data groups, the experimental group using computer chaos strategy has the lowest error degree of corresponding data results, and its jumping and disturbance are also the lowest. This is because after using computer monitoring network and chaos analysis strategy, when the corresponding value of the Q parameter in the tracking analysis is the preset random value, the corresponding value of the Q parameter in the tracking analysis will appear δ. When it is 1, the accuracy is 82.5%; Q value is 20, random parameter δ. When it is 10, the accuracy is 77.5%; Q value is 50, random parameter δ. When it is 50, the accuracy is 67.5%; Q value is 70, random parameter δ. When it is 5, the accuracy is 90%.

5. Conclusion

In the past 20 years, although there are many achievements in the model analysis, there are still problems of low data utilization and low accuracy. The study makes an applied analysis on the psychology of students through computer model monitoring. Firstly, an intelligent analysis model of mental health based on computer chaotic algorithm is established. Combined with the different psychology of students in different majors, different types of analysis strategies are used to establish different visual network models. Secondly, combined with different computer monitoring and analysis models, different types of college students’ mental health problems are classified and analyzed. Finally, combined with different analysis strategies, the normalization analysis and error matching characterization of different types of mental health data groups are carried out. The results show that the algorithm used in this study can carry out adaptive classification for college students of different majors, and the accuracy of the experimental results is improved by at least 37% compared with the traditional methods, and the error is lower. However, this paper does not discuss the automatic classification of renderings for college students’ psychological design, which needs to be analyzed and discussed from the application scope of different algorithms and the regional differences of students.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References


