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Retraction

Retracted: Influence of Ideological and Political Integration of Curriculum Based on Deep Learning on the Teaching Design of Sports Aerobics

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] M. Li and C. Z. Luzi, "Influence of Ideological and Political Integration of Curriculum Based on Deep Learning on the Teaching Design of Sports Aerobics," *Mathematical Problems in Engineering*, vol. 2022, Article ID 8018962, 9 pages, 2022.

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Research Article

Influence of Ideological and Political Integration of Curriculum Based on Deep Learning on the Teaching Design of Sports Aerobics

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Course ideology and politics (CIAP) have been proposed in recent years, and the concept is relatively new. Therefore, there are few studies related to aerobics in this field, and the related system is not perfect. On the one hand, the research is conducive to broadening the vision of ideological and political education research and promoting the development and reform of CIAP into the physical education discipline. In recent years, the development of deep learning has been rapid. Among them, artificial neural networks (ANNs) have a high degree of nonlinear learning ability, and ANN algorithms have been widely used in data mining applications. Therefore, this paper proposes a method for evaluating the impact of deep learning-based CIAP integration into the sports aerobics teaching design.

1. Introduction

Running through ideological and political (IAP) work in education and teaching, and always insisting on morality and cultivating people, can better achieve the goal of educating people in the whole process and in all directions. It is also an important mission of educators, and physical education teachers are no exception [1, 2]. Aerobics is an aerobic exercise, which is a physical exercise that effectively combines music, dance, and gymnastics. There is great room for CIAP education in aerobics classes in schools at all levels. By exploring the educational function of aerobics programs, CIAP education can be better integrated into the teaching design of aerobics courses, so as to achieve the goal of cultivating practical skills talents [3]. It can be seen that it is necessary to deeply study and analyze the path of integrating CIAP into aerobics classroom teaching design. For various colleges and universities, strengthening and improving IAP work need to be based on the innovation of IAP education. IAP education is in the development period of innovation and reform. Colleges and universities should integrate IAP education into various courses to improve students' moral literacy [4, 5]. Physical education is an important part of the curriculum of various colleges and universities and has outstanding advantages in IAP education. Therefore, CIAP can promote the reform of physical education teaching in colleges and universities. Aerobics courses provide an inexhaustible driving force for the sustainable development of campus culture construction and are also an indispensable carrier of IAP education, playing a key role in cultivating students' outlook on life, values, and world outlook [6, 7].

Recognition filters, autonomous control, prediction, and other neural network-based applications have all shown their amazing superiority in recent years. In particular, they can deal with any kind of data, which is unequaled by many older approaches [8]. The rules may be discovered by continual learning from a big quantity of complicated data with unknown patterns. The neural network technique eliminates the complexity of the conventional analysis procedure as well as the difficulties in finding a suitable model function shape. It is a natural nonlinear modeling procedure, and it is not essential to differentiate what nonlinear connection exists, which makes modeling and analysis much easier [9]. The special function of neural network provides a new way for us to study evaluation or prediction problems in the field of education. This paper

introduces the related concepts of ANN, introduces the algorithm of back propagation neural network (BPNN) and the improvement of the algorithm in detail, and applies the theory of ANN to the evaluation of the impact of CIAP on the sports aerobics teaching design. This paper uses the BPNN model structure to establish a mathematical model, uses expert samples to train the neural network, uses the trained neural network for data processing, and then compares the scores of various indicators of physical and aerobics teaching design before and after adding the CIAP. In this way, the influence of CIAP on the sports aerobics' teaching design is analyzed.

The specific work is as follows:

(1) This paper proposes an improved BP neural network method, which combines the BP algorithm with the simulated annealing method to form a new algorithm, which takes into account the advantages of both the BP algorithm and the simulated annealing algorithm.

(2) In this paper, ANN has the characteristics of high nonlinear learning ability and fault-tolerant ability to noise data, and the ANN is introduced into the impact evaluation of CIAP into the sports aerobics teaching design and finally proves the effectiveness and feasibility of the model.

2. Related Work

The concept of CIAP has enriched and expanded the connotation of IAP education in colleges and universities. Based on their own characteristics, colleges and universities have actively innovated in IAP education, continuously established and improved relevant working mechanisms, and further promoted CIAP education and teaching, reforming and vigorously creating popular courses that students love. Under the top-level design and gradual promotion of the ministry of education, colleges and universities across the country actively promote the work of CIAP [10]. At the end of 2016, for the first time in China, at the IAP conference of Chinese colleges and universities, it advocated for "all sorts of courses, as well as ideological and political theory courses, to proceed in the same direction" [11]. So far, CIAP has become an academic frontier for scholars to explore, and integrating IAP education into other disciplines to realize the concept of teaching and educating people has become a hot topic for scholars to study. At present, scholars have different understandings and cognitions on the connotation and nature of CIAP. Some scholars adhere to the curriculum theory, while others adhere to the idea theory. In terms of curriculum theory, literature [12] proposed through research that the essence of CIAP education is not to add a course or an activity, but to integrate IAP education in colleges and universities into all aspects and aspects of curriculum teaching and reform, so as to realize morality and cultivate people. Literature [13] once said that CIAP puts forward the curriculum value theory of "morality first," which unifies "morality" and "seeking knowledge" and highlights the educating connotation of curriculum construction spirit. Curriculum theory is a specific elaboration of the concept of "cultivating people with morality." In terms of philosophy theory, literature [14] defines CIAP as the process of IAP education running through the daily teaching process; that is, curriculum is the carrier of IAP education, IAP is the soul of the curriculum, and they are innovative ideological education viewpoints that complement each other. Literature [15] pointed out that invisible IAP and explicit IAP should be used to jointly build a whole curriculum education pattern. Literature [16] regards CIAP as a scientific educational concept and educational method, and a complete and specific IAP education for students runs through the entire process of educational activities and the entire curriculum. In terms of the advantages of educating people, literature [17] believed that the organic integration of IAP elements into classroom teaching knowledge points can not only cultivate students' ability to understand love and stimulate their ability to display beauty, but also strengthen their sense of service, responsibility, and dedication. Literature [18] mainly discusses the advantages of sports dance CIAP from the advantages of fitness, aesthetic education, cultivating unity and cooperation spirit, humanities and art education, and intellectual advantages of sports dance CIAP. Literature [19] discusses that aerobics contains unique elements of moral education, which can improve artistic aesthetic ability and cultivate beautiful sentiments, improve social communication ability, exercise students' spirit of exploration, and promote students' autonomous learning ability. Literature [20] believes that aerobics can cultivate students to love classmates, love the group, learn to share, learn to contribute, have a sense of justice and other qualities, and improve the cultivation of students' moral education in aerobics classroom exercises. Literature [21] puts forward the common problems in aerobics classrooms in the teaching practice of aerobics CIAP, and from the teaching objectives, teaching content and methods, teaching evaluation system, and other specific content to explore aerobics CIAP new way. There is no special explanation for IAP education abroad, letting alone a theoretical overview of CIAP education. However, some ideological education concepts infiltrated in the moral education, civic education, and invisible courses they study have similarities and differences with the CIAP proposed by our country. While educating students in curriculum, Americans pay more attention to implicit education, and shape students' American outlook on life, values, and culture through practical education, community activities, and courses such as the US constitution and US history offered in general courses [22].

Judging from the development in recent years, there are two major trends in the research of neural network: one is to develop towards a more complex neural network system in theory. It is manifested in the combination of neural networks and fuzzy and evolutionary algorithms, the combination of neural networks and cognitive science, the combination of neural networks and biomedicine, and the emergence of various hybrid neural networks [23]. Second, the application scope of neural network is constantly expanding, and the research on neural network application

technology is deepening. It intersects with various disciplines and solves many problems that cannot be solved by traditional science. It has played a role in promoting the growth of the national economy for human beings to understand the world, open up unknown fields, improve the level of modern science and technology research, and drive productivity with science and technology. At the moment, neural networks are extensively employed in the area of automated control, where they are used to solve issues including combinatorial optimization, pattern recognition, image processing, and sensor signal processing. This paper introduces the related concepts of ANN, introduces the algorithm of BPNN and the improvement of the algorithm in detail, and applies the theory of ANN to the evaluation of the impact of CIAP on the sports aerobics teaching design. This paper uses the BPNN model structure to establish a mathematical model, uses expert samples to train the neural network, uses the trained neural network for data processing, and then compares the scores of various indicators of physical and aerobics teaching design before and after adding the CIAP. In this way, the influence of CIAP on the sports aerobics' teaching design is analyzed.

3. Method

In this section, we explain the curriculum ideological and political indicators in sports aerobics. Then, we introduce the algorithm in the paper. Furthermore, we make the model structure design. After this, we perform the training and testing of the neural network.

3.1. Curriculum Ideological and Political Indicators in Sports Aerobics. The educational elements of CIAP are very extensive, including outlook on life values, ideals and beliefs, moral cultivation, fighting spirit, and comprehensive quality. For physical education courses, it is vital to emphasize the qualities of physical education courses in order to assist students enjoy physical activity, improve their physique, develop a more positive attitude, and control their will. The elements of education directly related to aerobics include a sense of responsibility, tenacious will, good interpersonal communication, optimism and self-confidence, collective cooperation, aesthetic ability, innovative spirit, and other qualities. It can be said that the resource content of aerobics CIAP is very rich, but how to develop and effectively carry it out in the course requires us to constantly explore in practice. After consulting the literature, this paper makes some adjustments in difficulty and intensity, as aerobics teaching content, and develops aerobics CIAP education resources. To reflect the scientificity, fairness, and rationality of the integration of CIAP into the sports aerobics teaching design, the index system plays a key role. Different schools have different division of labor, positioning their own characteristics, and different indicators should be used for evaluation. Therefore, a scientific and reasonable evaluation index system should be established for different colleges and universities. Based on the actual teaching activities of a certain school, this project refers to the evaluation index system of the teaching work level of ordinary colleges and universities and strives to reflect the principles of scientificity, comprehensiveness, accuracy, and measurable operability. The following 14 indicators are designed to fully reflect the teaching situation, and the indicator system is shown in Table 1.

Table 1: The evaluation index system of aerobics teaching design.

Teaching design	Specific contents	Index
Teaching skills	Graceful action	X_1
	Motivate students' enthusiasm	X_2
	Encourage students	X_3
Teaching attitude	Creative design	X_4
	Easy to get along	X_5
	Positive spirit	X_6
Teaching method	Strong expressiveness	X_8
	Vibrant classroom	X_9
	Teaching with multimedia	X_{10}
	Flexible teaching methods	X_{11}
Student evaluation	High attendance	X_{12}
	Students rate teaching well	X_{13}
	Students are actively involved	X_{14}

3.2. Introduction to the Algorithm in This Paper. In this section, the algorithm of the paper is described completely.

3.2.1. Limitations of BP Networks. BPNN is the most widely used network, and it has achieved good benefits in practical applications. However, there are many problems plaguing the algorithm. In particular, the following three problems have a very large impact on the BP network, and some are even very serious. These questions are briefly discussed as follows.

(1) Convergence speed problem: the biggest weakness of the BP algorithm is that its training is difficult to master, and the training speed of the algorithm is very slow; especially when the network training reaches a certain level, its convergence rate can drop to an unbearable level. For example, when the error drops to a certain level, the network may be trained for 10,000 times, and the total error drop may be less than 0.001. To make matters worse, training is sometimes oscillating.

(2) Local minimum point problem: the steepest descent approach is used by the BP algorithm. The slope of the error surface is used to simulate a downward slope for the training process. The error surface of a complicated network is a very complex and uneven surface in high-dimensional space. Among these, there are several local minima. With the existing approach, it is very difficult to get out of a local minimum during network training.

(3) The problem of network paralysis: during training, the weight may become very large, which will make the network input of the neuron become very large, so that the derivative function of its activation

function has a small value at this point. At this time, the training step size will become very small, which will cause the training speed to drop very low and eventually cause the network to stop converging. This phenomenon is called network paralysis.

3.2.2. Improved Method of BP Algorithm

(1) When the standard BP algorithm adjusts the weights, it only makes adjustment according to the gradient descent direction of the error at time t, without considering the previous gradient direction, which may cause oscillation in the training process and slow convergence. When the network weights and thresholds are adjusted using the normal gradient descent approach, the correction amount of the previous learning is added according to a predetermined percentage, resulting in faster convergence of the network learning process. The precise procedure is

$$\Delta W(t+1) = c + \lambda \Delta W(t), \tag{1}$$

where $W(t+1)$ is the correction amount that should be obtained this time, $W(t)$ is the previous correction amount, c is the correction amount calculated from the current error, and λ is the learning rate.

It can be seen from the above formula that if the previous correction amount is overadjusted, the inertia term is opposite to the current error correction term c, so that the actual correction amount this time is small, which has the effect of reducing oscillation, while the current correction amount is underadjusted. When the inertia term has the same sign as the correction term of this error calculation, the actual correction amount of this error increases, which plays a role in accelerating the correction.

(2) The combination of the BP algorithm and the simulated annealing method: the local minimum point problem and the network paralysis problem have always been the big problems that plague the BP algorithm. The basic idea of simulated annealing method is to randomly select an initial state W_{ij} for the system, in this initial state, give the system a small random disturbance ΔW_{ij}, and calculate the energy change of the system:

$$\Delta P = P\left(W_{ij} + \Delta W_{ij}\right) - P\left(W_{ij}\right). \tag{2}$$

$\Delta P < 0$ is accepted; $\Delta P \geq 0$ is judged according to the probability $\exp(-\Delta P/c)$. If it is accepted, the system changes from W_{ij} to state $\left\{W_{ij} + \Delta W_{ij}\right\}$; otherwise, the system remains unchanged, and the temperature is gradually reduced in this process, and the weight coefficient W_{ij} is adjusted until it meets the requirements.

(3) Combination of BP algorithm and simulated annealing method: however, in simulated annealing method, the adjustment of weights is random, and due to the randomness and heuristic nature of this adjustment, in many cases, the adjustment made fails. The biggest advantage of simulated annealing is that it has the potential to make the network escape from local minima. Therefore, a better way is to combine these two algorithms to form a new algorithm. It can not only take into account the advantages that the adjustment amount of the connection weight of the BP algorithm is deterministic, but also take into account the advantages of escaping from the local minimum brought by the randomness and heuristics of the connection weight adjustment in the simulated annealing algorithm. As a result, the combination of the BP algorithm with the simulated annealing method may be implemented by splitting the modification of a connection weight into two parts: the direct calculation portion supplied by the BP algorithm and the random part provided by the simulated annealing approach. The following formula is used to change the connection weight W_{ij} between the neurons N_i and N_j in the network:

$$\Delta W_{ij} = \lambda\left((1-\mu)\delta_j \sigma_i + \mu \Delta W_{ij}'\right) + (1-\lambda)\Delta W_{ij}'', \tag{3}$$

where $\Delta W_{ij}'$ is the adjustment amount of the connection weight W_{ij} obtained according to the simulated annealing algorithm; $\Delta W_{ij}''$ is the last modification amount of W_{ij}; $\lambda \in (0, 1)$ is the learning rate, and it also plays the role of weight distribution for the direct part and the random part at the same time; $\mu \in (0, 1)$ is the impulse coefficient.

$$\Delta W_{ij}' = T\tan(r(\Delta W)), \tag{4}$$

where $r(\Delta W)$ is randomly selected in the uniform distribution interval $[-0.5, 0.5]$, and T is the annealing temperature.

$$T = \frac{T_0}{1+n}, \tag{5}$$

where T_0 is the initial temperature; n is the number of annealing, that is, the number of learning.

3.3. Model Structure Design. The network structure mainly includes connection mode, network level, and the number of nodes at each level. The evaluation problem of the instructional design of sports aerobics can be regarded as a nonlinear mapping from input to output. Since a 3-layer BP network can approximate any mapping relationship with arbitrary precision, this paper adopts a 3-layer BP network structure. The nodes of the input layer are the number of input evaluation indicators, so the number of nodes of the input layer should be determined to be 14. The output results are divided into 1, 0, and −1 according to the total score of the 14 indicators, corresponding to the three levels of A, B, and C, respectively. Among them, A is the best, B is the

second, and C is the worst. So, there are 3 nodes in the output layer. The selection of hidden layer nodes is generally based on the following formula:

$$h = \sqrt{n+m} + a, \tag{6}$$

where h is the number of hidden layer nodes, n is the number of input layer nodes, and m is the number of output layer nodes.

Therefore, according to formula (6), the number of hidden layer nodes is 5 to 15, which is determined by experimenting one by one. The model is shown in Figure 1.

In this network structure, the input vector is $X = (x_1, x_2, \ldots, x_{14})$; the output of the hidden layer is $H = (h_1, h_2, \ldots, h)_i$, and the actual output of the network is $Y = (y_1, y_2, y_3)$. The weight from the input layer unit i to the hidden layer unit j is $p = (p_{1,1}, p_{1,2}, \ldots, p_{14,i})$; the weight from the hidden layer unit j to the output layer unit is $q = (q_{1,1}, q_{2,1}, \ldots, q_{j,1})$.

3.4. Training and Testing of Neural Network. Since the initial weight represents an initial position of the neural network training on the error surface, if it is selected correctly, the network will reach the global minimum valley of the error surface with a good gradient descent speed; otherwise, if the initial position is incorrect, the network will be trapped in local minimal area. It can be seen that the selection of the initial weights has an important impact on the training of the neural network. For this reason, in the evaluation model of the impact of CIAP integration on the teaching design of sports aerobics, this paper selects different small random numbers for the initial weights many times during the parameter setting process in the early stage of network training, trains them separately, and then compares them. Training performance: select the set of random numbers with the smallest final output error. Training and testing of BP neural network in Matlab: Matlab is a high-performance visual numerical computing software launched by MathWorks, which includes a neural network toolbox, which is mainly aimed at the analysis and design of neural network systems, and provides a large number of functions that can be called directly, and graphical user interface and Simulink simulation tools are among the excellent software for analyzing and designing neural network systems. At the beginning of the project, this paper uses Matlab tools to simulate the feasibility of the neural network model for the evaluation of aerobics instructional design.

4. Experiment and Analysis

Firstly, collect the data for experiment, then determine the number of hidden layers of neural network, and, finally, compare the experimental results total and then compare the teaching design with results.

4.1. Data Set. For neural network training, samples are a must, and the quality of sample selection strongly impacts training performance. Therefore, this paper designs a database for training and testing by itself. This paper takes the

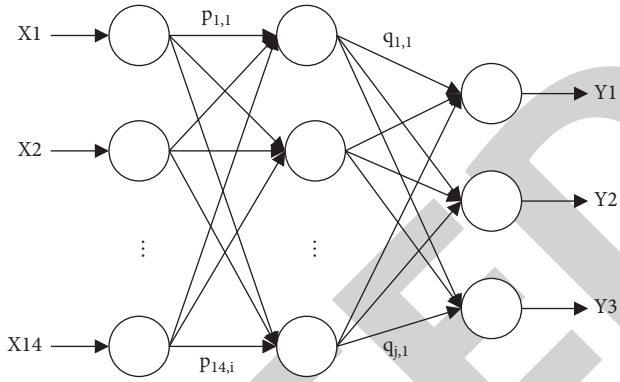

Figure 1: Improved BP neural network algorithm model.

14 indicators designed in Chapter 3 as input, the score range of each indicator is [1, 9], and the output outputs 1, 0, and −1 according to the sum of the scores of the 14 indicators, corresponding to the three levels A, B, and C. When it comes to training the network, this research employs the evaluation value of a teaching supervision group after they have listened in on a class to get the predicted output index. An important consideration is that the expert supervision group's final assessment outcome represents its evaluation concept. Every 14 sets of data in the database are used as a sample set, of which the first 10 sets of data are used as training sets, and the last 5 sets of data are used as training sets. Part of the sample data is shown in Table 2.

4.2. Determination of the Number of Hidden Layers of Neural Network. In Chapter 3, according to formula (6), the range of the hidden layer can be determined to be [4–14], so the number of hidden layers of 6, 9, 12, and 15 is selected for experimental comparison, as shown in Figures 2–5.

From Figures 2–5, it can be determined that when the number of hidden layers is 6, it can be stabilized the fastest, and finally the number of hidden layers of the algorithm in this paper is determined to be 6.

4.3. Comparison of Experimental Results. Figure 6 illustrates the evaluation and expert evaluation outcomes after model training, whereas Figure 7 illustrates the simulation evaluation and expert evaluation results for the five test sets. As seen in Figures 6 and 7, not only are the training samples highly similar to the expert evaluation findings, but the five test set simulation evaluation results are also compatible with the expert evaluation results. The experimental results demonstrate that the assessment model based on the upgraded BPNN of the CIAP integration on the teaching design of sports aerobics has a training and prediction accuracy that is totally within the acceptable range and that it is a suitable and practicable prediction model.

4.4. Comparison with Teaching Design Not Integrated into Curriculum IAP. In order to highlight the influence of the integration of CIAP into the teaching design of sports aerobics, this paper will set up another group of control

Table 2: Part of the dataset.

Input	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
X_1	7	6	5	6	7	8	8	6	6	10	4	5	6	8	5
X_2	5	7	6	5	6	9	6	5	8	8	6	4	8	9	8
X_3	6	8	6	7	8	8	7	6	7	7	5	5	9	9	7
X_4	6	8	4	5	8	8	5	5	8	9	8	4	6	10	8
X_5	7	9	7	6	8	7	6	5	5	8	6	6	7	8	9
X_6	5	8	8	4	9	8	7	4	7	7	7	5	7	9	7
X_7	8	7	5	5	6	7	6	6	6	8	7	4	6	10	6
X_8	4	6	6	4	7	9	5	4	8	9	6	6	5	9	5
X_9	7	5	4	8	7	8	8	5	4	9	7	7	7	9	6
X_{10}	6	8	5	5	9	8	4	7	8	8	8	6	8	8	7
X_{11}	8	7	6	6	7	9	6	6	9	9	6	4	7	7	6
X_{12}	5	6	4	5	8	9	7	4	5	8	5	5	6	8	7
X_{13}	5	9	6	4	7	7	8	5	6	10	5	6	4	9	5
X_{14}	3	8	5	5	8	9	7	6	6	9	6	5	6	9	7
Y	0	0	−1	−1	0	1	0	−1	0	1	0	−1	0	1	0

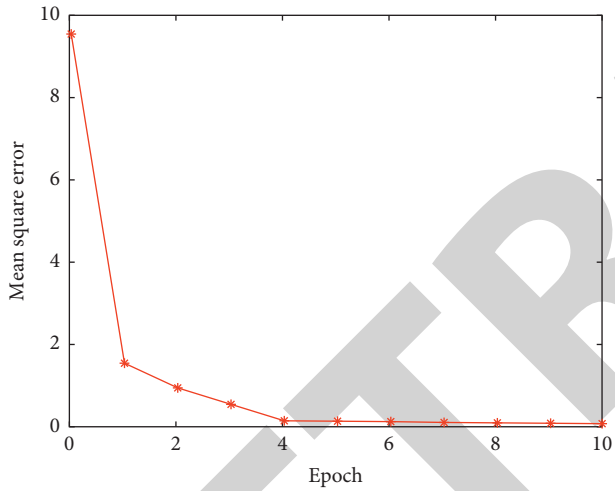

Figure 2: Training effect when $N = 6$.

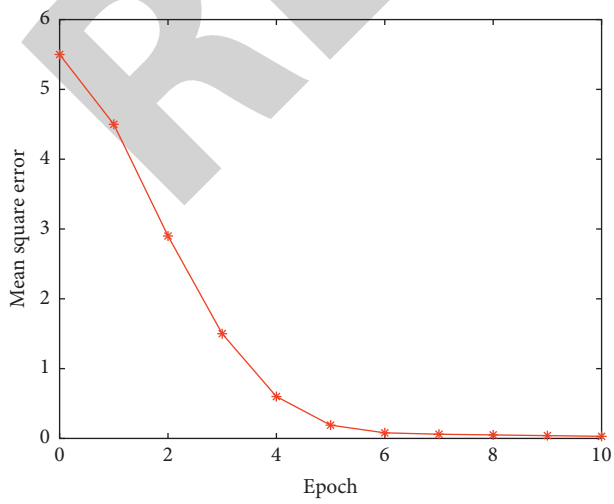

Figure 3: Training effect when $N = 9$.

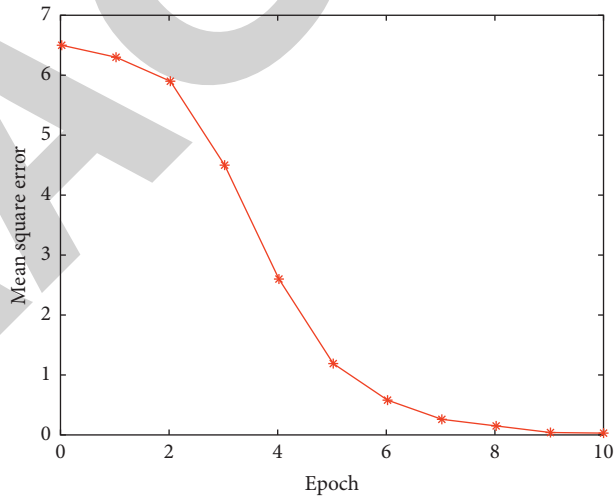

Figure 4: Training effect when $N = 12$.

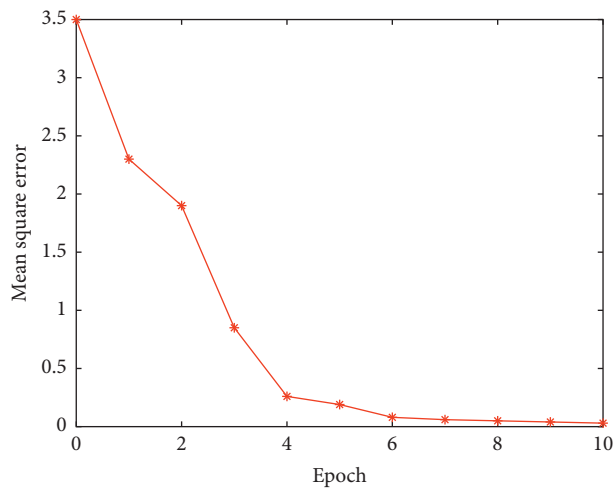

Figure 5: Training effect when $N = 15$.

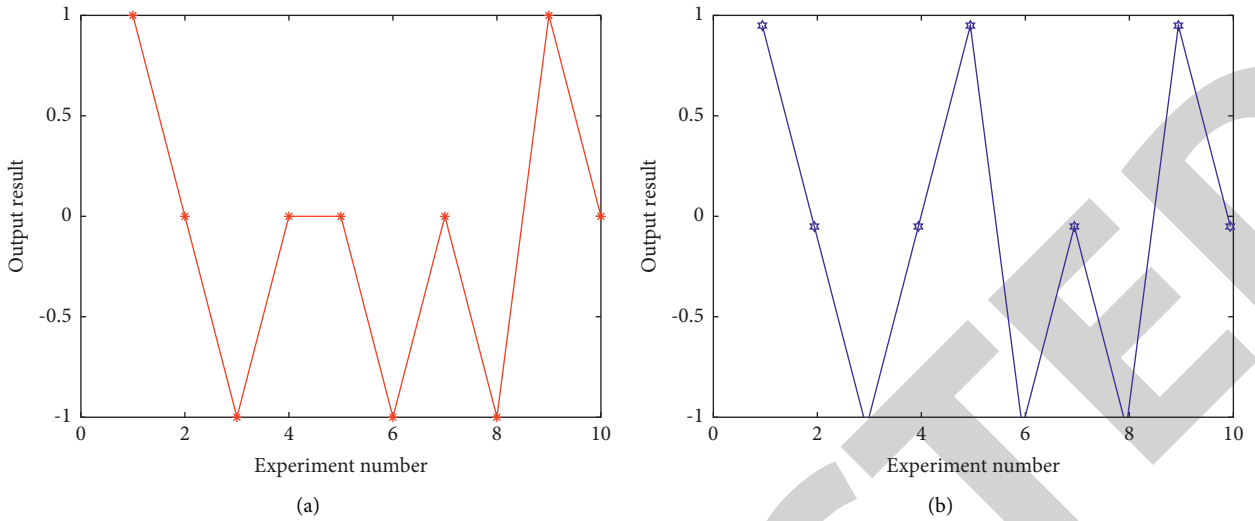

Figure 6: Experimental results of expert and model evaluation in the training set.

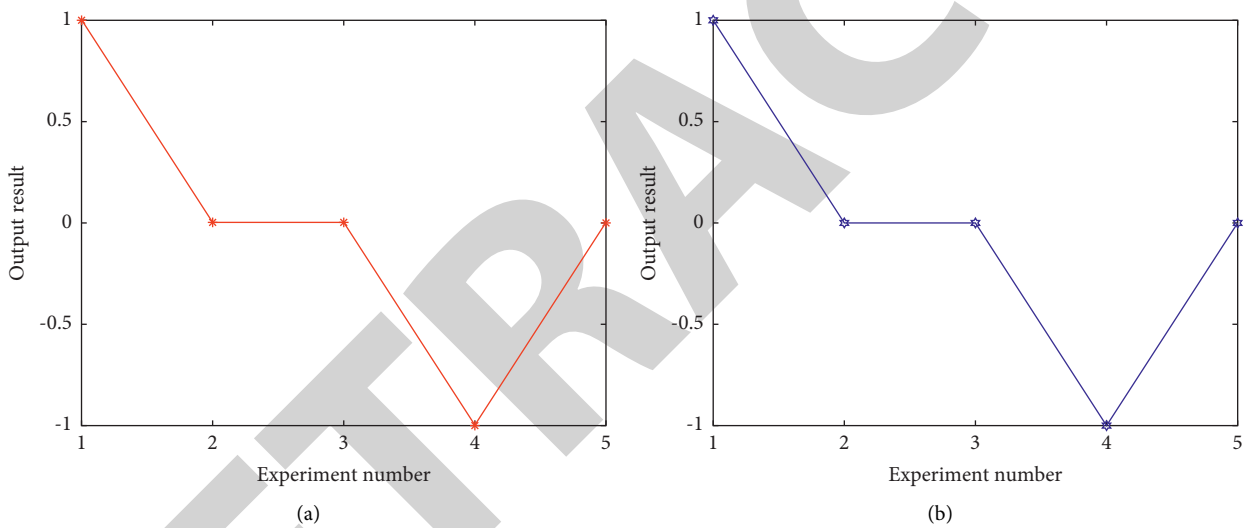

Figure 7: Experimental results of expert and model evaluation in the test set.

Table 3: The comparison between the CIAP groups and no CIAP groups.

Index	Num 1		2		3		4		5	
	Y	N	Y	N	Y	N	Y	N	Y	N
X_1	8	6	7	5	6	5	8	5	8	6
X_2	7	8	9	6	7	8	9	6	9	7
X_3	9	6	8	8	8	4	8	6	8	8
X_4	8	7	7	8	8	5	7	7	8	6
X_5	8	4	7	9	9	6	7	5	9	7
X_6	7	8	8	6	9	4	10	4	7	6
X_7	8	5	8	7	7	7	10	5	7	6
X_8	9	7	8	8	6	7	8	6	6	7
X_9	10	6	7	6	5	6	9	5	10	7
X_{10}	7	8	8	7	8	4	9	5	9	5
X_{11}	8	7	8	6	7	5	8	4	8	8
X_{12}	7	6	8	6	6	4	9	5	8	5
X_{13}	8	5	7	7	6	6	7	4	9	7
X_{14}	9	7	6	6	5	5	8	3	10	6
Y	1	0	1	0	0	−1	1	−1	1	0

groups without CIAP integrated into the teaching design of sports aerobics, where *Y* represents the group that is integrated into the CIAP, and *N* represents the group that is not integrated into the CIAP. The final experimental results are shown in Table 3.

The experimental results show that the overall score of the sports aerobics teaching group that is integrated into the CIAP is higher than that of the sports aerobics teaching group that is not integrated into the CIAP. Therefore, the integration of CIAP has a positive effect on the teaching design of sports aerobics. By using BPNN, the influence of ideological and political integration of curriculum is based on deep learning.

5. Conclusion

Infiltrating the concept of CIAP into aerobics teaching is not only the need to respond to the country's call for "cultivating morality and cultivating people," but also the need for school sports reform and updating the concept of physical education, and it is also the implementation of the Ministry of Education's "Higher School Curriculum Ideological and Political Construction," which is an important manifestation of the spirit of the guiding outline document. The development of "course administration" of aerobics in colleges and universities meets the needs of current college curriculum reform and the needs of students' physical and mental development, and it is also an inevitable requirement to achieve aerobics teaching goals. Its development is of great significance. We must actively seize the opportunity to promote the teaching practice of aerobics CIAP. This research explores the teaching content of aerobics CIAP from the basic theory of aerobics movement, the integration of CIAP, and the prediction and evaluation of neural network. College aerobics courses and teaching process contain rich IAP educating elements, constantly explore the teaching implementation path of aerobics CIAP, promote the deep integration of aerobics courses and CIAP, and jointly enhance students' cultural awareness, enhance cultural self-confidence, and ultimately achieve the ultimate goal of improving students' humanistic, aesthetic, and artistic literacy. To this end, this paper has completed the following work: (1) aiming at the slow convergence speed of the BP algorithm and the problem of local minima, this paper proposes an improvement of the BP neural network, which is to combine the BP algorithm with the simulated annealing method to form a new algorithm. (2) In this paper, the ANN has the characteristics of high nonlinear learning ability and fault-tolerant ability to noise data, and the ANN is introduced into the CIAP for the evaluation of the impact on the teaching design of sports aerobics and proposes an improved BP neural network. The evaluation model of the network has finally proved the feasibility of the model through experiments. (3) Through the comparison with the teaching design of sports aerobics that is not integrated into the CIAP, it is proved that the integration of the curriculum ideology and politics has a positive role in promoting the teaching design of sports aerobics.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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