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Research Article

Optimization of Physical Education Model Based on Cluster Analysis in the Context of Big Data

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In recent years, many foreign advanced teaching concepts have been introduced into China, and teaching reforms have been deepened, increasing the demand for physical education in China. Due to the various influences on the physical education curriculum and changes in the way it operates, curriculum standards provide only theoretical guidance and are often too general and abstract to play a concrete role in physical education. The diversity and inclusiveness of educational goals have led to the emergence of new areas of physical education. The repetitive nature of all physical education content settings is generally high and is detrimental to physical education reform. Based on the method of optimization of physical education models by cluster analysis, this paper proposes to classify and analyze the characteristics of the sample of students. We propose teaching principles and various teaching methods based on education and students' abilities. The experimental results show that among the 200 data samples, the highest percentage of student performance sample data by grade level was 90–50, indicating that the optimization of the movement model under cluster analysis was more successful. Therefore, the research results of this project provide a theoretical basis for the establishment and research of physical education in Chinese schools and further promote the reform of physical education teaching methods in China.

1. Introduction

Physical education could be the most engaging subject for students, or it could be the one that turns them off [1]. For a long time, we've been accustomed to a detailed examination of the various aspects of physical education while ignoring the relationship between them [2]. It gives the impression that the physical education system is open and closed and that physical education reform is still in its early stages [3]. The key is to make it concrete and operational by incorporating daily physical education activities into the curriculum [4]. Physical education reform can only be advanced through the reform of the general education system, which includes subjects and contents. Specific guidelines should guide educational methods [5]. We can only better adapt to the needs of curriculum reform by optimising physical education classroom teaching methods [6].

Physical education teaching method is not only the application of physical education theory in physical education teaching practice but also the systematic and reasonable generalisation of physical education teaching experience, as it is the result of a close combination of physical education theory and physical education practice. It is the most similar combination in physical education [7]. As a result, research on physical education teaching methods is extremely useful [8]. The database we know can only efficiently perform a few operations on data, but it can uncover some potentially unique relationships and hidden information in the data, which is far from predicting future direction and situation based on existing data [9]. Furthermore, as new types of data sources emerge, cluster analysis' unsupervised nature can effectively help analyse data distribution and understand data characteristics for further analysis and utilisation [10]. As a result, a cluster analysis-based optimization method for physical education teaching mode is proposed. As a result, a cluster analysis-based approach to physical education teaching model optimization has been proposed. Cluster analysis helps physical education teachers and instructors keep track of their students by mining a large amount of useful information from a

database of sports systems such as data and results of teaching effectiveness.

Between physical education theory and teaching practice, physical education is a very complex system [11]. As a communication bridge, intermediate links are also required [12]. The key, according to educational theory, is to shift the goal orientation of basic education away from merely imparting knowledge, skills, and physical strength and toward cultivating talents who can live independently, exercise throughout their lives, and develop in all aspects [13]. Strengthening physical education research not only helps to enrich its content and promote the development of physical education theory but also has a guiding and standardising effect on teaching [14]. Physical education teaching methods can be improved through in-depth research [15]. Its practical significance, on the other hand, is critical because it can better apply modern physical education theories to practise and serve as a link between theory and practice. The innovations of this paper are as follows:

(1) The topic selected in this paper is relatively novel, which re-recognizes teachers' teaching ideas, changes some traditional views, establishes new teaching ideas, and stimulates teachers' enthusiasm and innovative consciousness in classroom teaching

(2) The optimization of physical education teaching methods based on cluster analysis can explore and analyze a large amount of data according to the established curriculum objectives and identify and further model hidden, unknown, or known laws

(3) It can discover a series of bad phenomena in teaching activities, judge whether teaching methods are reasonable and teaching strategies are scientific, think deeply about whether existing teaching theories can support classroom teaching, promote and improve the development of teaching theories, and improve the education system.

2. Related Work

2.1. Optimization of Physical Education Teaching Mode. There are many reasons for today's state of physical education and sport, but they are all characterised by a rigid and closed model with deep historical and cultural roots. Because physical education is separate from the general theory of modern teaching methods or the simple theory of expression models, it is easy to find a specific analysis of existing research or to overemphasise the discipline's individuality and lose the discipline's specificity. It is necessary to optimize the entire range of existing physical education methods in light of practical application issues as well as to find a physical education method that is more appropriate for the new curriculum standards and to implement the new curriculum reform standards. To improve teaching effectiveness and promote physical education in a more scientific direction, the interface between physical education and physical education practice must be strengthened.

Gošnik and Tuđa proposed that the physical education curriculum should be reformed with a series of changes that reshape the curriculum and enrich the educational content [16]. Based on the modern theory of optimization of teaching methods, Liu et al. argue that by setting teaching objectives, laying out teaching tasks, and designing the teaching environment, teachers can choose the optimal teaching plan and dynamically adjust and evaluate the teaching content [17]. Lopatiev et al. argued that the construction of a new physical education model should be a more complete set of operational requirements and basic procedures that meet and reflect the requirements of modern advanced educational concepts and educational theories [18]. The physical activity should be guided by practical verification, both in the process of formation and for the purpose of construction. Kwon and Block argue that the physical basis of physical education, basic training conditions, educational curriculum system, and other objective factors need to be transformed so that the optimization from deep to shallow can ensure the optimization of all aspects of the sports model [19]. Badau presents the most representative current guiding idea—the idea of physical education—with a clear purpose to emphasize physical strength and oppose the inclusion of competitive sports in school sports [20].

Physical education is a project commonly carried out in schools today, and the educational content is the intermediate link between educational objectives and educational practices, which is the succession of educational objectives and the leading of educational activities. Optimization and integration of the educational content of physical education skills training in schools has become an important research topic for the successful development of physical education curriculum standards.

2.2. Related Work of Clustering Analysis. The structure of physical education teaching depends not only on the change of content but also on the change of teachers' responsibilities, which of course must be considered. But the most fundamental is a change in the way students learn. Its teaching model is to "systematically explore the interaction between educational objectives, teaching strategies, curriculum design, teaching materials, and social psychological theories, and try to study various alternative paradigms that can simulate teacher behavior." Like processing technology, cluster analysis as an intelligent text information processing method has attracted more and more attention.

Martyrosian et al. studied the concept and application of clustering analysis algorithms and studied in detail the classification and characteristics of clustering algorithms [21]. A broader concept of database knowledge discovery was proposed by Chen and Wang [22]. The knowledge discovery process usually consists of three steps: data preparation (including three substeps: data selection, data preprocessing, and data transformation), data mining, and interpretation and evaluation of results. Lu analyzed evaluation activities from pedagogical factors and constructed a new evaluation model analyzed from elements such as objectives, form, and content [23]. Tan built the Weka tool to integrate multiple data mining algorithms into an interactive

interface, including data preprocessing, classification, regression, clustering, association rules, and visualization [24]. Deng and Wang applied an improved K-means algorithm based on genetic algorithm to an online intellectual education platform and developed and designed a clustering score analysis system for the online intellectual education platform [25].

Therefore, cluster analysis is a must for the reform of physical education teaching mode, which is very important for us to achieve educational goals, improve teachers' teaching quality and achieve good results, and promote teaching effectiveness and teaching management.

3. A Cluster Analysis-Based Approach to Optimize Physical Education Teaching Model

3.1. Elements Optimization of Physical Education Classroom Teaching Mode. First, in the classroom, there should be a new teacher-student relationship of democratic equality, teacher respect and love for students, emotional integration, and cooperation. However, at present, the phenomenon of low-level simple repetition of physical education teaching content is still common. Systematic clustering analysis is the most widely used method in clustering analysis. All variables and samples with numerical characteristics can adopt systematic clustering method [26, 27], and various distances and clustering methods can be selected to obtain satisfactory numerical classification results. We use data range standardization here. The method is to find the range of each variable first and then calculate the average value of each variable:

$$X = \frac{X_{ij}^{'}\overline{X_j'}}{\operatorname{mix}\left\{X_{ij}^{'}\right\} - \operatorname{mix}\left\{X_j'\right\}}. \tag{1}$$

Systematic clustering is a method of grouping individuals into subsets one by one until the entire group is contained within a set [28]. The formation process encompasses both the concrete process of transitioning from theory to practise and the generalisation process of transitioning from experience to concept. The structure of physical education classes is shown in Figure 1. It is often the subjective will of subject specialists or physical education teachers, and it is often divorced from the reality of students if it is divorced from the laws of physical and mental development and objective reality of students.

Secondly, teachers should choose educational content independently according to local schools, students, their own advantages, and conditions. The new classroom teaching practice must reflect the teaching concept, teaching objectives, teaching methods, and teaching methods, which cannot be completely consistent with the traditional classroom teaching practice. Otherwise, the word "new" cannot be reflected [29]. Therefore, based on the understanding of disciplines and discipline groups, this paper makes a detailed understanding of disciplines and analyzes the characteristics of categories. Classification is to provide labeled training data sets, obtain data features through pretraining, and then use the model to predict data categories and establish a classification model. In order to measure the quality of the cluster, the sum of squares of error reference function is used, which is defined as

$$E = \sum_{i=1}^{k} \sum_{x \in C_i} \left\| x - \overline{x_i} \right\|^2, \tag{2}$$

where $\overline{x_i}$ is the average value of the cluster, that is, the cluster center.

Clustering is finding this data feature and the underlying data class distribution. Partitioned clustering algorithms use heuristic iterative methods to minimize the objective function to achieve the optimal grouping of data sets. However, not all methods satisfy the monotonicity requirement due to the different types of clustering methods chosen. In this paper, the correlation coefficient is calculated based on the Euclidean distance using the variational method with the following recursive expressions:

$$D_{\mathrm{kr}}^2 = \frac{1+\beta}{2}\left[D_{kp}^2 + D_{kq}^2\right] + \beta D_{pq}, G_r = \left\{G_r, G_q\right\}. \tag{3}$$

Finally, the teaching process is an interactive process of joint communication and development. Learning only teaching methods without focusing on the study of learning methods will not help to improve teaching standards. Any system can achieve the optimization of its overall function only through the optimization of its elements and structure. The purpose is to search the clustering center with the best clustering division effect. Even if the criterion function is the smallest, the fitness function should be $1/E$, that is, the fitness function is given as follows:

$$f(x) = \frac{1}{E} = \frac{1}{\sum_{i=1}^{K} \sum_{x \in C_i} \left| x - c_i \right|^2}. \tag{4}$$

Therefore, in general, the ideal features should be able to distinguish patterns belonging to different clusters, have strong noise immunity, be easy to extract and interpret, and the good or bad feature selection will directly affect the subsequent analysis and decision-making. Instead of using the mean value of the objects in the cluster as the reference point, the data are repartitioned by iteratively finding the most central object in the cluster as the center of mass, and the clustering result is calculated based on the objects it contains. If the variance of the cost function is negative, the original center of mass is replaced with a noncentral center of mass at the current position; otherwise, the center of mass remains unchanged. The fitness is appropriately extended by the simulated annealing algorithm, and the fitness stretching is done as follows:

$$f_i = \frac{e^{f_i/T}}{\sum_{i=1}^{M} e^{f_i/T}}, \tag{5}$$

where f_i is the fitness of the i individual.

The improvement of the current hierarchical clustering algorithm mainly includes the following aspects: in the division of each layer, carefully analyze the relationship between current hierarchical subclusters and organically combine hierarchical clustering with other

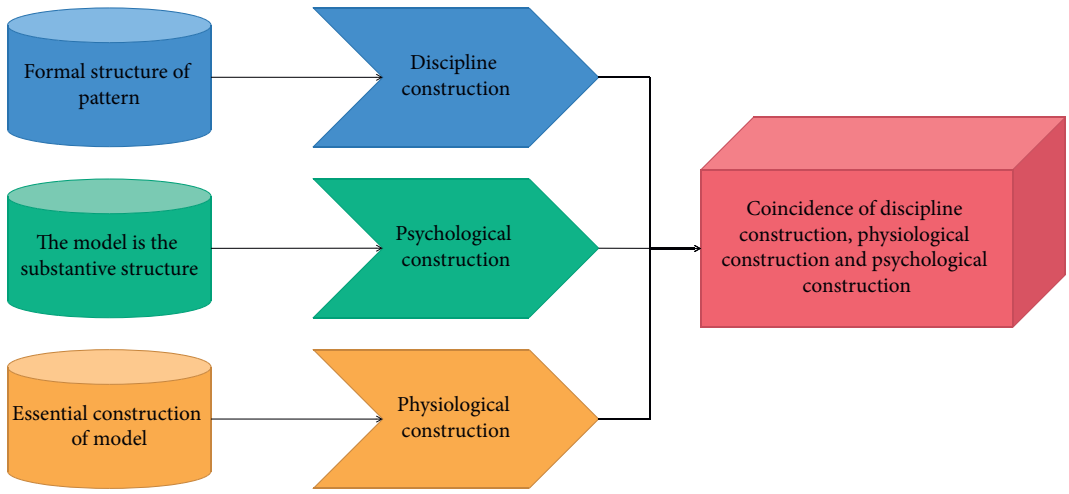

Figure 1: Teaching structure of physical education class.

clustering methods to form a multilevel clustering method. Therefore, in order to better evaluate college sports activities, it is necessary to classify them before evaluation and then evaluate and compare them in the same category.

3.2. Clustering Optimization of Physical Education Classroom Teaching Mode. According to the overall optimization principle of system science, any system can realize the optimization of its overall function only through the optimization of elements and structure [30]. The distance between fuzzy sets is mainly used to describe the fuzzy similarity between fuzzy sets. Let A and B be two fuzzy subsets of $U = \{u_1, u_2, \ldots, u_n\}$ and find the Hamming distance between the commonly used fuzzy sets as follows:

$$D(A,B) = \frac{1}{n}\sum_{i=1}^{n}\left|\mu_A(\mu_i) - \mu_B(\mu_i)\right|. \tag{6}$$

A system is a whole in which the elements are connected in some way, and the overall function of the system is equal to the function of the isolated elements plus the function of the structure. The teacher then summarizes what has been learned and points out existing problems to provide feedback. This is shown in Figure 2.

First of all, the lesson plan determines the main content of teaching, and the quality and efficiency of learning depend on the scientific and practical nature of the lesson plan. The specific operation requirements and basic procedures must be feasible; otherwise, it cannot be in the teaching mode. On the basis of basic teaching methods, concrete classification is an active and exploratory teaching method, which can take the form of classroom discussion or keynote speech to enhance subjective self-study ability and divergent thinking. Language is helpful to strengthen composition and expression ability and deepen understanding of theoretical knowledge. Classification is obtained by using a set of training samples (samples composed of known database tuples and categories) by correlation algorithm.

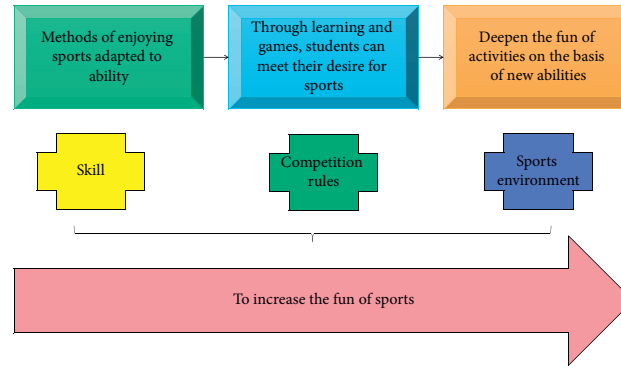

Figure 2: Diagram of the operating procedures of the Chinese physical education model.

Commonly used criterion functions include error sum of squares criterion and weighted average sum of squares distance criterion. All C fuzzy partition spaces are called X. If it contains degenerate partition, it is called degenerate C fuzzy partition space. Order:

$$V = i\frac{\sum_{j=1}^{n}\left(u_{ij}\right)^{m}x_j}{\sum_{j=1}^{n}\left(u_{ij}\right)^{m}}. \tag{7}$$

In the high-dimensional space, the sample points belonging to different clusters are usually distributed in subspaces consisting of different feature subsets, so the clusters to be found exist only in some low-dimensional subspaces involving different clusters. So, we can draw the flow chart of cluster optimization as shown in Figure 3.

Secondly, teachers should pay attention to time efficiency when explaining and demonstrating in the teaching process. The timing of explaining and demonstrating should have a clear purpose, and the explanation should be concise and concise. Some teaching methods have certain implementation conditions, but the conditions cannot be too narrow. They must be imitated and used by others, and there must be clear operating procedures for reference. When the absolute value of the signal is compared with the specified threshold, the soft threshold noise is removed because the

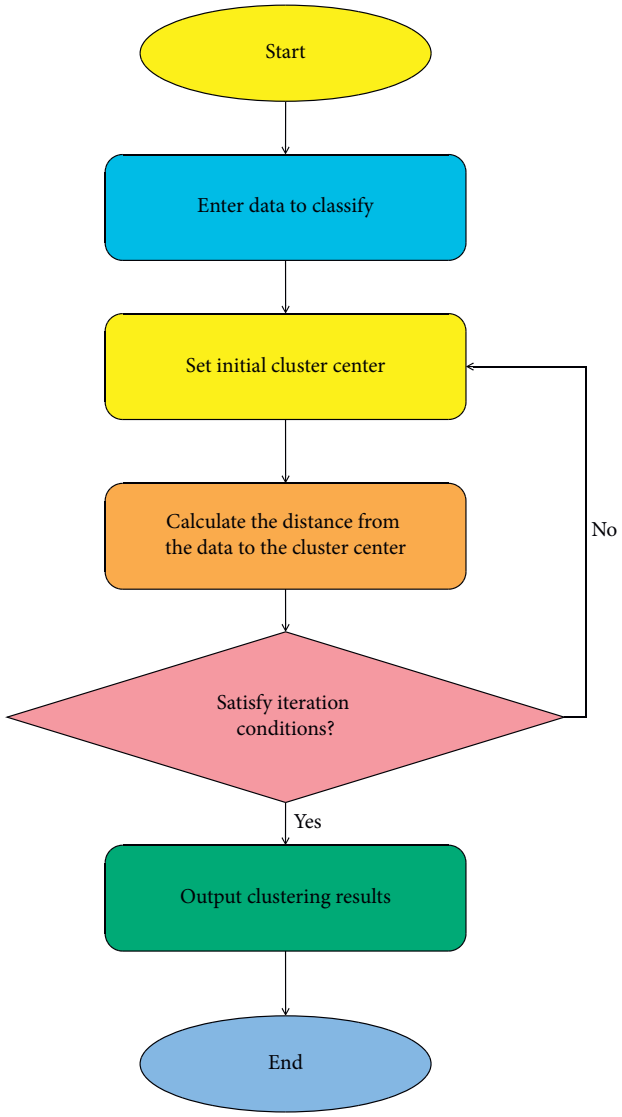

Figure 3: Cluster optimization process.

part less than or equal to the threshold is zero, and the part greater than or equal to the threshold is the difference from the specified threshold. The formula is as follows:

$$\omega\lambda = \begin{cases} [\text{sign}(\omega)](|\omega| - \lambda), |\lambda| \geq \lambda, \\ 0, |\omega| < \lambda \end{cases} \quad (8)$$

Suppose a mixed signal. $X(k)$ is composed of m dimensional observation signal vector:

$$x(k) = [x_1(k), x_2(k), \ldots, x_m(k)]^T. \quad (9)$$

To balance solution accuracy and time, heuristic random search strategies can be used to search and optimize in the global space of the problem and find the globally optimal or acceptable solution in an acceptable time. Based on the basic teaching methods, attractive teaching methods and discipline-specific teaching methods are added, respectively, to provide education that is tailored to the needs of the students and has clear objectives and to comprehensively cultivate their ideological awareness and behavioral habits. In the time-series model, it is necessary to find rules that are always above a certain minimum percentage (threshold) in a certain minimum time. When the format is changed, these rules are adjusted accordingly.

At present, the utility function usually adopts [0, 1] interval method, and the standardized data are generally a standard sample matrix X, which is a $n * d$ matrix, that is, n samples, each of which contains d dimension features, and the elements in the matrix are all data between [0, 1]. The j column in the matrix U is the sample X_j, relative to the membership function of C subsets, so the X partition space is

$$M_{\text{be}} = \{U \in R^{cn} | \mu_{\text{ik}} \in \{0, 1\}, \forall_i, k; \forall k\}. \quad (10)$$

Finally, when planning and implementing education, it is critical to understand students' needs and feelings, to constantly monitor the classroom's overall atmosphere and effect, and to create a lively, warm, and comfortable learning environment. The classroom teaching model establishes a stable relationship between the elements of teaching and learning activities and the structural form of the activity process, and a variable "model" that people cannot grasp, is impossible to implement, and only exists in name. Features can belong to multiple clusters at the same time, contrary to the concept of "hard partitioning" of data sets. All of the knowledge it discovers is relevant information hidden in massive data; all knowledge is subject to certain preconditions and constraints, is domain-specific, and requires a natural language representation of the results that is simple to understand and use by the user.

4. Cluster Analysis of Physical Education Optimization

4.1. Data Preprocessing. In view of the inconsistency of the measurement standards and meanings of the attributes of most data sets, the range of values varies greatly, and the Euclidean distance is directly used for calculation. The attributes with larger values also have a great influence on the dissimilarity between samples, thus affecting the final clustering results. When teachers compile teaching plans, according to the characteristics of students of different categories described above, they fully consider their own learning interests, theoretical basis, acceptance ability, etc.; set different teaching objectives; highlight suitable teaching priorities; and design reasonable teaching contents so that students can understand and accept knowledge more easily. The following figure compares the changes of the criterion function values of 10 categories of clustering analysis on 200 two-dimensional point sets by GA-KM algorithm and clustering analysis with the number of iterations as shown in Figure 4.

First, the data are transformed and processed. According to the distance axiom, four conditions of the distance axiom must be satisfied when defining a distance metric: self-similarity, minimalism, symmetry, and triangular inequality. When measuring and processing data opinions due to

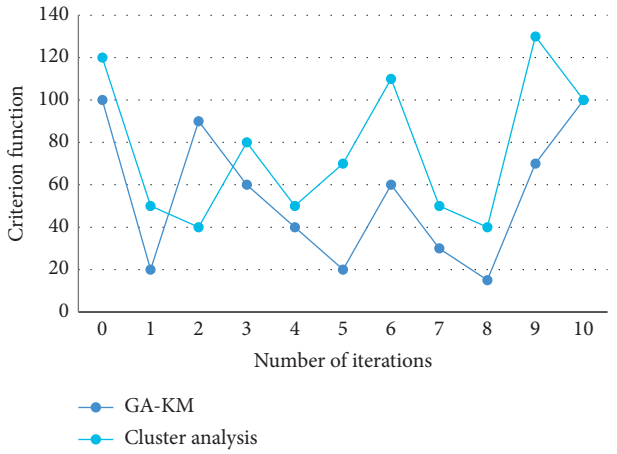

Figure 4: Comparison between GA-KM algorithm and cluster analysis.

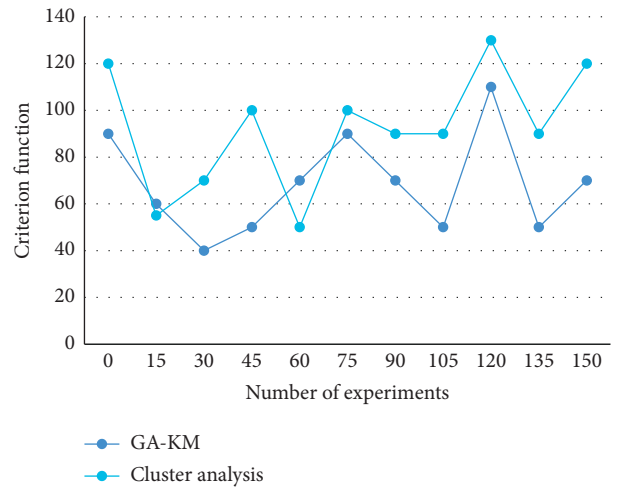

Figure 5: Comparison of the value of criterion function with the number of experiments.

sampling, different indicator variables usually have different dimensions and units and need to be transformed. It is the process of decomposing a data set with many data objects into multiple clusters. In the process of partitioning, it is necessary to partition each data object according to its similarity or a certain distance between them, and those with high similarity are divided into one category, and for the same cluster, clusters with large differences or low similarity are classified into different clusters. The following figure compares the values of 10 types of reference functions for the GA-KM algorithm with cluster analysis for 40 clusters of 300 two-dimensional point sets as shown in Figure 5.

Secondly, the process of cluster analysis starts with each sample forming a class by itself, calculating the distance between samples, and combining the two closest samples into one class. The teacher evaluation forms of college computer science teachers are collected, the collected data are organized, the relevant data are statistically analyzed, a scientific and reasonable evaluation index system is used to evaluate the teaching situation, a practical evaluation model is established, and the evaluation data are clustered to achieve. If the data object value of an attribute is empty, the average value of other data objects in that attribute can be used to fill the empty data. At each step of the iteration, the clusters are divided into smaller clusters until each object is in a separate cluster or the termination condition is reached. Three courses were clustered using the algorithm in this paper, and the results of the cluster analysis are displayed on the page, and the results of the cluster analysis comparison for each course are shown in Figure 6.

Finally, create a phylogenetic cluster pedigree and compare different classification results based on different classification standards or principles. It uses a specific operation to change each element of the original data matrix to a new value, and the data change is independent of other data values in the original data set. Data range standardization is used here. The clustering results converge smoothly in the later stages with little fluctuation because the stochastic optimization is not degraded. Initially, objects are chosen at random as the center point. The algorithm replaces

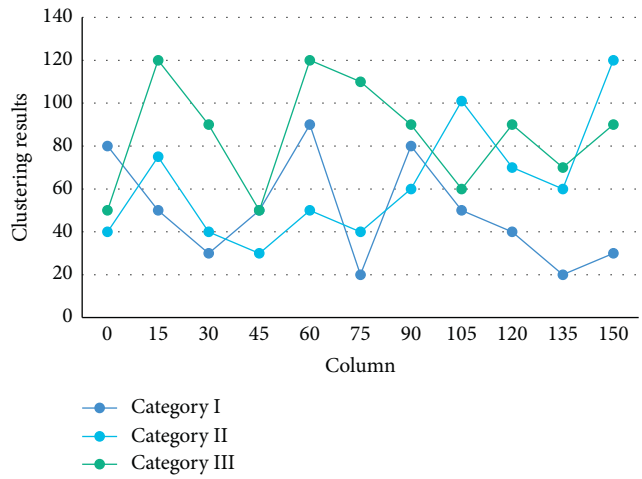

Figure 6: Comparison chart of cluster analysis of courses.

representative objects with nonrepresentative objects iteratively in order to find a better centroid and improve clustering quality. Because the value range of each dimension can vary greatly, the particle swarm optimization search space is so large that when the iterative search is limited, the algorithm's convergence speed and clustering effectiveness suffer. As a result, all possible entity pairs are examined in each iteration. The centroid is one of the entities in each pair, while the other is nonrepresentative.

4.2. Analysis of Improved Particle Swarm Optimization Clustering Algorithm. The physical education teaching model exists in a certain space and time, which is expressed spatially as certain physical education theories and ideas, physical education goals, and teachers. Temporally, it is expressed as how to arrange the activities of teaching and learning. All existing particle swarm optimization clustering algorithms use an encoding method based on the initial clustering center of mass.

Table 1: Sample of teaching evaluation data.

Teaching effectiveness	Preferably	Secondary	Poor
Content of courses	24.9	22.5	18.6
Teaching method	21.7	20.5	17.5
Teaching ability	27.4	26.4	19.7
Teaching attitude	4.2	3.7	2.9

Some students have some potential for advancement, but students with an average learning base should not be taught content designed to exceed the syllabus. Simple examples can help them understand the knowledge and apply your thinking. This is a single-link approach, where each cluster is represented by all objects in the cluster, and the similarity between two clusters is determined by the similarity of the nearest pair of data points in the two different clusters. When determining the similarity, the similarity is obtained from "teaching ability," "teaching method," "teaching content," and "teaching effectiveness". In the experiment, these four aspects were used as key indicators and as four attributes of the 200 data samples collected and processed to achieve clustering of the data. The number of clustering process $k = 3$, and the results after clustering analysis are shown in Table 1.

Firstly, considering the criterion function E of clustering analysis algorithm, E describes the total sum of squares of errors generated when n objects are clustered into a class. The larger the E is, the larger the total error value is, and the worse the clustering effect is. The general goal of teachers' teaching evaluation is divided into different secondary goals, such as teaching attitude and teaching ability, and then, each secondary goal is decomposed into multiple influencing factors so as to form a hierarchical structure model. In this goal division, we need to apply analytic hierarchy process to solve the problems one by one. It divides the space into square cells, and different levels of square cells correspond to different levels of resolution.

For each cell in the current hierarchy, the confidence (or expected probability range) is calculated to reflect the relevance of the current cell to the query requirements. The maximum number of iterations is 100, the population of particle swarm optimization is 5, the learning factor is 4, and the inertia weight decreases linearly from 0.5 to 0.2. The clustering fitness convergence curves of the two particles in the data set under different indicators are shown in Figures 7 and 8.

Secondly, k objects from n data objects are arbitrarily selected as the initial clustering centers, while for the remaining other objects, they are assigned to the clusters that are most similar to them (represented by the clustering centers) according to their similarity (distance) to these clustering centers, respectively. The weights are self-organized according to learning rules by iterative learning of input patterns, capturing the pattern features contained in each input pattern, and presenting the clustering results to the competitive layer for automatic clustering. A comprehensive ranking analysis was performed on 200 data samples, and the score data samples were divided into three categories: greater than or equal to 90, 90 to 50 (including 90 and 50), and less than 50. A comparative analysis of the three

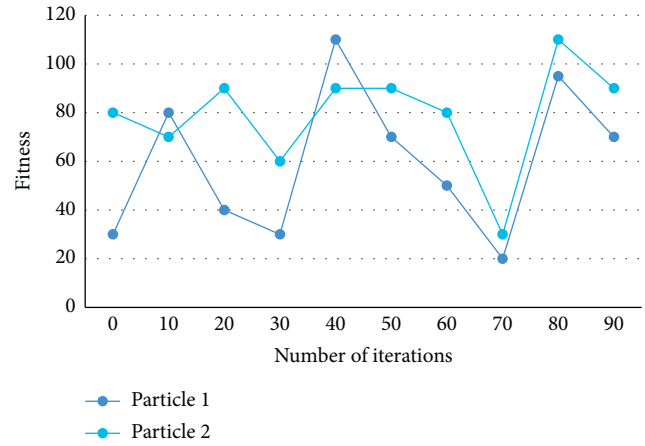

Figure 7: Convergence curve of fitness of two kinds of particle clustering classes on DB index data set.

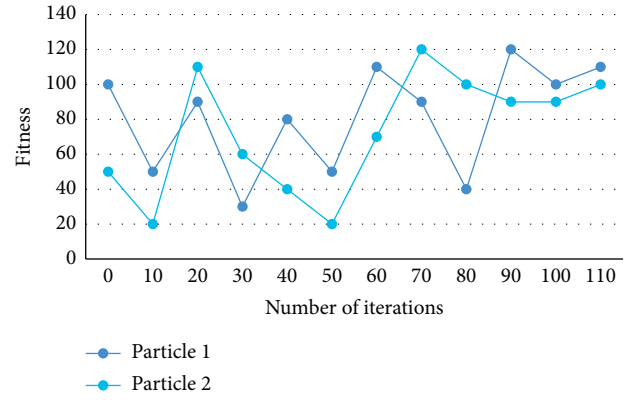

Figure 8: Convergence curve of fitness of two particle clustering classes on IGP data set.

score bands was performed, and the proportion of each score band is shown in Table 2.

The highest ratio is in the region of 90–50, which shows that the optimization of the physical education teaching model based on cluster analysis is successful. Finally, recalculate the new cluster centroid value (i.e., the average value of objects in each cluster). The teacher evaluation data are defined as the teacher's performance in the classroom. There are 20 items under the five primary indicators of the teacher evaluation table, which are scored in order.

In the process of clustering, the similarity between the sample and the cluster centroid is calculated by directly calculating the similarity value in the numerical similarity matrix so as to eliminate the influence of the dimension of the sample vector on the algorithm and reduce the computational complexity. In each step of the calculation, the cluster with the largest or smallest overall similarity can be selected, or the measurement rules based on size and overall similarity can be used. Even if the mean is the same, the standard deviation may be different. The lower the standard deviation is, the more accurate the calculated data are. On the contrary, the higher the standard deviation, the more discontinuous and inaccurate the calculated data.

Table 2: Distribution of students' scores.

Fractional segment	More than 90 points	90–50 points	Below 50 points
Number of samples	40	130	30
Corresponding proportion	20%	65%	15%

5. Conclusions

Modern sports place a strong emphasis on the development of individual technical skills, which should not be overlooked in physical education. The composition of the teaching structure should be adjusted to the students' current situation, strengthening the management of the teaching process on the basis of maximum achievement of the teaching objectives, deepening the understanding of sports in accordance with each student's interests and individual differences, and improving the lack of humanization in teaching methods. On the other hand, with the advancement of information technology in online education, massive amounts of complex data are accumulating in the field of education, particularly in sports. The proposed clustering efficiency index, on the other hand, can only produce better results in clusters with clear clustering boundaries, and its performance is inadequate when dealing with complex data sets. As a result, clustering analysis algorithms that analyse unknown data first to determine data object characteristics have gotten a lot of attention. In this paper, we present a detailed cluster analysis for physical education optimization and propose a cluster analysis-based method for optimising physical education methods. This method is beneficial to students' physical and mental health, and it minimizes physical injuries and negative health effects associated with sports. Furthermore, the curriculum in physical education is designed to be taught and laid out in a way that promotes transformation and mobilisation. Cluster analysis is used to evaluate student learning effectiveness, characterise students by grade level, and suggest how teachers should educate students in these processes to improve the quality of instruction. To optimize physical education classroom teaching methods and achieve optimal physical education results, a dynamic and balanced harmonious system is created by optimising relationships in the physical education classroom.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author does not have any possible conflicts of interest.

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