

Retraction

Retracted: Optimization of Teaching Evaluation System for Football Professional Teachers Based on Multievaluation Model

Complexity

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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

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

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

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

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

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

References

- [1] Z. Chen and Q. Chen, "Optimization of Teaching Evaluation System for Football Professional Teachers Based on Multi-evaluation Model," *Complexity*, vol. 2021, Article ID 9943989, 13 pages, 2021.

Research Article

Optimization of Teaching Evaluation System for Football Professional Teachers Based on Multievaluation Model

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The introduction of multiple intelligence theory into sports professional football teaching is a requirement of educational innovation, which helps to expand and play the multiple functions of football, and can effectively improve the comprehensive quality of football professional science. Under the perspective of multiple intelligence theory, college sports professional football teaching will focus on the all-round development of students, actively cultivate students' multiple intelligence, and reflect the democratization, individualization, and diversification of teaching in the process of educational concept innovation. This article explains the origin and characteristics of the particle swarm optimization algorithm and discusses the application status of the PSO algorithm in detail. We introduced the standard PSO algorithm, including mathematical forms, iteration steps, and flowcharts. In addition, it also specifically describes the proposed new PSO improved algorithm, including the food chain strategy and reproduction strategy, as well as the implementation of the algorithm. Through analysis, it is concluded that the implementation and implementation of relevant systems is the guarantee for the sustained and sound development of campus football. The amount of football lessons is insufficient, and the classroom teaching effect is not ideal. Physical education teachers are acceptable, but the football professional knowledge training of physical education teachers needs to be strengthened. The selection and setting of the teaching content of football lessons lack systematic, scientific, and adaptable, and the teaching methods and teaching model concepts are backward. In the process of football teaching, teachers ignored the evaluation and assessment of students' non-physical and nonintellectual factors, and campus football activities did not achieve the expected goals.

1. Introduction

Nowadays, football teaching in colleges and universities is still hovering in the exploration of universal educational laws, while ignoring the educational significance of seeking contextualization [1]. This is obviously contrary to the scientific development of education. Football teaching in colleges and universities often ignores the role of self-organization and over-relies on the effectiveness of other organizations in teaching [2]. Practice has proved that only by combining self-organization with other organizations can the effectiveness of the organization be fully reflected. In traditional teaching, students are always in a dominated position, their own creativity and subjective initiative are restrained, and self-organization can effectively change from passive to active and

play the role of the main body, the contradiction that teaching resources cannot be fully utilized. Nowadays, the main body and the leading role in football teaching in colleges and universities rarely use the teaching resources outside the classroom [3]. With the rapid development of science and technology and the stable progress of the society, the teaching resources are constantly expanding. Only by making full use of the teaching resources can the resource advantages be maximized. These contradictions have severely restricted the orderly development of football teaching in colleges and universities and have become a major factor hindering colleges from cultivating talents with strong comprehensive abilities and high levels. They have become a contradiction that needs to be resolved urgently in college physical education reform at this stage [4].

The teaching system is a complex self-organizing system, and the college football teaching system is also a complex self-organizing system [5]. The research object of self-organization theory is mainly the formation and development mechanism of complex self-organizing system. Traditional football teaching concepts and football teaching methods are far from being able to adapt to today's rapidly changing social sports education needs. In football teaching, it is quite common to not pay attention to individual differences among students. The quality of teaching has become an arduous and arduous task for football educators. The educational concept of "multiple intelligences" is a challenge to teachers' abilities. It will prompt teachers to update their knowledge and change their concepts, thereby promoting the improvement of the quality of the teaching team, so that students can develop in an all-round way [6].

From the perspective of multiple intelligences theory, the innovation of football teaching in college sports majors should at least include teaching concepts, teaching goals, teaching content, teaching methods, and teaching evaluation. The transformation of teaching concepts should pay attention to teaching democratization, teaching individualization, and teaching diversification. In order to promote the all-round development of students, the teaching goal should be based on the training of students' basic knowledge and basic skills, as well as the goal of promoting students' health, pursuing practicality, sustainability, and meeting individual needs and expanding the goal of multiple intelligence training. This article takes the standard PSO algorithm as an example, explains in detail the relevant parameters involved in the algorithm and its optimization process, and gives the calculation flow chart and steps. The improved PSO algorithm based on the phenomena and laws of the biological world is introduced, and the dynamic multispecies particle swarm algorithm based on the food chain mechanism is further introduced. This includes the source of its improvement ideas, the proposal of the food chain mechanism and reproduction mechanism, and the steps to improve the algorithm. Compared with the standard PSO algorithm, the improved algorithm performs well in terms of optimization ability and optimization effect, and it is not easy to fall into a local optimum, and it has greatly improved the processing of multi-peak problems. In the process of football teaching, teachers ignore the evaluation and assessment of students' nonphysical and nonintellectual factors and fail to realize the important role of nonphysical and nonintellectual factors on students' lifelong physical education consciousness. When the country vigorously supports campus football, physical education teachers should try and explore new evaluation measures and methods.

2. Related Work

Related scholars believe that it is necessary to create a football campus atmosphere, compile football teaching materials and conduct football teaching according to the physical and psychological characteristics of colleges and universities, and educate and select talents in football

teaching [7]. With regard to the setting of college football teaching programs, researchers believe that there are seven principles for the development of college football school-based courses, which include four aspects: main courses, related courses, activity courses, and experience activities, which can be used for reference in the course layout of college football teaching [8]. Regarding the selection of football players, we should start with children, from school, and from vacation football clubs, and select training objects by methods such as observation, identification, and assessment. Related scholars discuss how to create a football campus atmosphere, compile football teaching materials and football teaching according to the physiological and psychological characteristics of college students, how to train and select talents in football teaching, and discuss the research results in the article "Research on Football Teaching in Colleges and Universities" [9]. The researchers pointed out in the paper that although universities in Taiyuan City arrange football as a physical education curriculum based on the actual situation of the school, each school does not have a unified teaching plan and teaching arrangement [10]. Classes are arranged by the physical education teachers of each grade, and there is no unified evaluation system, so the development of campus football is not optimistic.

Although some schools have opened football courses, the main energy of the school is on learning culture courses. They believe that football training and teaching affect teaching and short-term training. The results are not great, so it is difficult for campus football to flourish [11]. However, football can make students happy and healthy, and moderate exercise can also relieve students' learning pressure. Football should get more support from school leaders. Related scholars pointed out that the law of development of football and the law of physical and mental development of young people determine that football must be started on the campus of middle and high schools [12]. Especially young people lose the foundation of development when they leave school.

The model teaching method is based on the general rules of teaching, formulating the plan steps of teaching a certain technique, and determining the main exercises of each class and its specifications and assessment standards. This kind of teaching method enables students with clear, specific, and poorly established teaching tasks to have a step-by-step, practical learning goal [13]. Therefore, students are more motivated to learn, with better results, and can reflect the principle of teaching students in accordance with their aptitude. When adopting this method, an organizational form that combines concentration and decentralization should be adopted, and the relationship between assessment and practice should be handled well. The model teaching method focuses on the theories with common meanings in teaching practice and has a certain general guiding significance. However, the model teaching method cannot reflect the problem of individualization, which has important significance and prominent characteristics in the teaching and training practice.

In terms of the current situation, existing problems, and improvement measures of campus football construction,

related scholars believe that the mission recognition, management mechanism, and layout planning in the construction of youth campus football characteristic schools in my country are discussed in the “Discussion on Several Issues in the Construction of Special Schools for Youth Campus Football” [14]. There are problems in other areas, and corresponding development thinking is put forward in response to the existing problems. Relevant scholars mentioned in the “Current Situation and Analysis of the Development of Campus Football in My Country” that the current problems in the development of campus football are mainly in the following aspects: the actions of relevant departments, the problems of ideology, the arrangement of physical education courses, and the management of physical education teachers [15]. In response to these problems, we believe that we must actively improve the campus football plan, increase investment in the construction of school football field equipment, optimize curriculum arrangements, improve the football professional level and work enthusiasm of physical education teachers, and improve the competition system to promote the development of campus football.

In the “Analysis of the Status Quo of Campus Football Development in Chinese Universities and Research on Development Countermeasures,” related scholars combed and analyzed the hardware facilities, direct participants and league system of campus football in Chinese universities, and pointed out the need while affirming the results [16]. Related scholars in the “Research on the Status Quo of the Development of Beijing Junior High School Campus Football League and Analysis of Influencing Factors” aimed at the development of the Beijing Junior High School Football League, which has enriched the students’ amateur life, but there is a certain gap in the level of football among the various schools and teams [17].

3. Evaluation of Multi-Intelligence Teaching and Football Hybrid Teaching

3.1. Features of Multiple Intelligence Theory. The modern pluralistic society no longer needs only excellent talents with language ability and mathematical logic ability as the core. Modern society has begun to pay more and more attention to the ability to solve practical problems. The direction of modern education reform should not only be limited to the cultivation of language ability and mathematical logic ability but also pay attention to the individuality of students and be guided by cultivating outstanding students who can solve practical problems and create effective products.

The theory of multiple intelligences believes that everyone has eight kinds of intelligence at different levels, and each kind of intelligence does not exist in isolation in everyone but is cleverly combined in different degrees and different ways [18]. The combination of each individual’s intelligence is also different from each other, and it is this difference that makes each individual’s intelligence have different characteristics. At the same time, even if it is the same intelligence, the performance of each individual is different, and there is no specific difference between good

and bad, so it is difficult to have a suitable evaluation standard to evaluate the individual’s IQ, success, or failure [19]. Therefore, in the teaching process, each student must be treated differently, and the quality of a student cannot be evaluated based on a single intelligence; in the teaching reform, the essence of the theory of multiple intelligences must be incorporated.

From the perspective of multiple intelligence theory, the quality of the environment has a very important impact on the development of individuals [17, 20–22]. Whether it is the natural environment, the social environment, or the educational environment, it can affect and restrict the development of individuals to varying degrees from all aspects. In different environments, although the students cultivated have eight intelligences, the manifestations of these eight intelligences will definitely have different degrees of difference [23, 24]. Under the current traditional teaching model in our country, most education only pays attention to the development of students’ verbal-language intelligence and logic-mathematical intelligence, while other aspects of intelligence are only incidental. With continuous reforms, other intelligences are gradually being valued by people. It is believed that with the continuous changes in the social environment, natural environment, and educational environment, it is also desirable to promote the cultivation of individual intelligence.

The intelligence of an individual is not simply regarded as a standard of verbal intelligence or mathematical logic intelligence but is concentrated on the individual through different manifestations of multiple abilities. Gardner believes that all kinds of intelligence are multidimensional, realized in a relatively independent manner rather than in an integrated manner. At the same time, in each individual, various intelligences are not relatively fixed, and there may be other abilities besides intelligence as the individual develops and various environments are affected. Therefore, the analysis of intelligence must have a multidimensional way of thinking. In the teaching process, we must carefully analyze the various intelligences of each student according to the characteristics of each student, as well as the characteristics of each intelligence in its individual body and use a multidimensional perspective to analyze the intelligence possessed by students.

3.2. The Difference between Multiple Intelligences Teaching and Traditional Teaching. Traditional teaching generally adopts unified education in the form of teaching. Under the concept of traditional intelligence theory, teachers often only focus on cultivating a single intelligence of students. Under the cultivation of the intelligence concept with language intelligence and mathematical logic intelligence as the core, the teaching content, course content, teaching methods, and examination standards adopted are too simple and outdated, and there is no specific distinction. The subjectivity of students is often not paid attention to in the process of receiving education, and the enthusiasm of students is not fully mobilized and developed. The multiple intelligences are guided by the development of students’ multiple

intelligences. On the basis of students as the main body, the teaching methods are often not limited to one pattern, and the combination of the main body and the leading is truly achieved. The teaching methods are rich and colorful, and the theme teaching and multimedia teaching, homework, and so on can be integrated into different teaching methods.

Teaching methods are to complete certain teaching tasks. The means used by teachers and students in common activities include both the methods taught by teachers and the methods learned by students. The scientific selection of teaching methods in the teaching process can achieve the ideal teaching effect and achieve different teaching goals. The football teaching program design is shown in Figure 1.

The theory of multiple intelligences requires that the development of students' personality must be paid attention to in the teaching process, so as to maximize the development of students' potential. At the same time, it is necessary to prevent the deviation of personality in tennis teaching and promote the overall development of students' personality. Only on the premise of democratization of teaching can teaching be individualized. With the development of society, the society's demand for talents is becoming more and more compound talents. However, such compound talents are not inherently possessed, but they are cultivated through continuous accumulation and learning throughout their own learning stages. Everyone has different learning characteristics and development speed from others, and each has its own characteristics in terms of multiple intelligences. Therefore, learning is an individualized activity, and only in a teaching environment suitable for the development of individual personality can the ability and intelligence of students be effectively developed and cultivated.

3.3. Teaching Evaluation of Football Professional Teachers. Football has higher requirements for the overall performance of the participants' physical fitness. Endurance, strength, speed, coordination, agility, flexibility, and so on are all football-related physical fitness. Therefore, in the early stage of the experiment, the two groups of students need to be tested for physical fitness and football skills to ensure that there is no significant difference between the two classes. Football skills include two tests for accurate kicking and return dribbling.

In addition to the above indicators that will have an impact on football, the students' football learning before entering school and their participation in football during their spare time are also investigated. Before the teaching work is carried out, it is necessary to analyze whether there are significant differences between the experimental group and the control group in the above indicators.

"Class School" is the "online" teaching platform used in this experiment. Both mobile phone and computer WeChat official accounts can be used. The operation is simple and convenient to record the teaching links such as checking status, sign-in, homework submission, and communication. Figure 2 is a schematic diagram of the teaching evaluation of football professional teachers.

According to the logic-mathematical intelligence, self-knowledge-introspective intelligence in the theory of multiple intelligences, football teaching can be carried out in a programmed teaching method, and the learning content can be presented step by step in accordance with the logical sequence of the compilation, so that students can learn by responding to the content. The characteristic of the program teaching method is that it can feedback the effect of the learning content in time, so that students can adjust the learning process according to the feedback situation. In football technical training, the difficulty, intensity, and density of the practice can vary from person to person, and it is not mandatory to require all students according to a unified standard. Let the student groups discuss and summarize the technical essentials of football training, design football training stages and steps that suit their own reality, and create the most acceptable football training method that suits them. Teachers can design a sequence of football skills learning procedures according to students' discussions and experience. Generally speaking, it should be done step by step, and after the hitting power is grasped flexibly and freely, the combined action training of continuous and fast moving shots should be carried out.

4. Improved Optimization Algorithm of Particle Swarm Teaching Evaluation System

4.1. Particle Swarm Algorithm. When birds are looking for food, they have a tacit cooperative relationship with each other. Regardless of the location of the entire flock at the beginning, after a period of regular movement, they tend to get closer to the location of the food. Suppose there is only one place for food in a certain space, and all birds do not know its specific location. Then in the search process of the entire flock of birds, individuals will share their information and learn from each other. As time goes by, they will slowly move away from the place where there is no food and gradually move closer to the place away from the food. The closer individual finally finds the location of the food. The PSO algorithm is to simulate the group behavior of birds searching for food, so as to realize the optimal solution to the problem.

The basic idea of the particle swarm algorithm is to simulate the process of a flock of birds looking for food. The behavior of the flock of birds during the flight is unpredictable. They gather for a while and then disperse again, but the overall consistency is maintained; there will be no collisions between individuals, and the overall flight process is particularly orderly. By studying the behavior of other biological groups, we have also discovered similar phenomena. The sharing of information between individuals provides effective and reliable information for the collective behavior of the group. In the particle swarm optimization algorithm, each particle is like a bird, and the particle swarm is like the entire flock of birds. Following the collective behavior of a flock of birds, particles can share information during the search process, including individual information and collective information. In the process of searching, each particle will record its own best position information in the

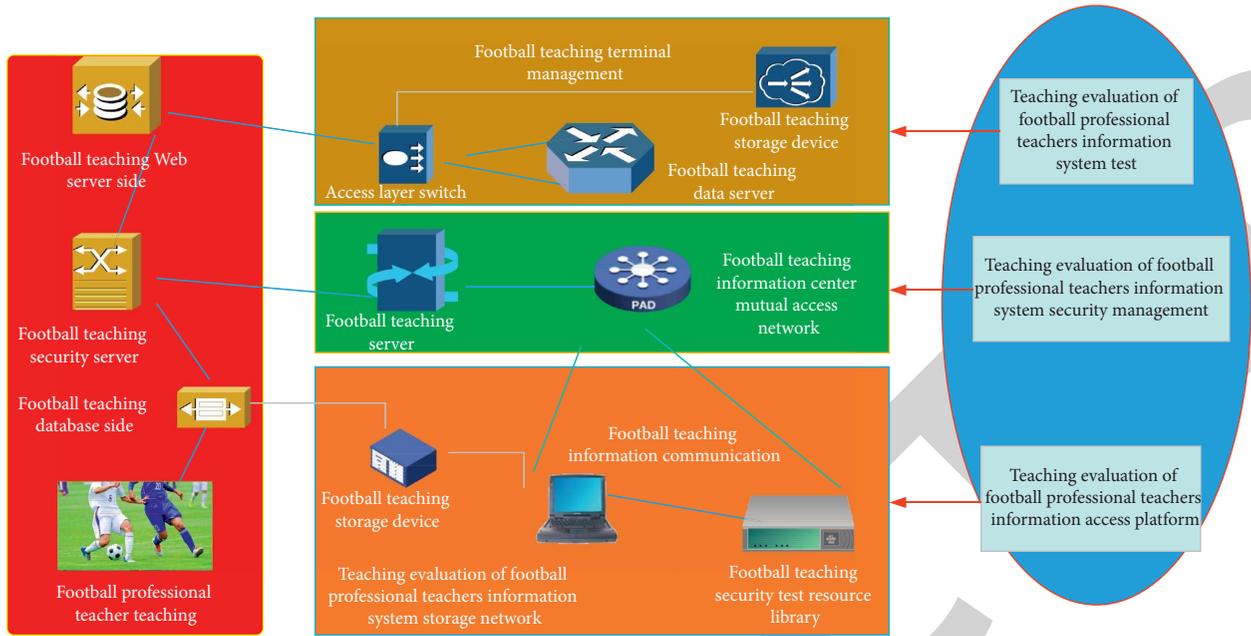


FIGURE 1: Design of football teaching plan.

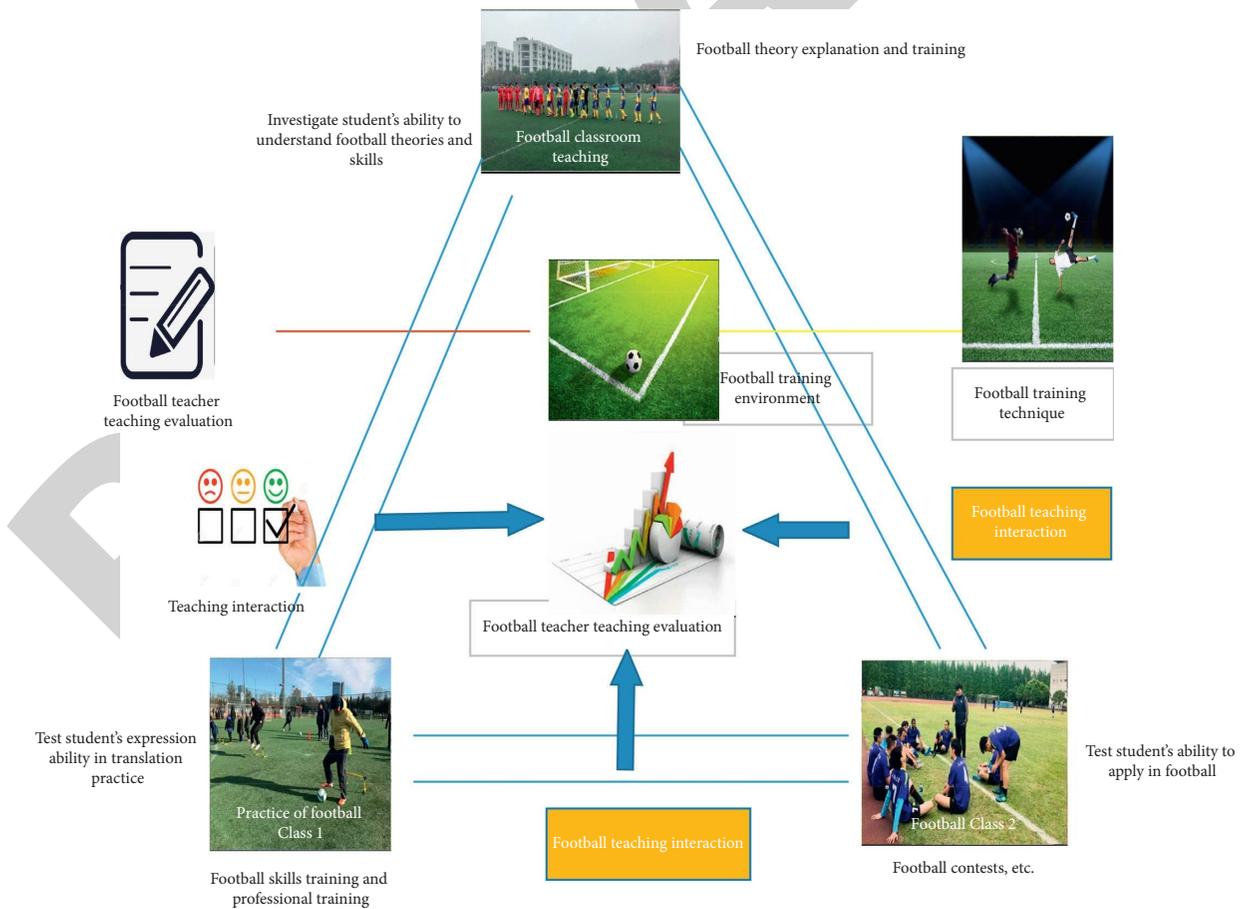


FIGURE 2: Schematic diagram of teaching evaluation of football teachers.

past, which is called individual optimal. Of course, the “good or bad” of this kind of information needs to be set up in advance through an evaluation mechanism, which is the so-called fitness function. Without iterating once, the best position among the best historical positions of all particles will be recorded, which is called the global optimum. The particle constantly changes its position and speed by learning its own historical optimal position and the information of the group’s historical optimal position, so as to find the optimal solution.

$$\begin{aligned} v_i[k] &= c_1 r_1 (pbest_i - x_i[k-1]) + c_2 r_2 (gbest - x_i[k-1]) + v_i w[k-1], \\ x_i[k] &= x_i[k-1] + v_i[k-2]. \end{aligned} \quad (1)$$

Among them, c_1 and c_2 are the individual learning factor and the group learning factor, respectively, and their sizes can be adjusted, respectively, to the speed of the particle flying to the individual optimum and the group optimum. If the value is too small, the particles will only search nearby, and the optimization speed will be slow; if the value is too large, it may cause the particles to fly out of the target area and miss the optimal search. r_1 and r_2 are random numbers distributed between 0 and 1, respectively, to ensure the randomness of particle search. The flying speed of particles in each dimension cannot be greater than the maximum speed v_{max} initially given. If the value of v_{max} is larger, the particle’s global search ability is strong, and a smaller v_{max} can ensure the particle’s local search ability. w is called the inertial weight, its size can be adjusted to the algorithm’s exploration ability and exploration ability, and usually its size goes to 0.721. The flow chart of the particle swarm algorithm is shown in Figure 3(a). The particle position update diagram is shown in Figure 3(b).

4.2. Improved Particle Swarm Algorithm. The particle swarm algorithm with linearly decreasing inertia weight solves the shortcomings of the particle swarm algorithm’s poor

In the particle swarm algorithm, the entire population has n particles, and each particle has its own position vector and velocity vector. Their position and velocity at the k -th step are denoted as $x_i[k]$ and $v_i[k]$, respectively. The individual optimal value of each particle is $pbest$, and the global optimal value of the entire population is $gbest$. Each particle is optimized in the entire search space under the leadership of the individual best point $pbest$ and the global best point $gbest$. The evolution formula of particle swarm algorithm is

exploration ability in the early stage and weak exploration ability in the later stage. In the early stage of the algorithm, the inertial weight w value is larger, and the particle speed obtained in the next step is larger. It strengthens the global search ability and can explore further positions in the search space. When the algorithm converges to the later stage, the value of the inertia weight w gradually becomes smaller, and if the particle speed obtained in the next step becomes smaller, detailed investigations can be carried out within a limited range to find the optimal solution. So this algorithm has good global search ability and local search ability. The linear decreasing formula is as follows:

$$w = t \cdot w_{max} + w_{min} - \frac{w_{max}}{T}, \quad (2)$$

where t is the number of current function calculations and T is the maximum number of iterations. When t is greater than T , the inertia weight will be set to w_{min} . Usually, w_{max} and w_{min} are set to 0.9 and 0.4, respectively.

The PSO algorithm with contraction factor introduced is somewhat similar to the PSO algorithm with inertia weight from a mathematical point of view, but the algorithm can ensure convergence very well. Its formula is as follows:

$$v_i[k] = c_1 r_1 (pbest_i - x_i[k-1]) + c_2 r_2 (gbest - x_i[k-1]) + \phi \cdot v_i[k-1]. \quad (3)$$

Among them,

$$\phi = \frac{\theta}{\theta - 1 - \sqrt{\theta^2 - 4\theta}}. \quad (4)$$

Generally, you take

$$\theta = c_1 + c_2 \geq 4. \quad (5)$$

4.3. Improved Particle Swarm Optimization Algorithm

4.3.1. Food Chain Mechanism. In the traditional particle swarm algorithm, the entire population is iteratively

optimized based on the information provided by the individual’s best points and the group’s best points. This makes all particles converge to one place at a faster speed, which also makes the calculation speed of the algorithm fast. But this will bring a very serious problem; that is, the convergence of the entire population consistency makes it lose its diversity, and at the same time it is easy to cause the algorithm to fall into a local optimum and fail to jump out. In addition, it is difficult to avoid poor individual bests among all $pbest$ s that have been recorded. And these points should not be the “examples” for the population, because they not only cannot contribute to the evolution of the entire population but will lead the entire population to a worse

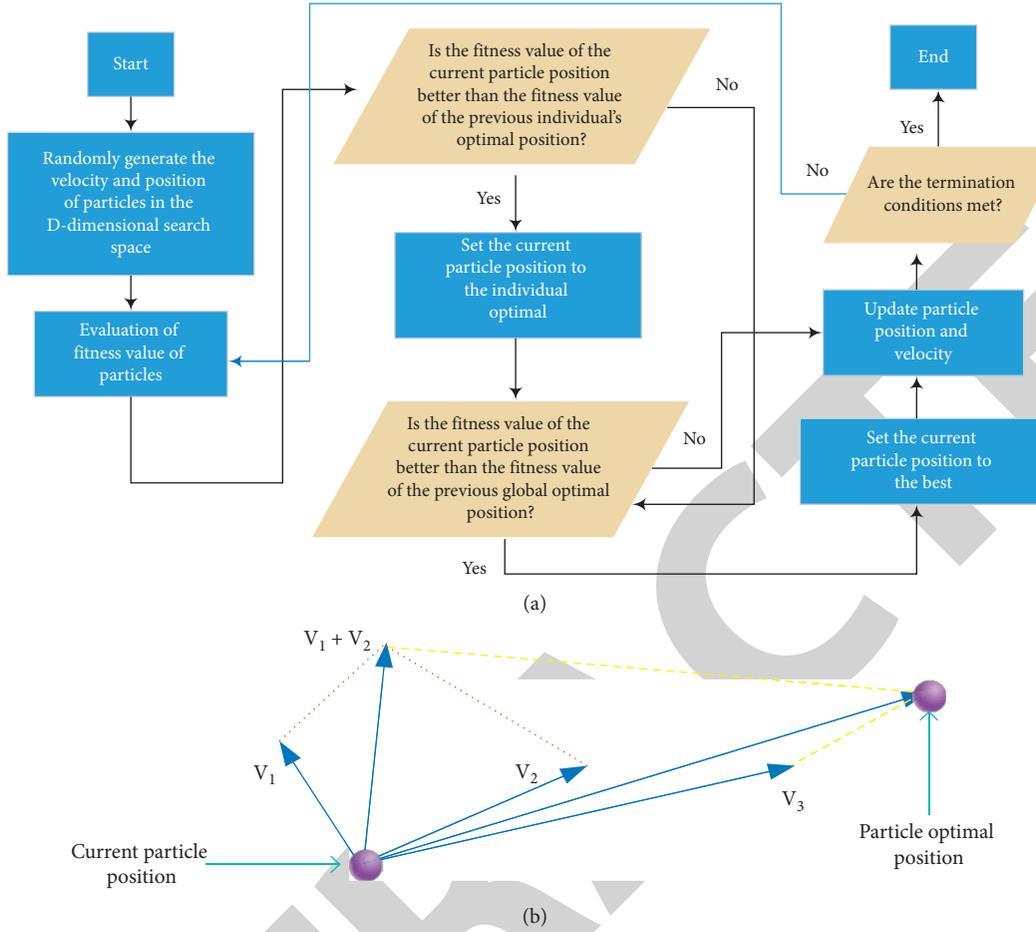


FIGURE 3: Particle swarm algorithm calculation steps and particle position update. (a) Particle swarm algorithm flow chart. (b) Schematic diagram of particle position update.

“situation,” so these individuals should not be recorded but recorded. The best point needs to be removed. Through the above analysis, it can be seen that the performance of the particle swarm algorithm depends to a large extent on the selection of “learning role models.” Therefore, while the particle swarm is evolving, it is also necessary for the “example of learning” of the particle swarm to follow a certain law to evolve and then select a better “example of learning.”

The food chain mechanism mentioned in this article is to evolve and select the target “learning role model” by imitating this characteristic of the food chain in the ecosystem. In the food chain mechanism, we divide the entire learning model group into several subpopulations. Each subpopulation can prey on another subpopulation, but they will also be preyed by the third subpopulation and set the predation structure of each subpopulation. It is a ring topology. In the process of algorithm iteration, it is judged whether each subpopulation is preyed one by one. If this happens, the “eaten” areas are those particles with the worst position and speed evaluation in the current subpopulation, and these particles will be removed. Instead of them, the predator’s subpopulation obtains particles according to the reproduction mechanism. These particles are called advertised particles, and they will be included in the predator’s

population. We proposed the concept of predation probability P , which can determine whether predation can occur, and P needs to be calculated according to certain rules. If the fitness value of the predator subpopulation is less than the fitness value of the predator subpopulation, then the environment where the predator subpopulation is located is easier to survive, and the current predator population will be easily preyed. The method for solving the predation probability is

$$P = 0.5 + 0.5 \cdot \begin{cases} \frac{\text{fit}_s - \text{fit}_{\text{predator}}}{\text{fit}_{\text{max}} - \text{fit}_{\text{min}}}, & \text{fit}_s < \text{fit}_{\text{predator}}, \\ \frac{\text{fit}_{\text{predator}}}{\text{fit}_{\text{max}} - \text{fit}_{\text{min}}}, & \text{fit}_s \geq \text{fit}_{\text{predator}}, \end{cases} \quad (6)$$

where fit_s is the fitness value of the current subpopulation, s represents the current subpopulation, fit_{max} and fit_{min} are the maximum fitness value and minimum fitness value of all subpopulations, respectively, and $\text{fit}_{\text{predator}}$ is the fitness value of the predator subpopulation. The fitness value of the subpopulation is obtained by calculating the average fitness value of the particles contained in the subpopulation, namely,

$$\text{fit}_s = \prod_{i=0}^{k-1} \text{fitness}(i), \quad (7)$$

where i is all the particles contained in the current subpopulation, and $\text{fitness}(i)$ is the fitness value of the particle.

4.3.2. Reproduction Mechanism. Reproduction is a necessary condition to ensure the immortality and diversity of

$$x_{\text{reproduction}}^{d-1} = \begin{cases} X_{\min d} + \text{rand1} \cdot (X_{\max d} - X_{\min d}), & \text{rand} > 0.7 \\ \text{pbest}_j^d, & 0.3 \leq \text{rand} \leq 0.7, \\ \text{pbest}_i^d, & \text{rand} < 0.3, \end{cases} \quad (8)$$

Among them, i, j are two particles in the predator subpopulation selected randomly; d is a certain dimension of the particle; rand , rand1 are uniformly distributed random numbers, and the value range is $[0, 1]$; $X_{\max d}$ and $X_{\min d}$ are the maximum and minimum values of the independent variables, respectively. In the reproduction mechanism, in order to ensure the diversity of particles, when rand is greater than 0.92, the current dimension will change, so as to avoid the phenomenon of local premature convergence.

4.3.3. Improved DSPSO Algorithm based on Food Chain Mechanism. The food chain mechanism eliminates the poorer particles through the predation strategy and optimizes the subpopulation, so that the particles of the entire particle swarm have a better position. The reproduction

species, and it is also the foundation of species evolution. After being inspired by this, by imitating this mechanism, it can be applied to the improvement of algorithms, such as differential evolution algorithm, and genetic algorithm. We have constructed a reproduction mechanism whose mathematical expression is

mechanism ensures the diversity of the particle swarm by imitating the overall learning mechanism and avoids the occurrence of local convergence. The group of “learning examples” obtained by using these two mechanisms can be used to evolve the particle swarm algorithm. Even so, the global optimum may still cause the algorithm to fall into local convergence. We propose that the DSPSO algorithm will use the auxiliary optimal point x_{besti} instead of the global optimal point and randomly select a particle with the highest fitness value in the entire particle swarm as the auxiliary optimal point. In a given period, the auxiliary optimal point remains unchanged. After many iterations, a supplementary best point was reselected according to the same principle. The evolution formula of the entire particle swarm algorithm is

$$v_i[k] = c_1 r_1 (\text{pbest}_i - x_i[k-1]) + c_2 r_2 (x_{\text{besti}} - x_i[k-1]) + wv_i[k-1]. \quad (9)$$

5. Teaching Evaluation Results and Analysis

5.1. The Start of Football Courses. Physical education and health classes in colleges and universities in a certain area are organized to carry out teaching activities in accordance with the requirements of the “Curriculum Standards” for physical education and health in colleges and universities. Daily eye exercises in the morning and afternoon ensure that students have one hour of campus sports activities every day. In addition, each school also offers physical activity classes such as second classes in sports, sports interest classes, and physical exercise classes based on the actual situation of the school. According to the different needs of students, they can learn more various sports functions, so that students have specialties, and improve their awareness and ability of lifelong physical exercise.

Figure 4 shows the proportion of football courses in physical education in the four universities. The “National Youth Campus Football Activities Implementation Plan”

stipulates that the school physical education class should increase the proportion of football teaching in the teaching content. School students should have no less than 2 hours of football activity time per week. Some of the schools in the survey failed to meet the requirements of the “Implementation Plan,” mainly due to the objective conditions of the schools themselves. Each school can appropriately arrange football activities suitable for the school according to its own existing conditions, such as compiling the ball control, dribbling, and other actions of football into a highly admirable, concise, and practical football exercise, accompanied by popular music rhythms. We use the ball control and dribbling activities to familiarize yourself with the ball in the big break every morning. In this way, students can get in touch with football every day, and this atmosphere creates conditions for the development of football lessons. You can also use the physical education class to arrange football interest classes and use the physical activity class to arrange football fun games or class leagues.

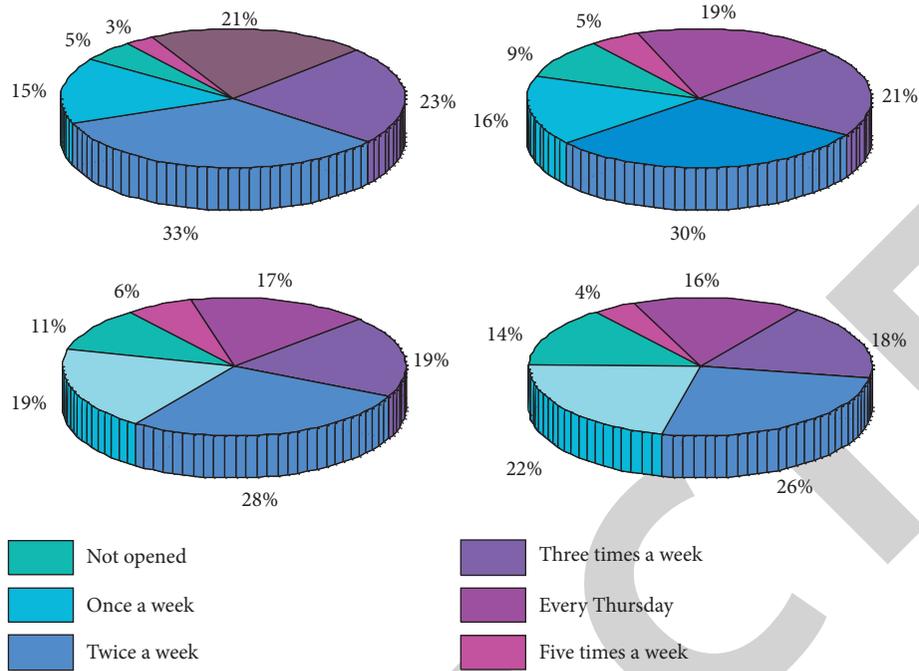


FIGURE 4: Proportion of football class hours in physical education in four universities.

5.2. The Situation of Teachers Who Carry out Football Teaching Activities. As a first-line coach of youth football teaching, its importance is self-evident. Football starts from a baby and needs to be taught by a professional coach. Physical education teachers play two roles in school physical education and extracurricular football training. Their overall quality directly affects the effect of school football teaching. The survey of the coaches leading the football league in four colleges and universities in a certain area fully reflects the current overall status of physical education teachers. The statistical results in Figure 5 show that the age of campus physical education teachers in four colleges and universities in a certain area is mainly between 25 and 55 years old.

5.3. Setting of Teaching Content of Football Course. Football course teaching is the main course of physical education in middle and high schools, and scientifically and reasonably determining the football course teaching content system is an important means to achieve the goal of football teaching. The teaching content needs to be related to the teaching objectives, and scientific and effective content should be set up according to the physical and psychological characteristics of the teaching object, physical education class hours, and venue equipment. The purpose of football teaching is to enable students to master football skills and football knowledge more proficiently, so that students can participate in campus football activities and develop the habit of lifelong sports. Inappropriate content arrangement is not conducive to the learning and mastery of football skills of college students and also affects the enthusiasm of students. Figure 6 shows the optimization of the proportion of teaching content in football teaching.

5.4. Evaluation of Football Teaching and Learning. “Evaluation” is an activity of value judgment, which generally refers to measuring the value of people and things. The combination of evaluation and education will produce and develop into educational evaluation. Therefore, education evaluation is essentially a process of value judgment. It is a process of systematically investigating students’ learning and teachers’ teaching based on certain teaching goals and standards, and evaluating its value, strengths, and weaknesses for improvement. A field of the education system in physical education can be revealed from the definition of education evaluation: the process by which the evaluation of physical education can judge the value, advantages, and disadvantages of physical education activities is based on the goals of physical education and related standards. Teachers and students are the main body of teaching activities. Physical education evaluation is the evaluation of each other in teaching activities between teachers and students. Therefore, teaching evaluation is the three aspects of student learning evaluation, teacher teaching evaluation, and curriculum construction evaluation. Figure 7 shows the proportion of teachers’ evaluation of students’ academic performance after the optimization of the football professional teacher’s teaching evaluation system. It is evaluated in terms of physical fitness, football skills and tactics ability, classroom attendance rate, learning attitude, teamwork spirit, independent innovation ability, emotion, self-confidence, and will performance in accordance with the school’s standards.

Football teaching teachers’ evaluation of students’ learning focuses on the assessment of football technical and tactical ability, physical fitness, classroom attendance, and spirit of unity and cooperation, as well as the students’

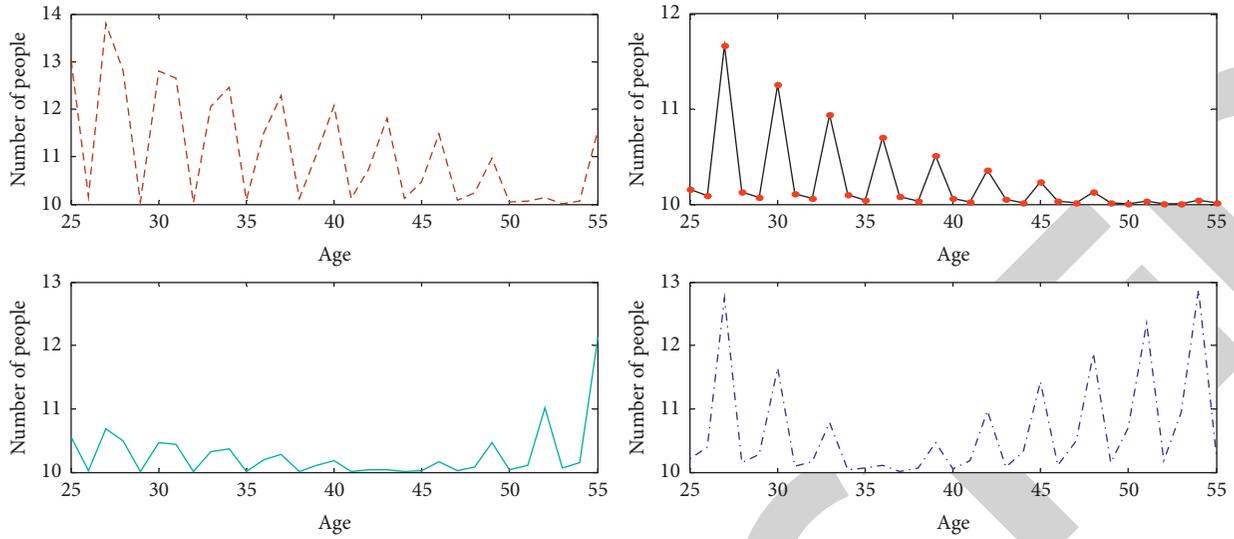


FIGURE 5: The age structure of physical education teachers in four universities.

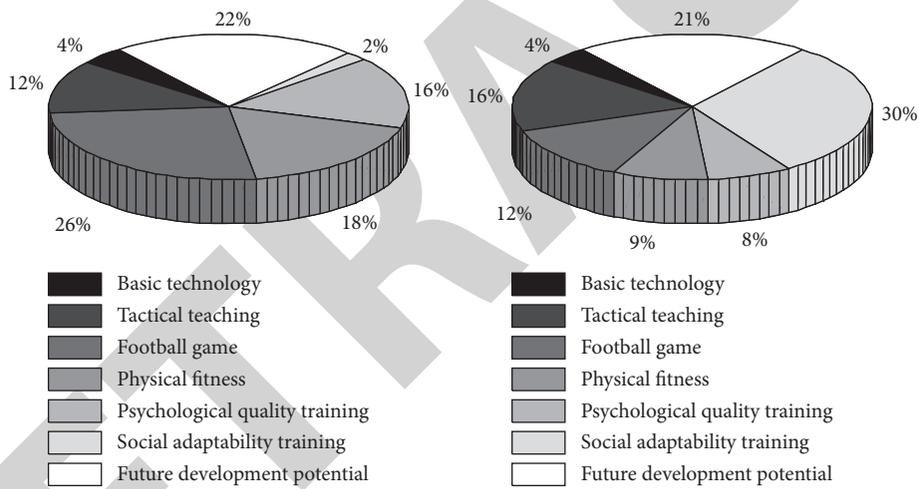


FIGURE 6: The situation before and after optimization of the proportion of teaching content in football teaching.

learning attitude, independent innovation ability, and emotional and social development of emotions and will. There are too few factors to consider. And it is these nonintellectual and nonphysical factors that have a great influence on the development of students' lifelong sports awareness and the development of sports habits. It is a means of promoting the healthy growth of young students

and cultivating students to establish lifelong sports awareness and sports habits. Therefore, teachers are making football teaching evaluation content consistent with football learning goals. Figure 8 shows the proportion of students' evaluation of football teaching effect after the optimization of the football professional teacher teaching evaluation system.

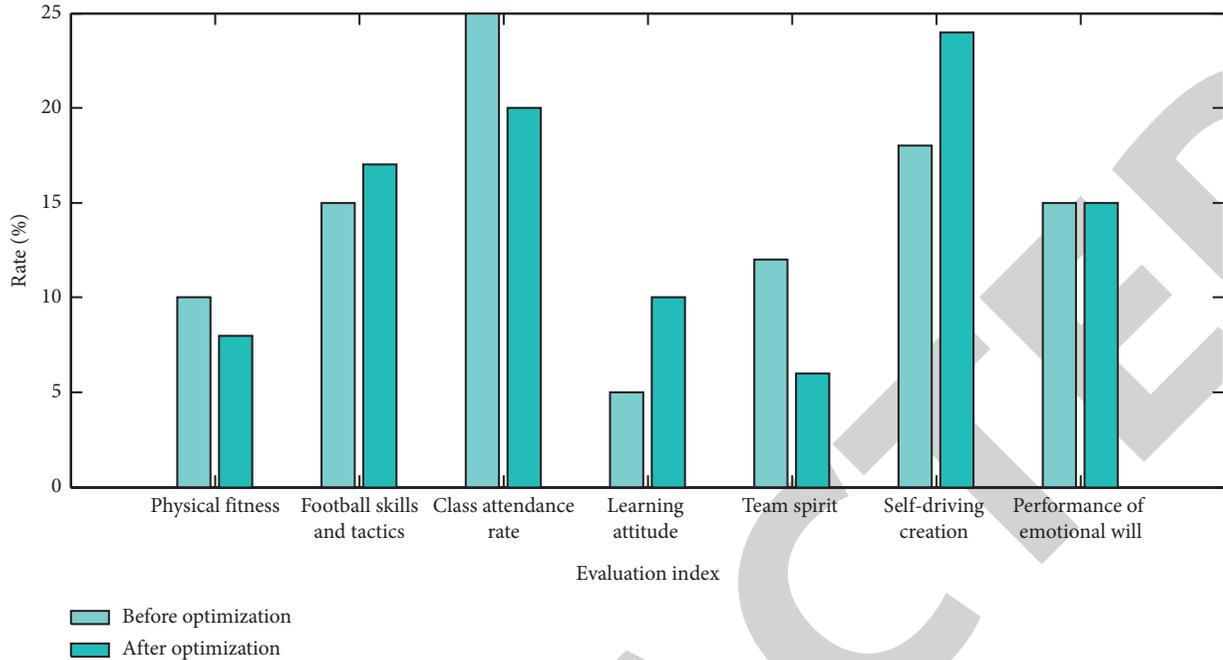


FIGURE 7: The proportion of teachers' evaluation of students' academic performance after the optimization of the football professional teacher's teaching evaluation system.

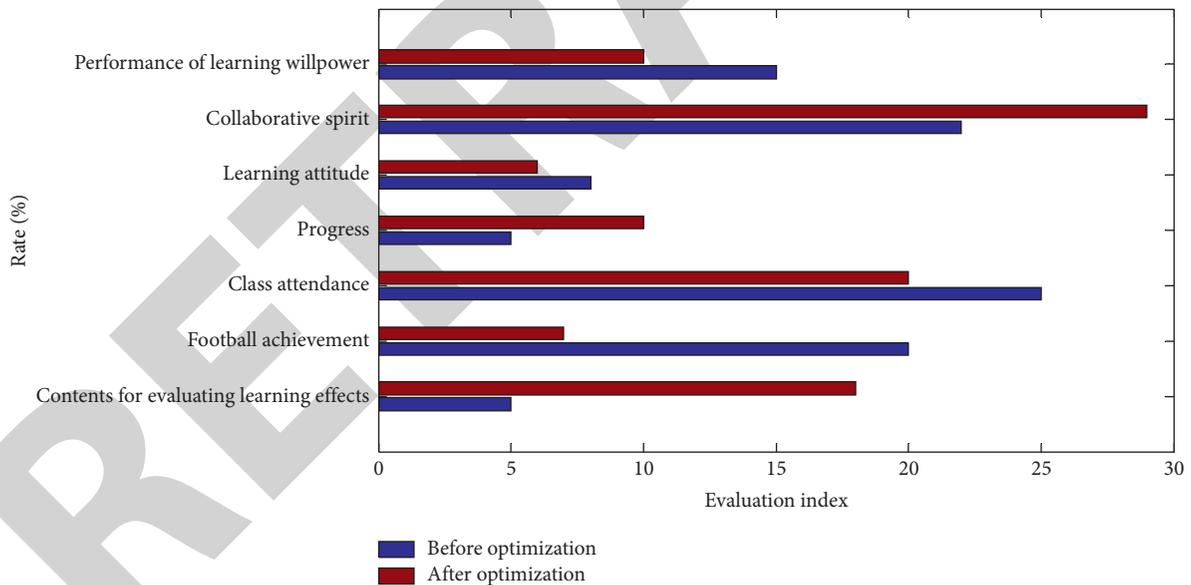


FIGURE 8: The proportion of students' evaluation of football teaching effect after the optimization of the football professional teacher teaching evaluation system.

6. Conclusion

Because the theory of multiple intelligence emphasizes the differences in students' personality and intelligence structure, teachers design football teaching content, plans, and stages based on the theory of multiple intelligences. This is the success of football teaching under the guidance of the theory of multiple intelligences. Traditional football teaching is very unfavorable for students' active learning, and the

evaluation and assessment of students is not reasonable, and they cannot be evaluated objectively and fairly. According to the theory of multiple intelligences, for students with different intelligence structures and different levels of intelligence, their assessment goals and standards are also different. This kind of evaluation emphasizes process and can be treated differently in football teaching principles, which can combine student evaluation with students' usual learning performance. The PSO algorithm regards the

particles in the search space as a flock of birds searching for food, and each particle is regarded as an individual bird. Each particle represents a solution to the optimization problem, and the location of the food can be regarded as the position of the optimal solution, so that the process of searching for food by the birds can be regarded as the process of finding the optimal solution by the particles. We introduce the food chain mechanism and reproduction mechanism on the basis of the original PSO algorithm and propose an improved particle swarm algorithm based on the food chain mechanism. The improved algorithm has strong optimizing ability and good optimizing effect, and it is not easy to fall into the local optimum. The teaching evaluation results of football professional teachers show that the physical education teachers are acceptable, but the football professional knowledge training of physical education teachers needs to be strengthened. Most designated schools are affected by various factors such as personnel system, funding, and school scale. The possibility of meeting the requirement of at least one professional physical education teacher in the school in a short time is very low; therefore, the football skills training for existing physical education teachers is very low. It is also a good solution. Under the dual background of physical education reform and campus football, physical education teachers lack systematic, scientific, and adaptable teaching content selection and setting of football lessons, and they have not set teaching content scientifically according to the physiological and psychological characteristics of college students. And the teaching mode does not combine the characteristics of football, and the concept is backward. Physical education teachers should choose football methods and teaching content that are suitable for the physical and psychological characteristics of students. It should be summarized in time, reflect in time, and form a set of teaching materials with its own characteristics. It should adhere to the concept of happy football and happy teaching, integrate games and fun projects into football teaching and physical education, and establish appropriate football assessments. This can be done in a variety of ways, such as student self-evaluation, mutual evaluation, and teacher evaluation.

Data Availability

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

Conflicts of Interest

The authors declare that they have no known conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

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