

Retraction

Retracted: Research on Sports Balanced Development Evaluation System Based on Edge Computing and Balanced Game

Security and Communication Networks

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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. Han, "Research on Sports Balanced Development Evaluation System Based on Edge Computing and Balanced Game," *Security and Communication Networks*, vol. 2021, Article ID 5557138, 8 pages, 2021.

Research Article

Research on Sports Balanced Development Evaluation System Based on Edge Computing and Balanced Game

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Sports can promote physical and mental health and the development of personality. How to build a balanced development evaluation system for sports and find a quality education suitable for the school are particularly important. In this article, we use edge computing technology to design a balanced development framework for sports. The framework will guide students to actively participate in physical exercise and develop sports to a higher, more comprehensive level. Then, the equilibrium game model is used to analyse the evaluation system of the balanced development of college sports. The research results show that the university sports balanced development evaluation system has good application prospects. The empirical analysis results verify its accuracy and reliability.

1. Introduction

China is a big sports country; it has a good sports foundation; the sports under the national physique has obtained the huge success at present [1]. How to forge a talented person who is physically and mentally upwardly soulful and healthy through campus sports is an important problem that the sports workers need to study at present, and it is also an important way to improve the physical quality of young people [2]. With the further development of physical education reform, especially the overall implementation of quality education, the quality of physical education has been greatly improved, and a good situation has emerged [3].

However, for a long time, physical education in our country has been mistook for the development of action skills and behavior, and most people often mistook that physical education is only a kind of exercise practice or repeated exercise of fixed movements [4]. In fact, to improve the overall level of physical education, curriculum reforms are needed [5]. As an important part of the teaching system of colleges and universities, physical education plays an important role in cultivating high-quality and comprehensive talent systems [6]. However, judging from the present situation of school physical education, the overall

level of physical health of college students shows a downward trend, which is characterized by subhealth, physical deficiency, fatigue, emotional instability, and so on. In addition to objective reasons, the low degree of goal realization is also an important reason for traditional physical education in colleges and universities [7].

The evaluation system of the balanced development of physical education is constructed in colleges and universities, speeding up the physical education in colleges and universities as an important part of the teaching system, which plays a very important role in cultivating high-quality people with strong physique and comprehensive ability [8]. In order to build an evaluation system for the balanced development of university sports, it is necessary to form an overall campus sports cultural atmosphere. We should flexibly choose and adjust sports development strategies according to the specific conditions of different regions [9]. Balanced development is the fundamental goal of sports development. We should guide students to participate in physical exercise actively, to promote a higher level, more comprehensive, of balanced development of sports [10].

The research contributions of this thesis include the following:

- (1) This paper uses edge computing technology to design a balanced development framework for sports.
- (2) This paper uses the equilibrium game model to analyse the evaluation system of the balanced development of college sports.
- (3) The research results show that the balanced development evaluation system of university physical education has good application prospects, and the empirical analysis results are accurate and reliable.

2. Present Situation of College Physical Education

Firstly, this paper analyses the present situation of physical education teaching in colleges and universities and puts forward some suggestions on the balanced development evaluation system of physical education teaching from the aspects of physical education teaching, teacher management, facilities, and the cultivation of teachers' team [11]. At present, the guiding ideology of physical education in colleges and universities is "strengthening students' physique" and "mastering sports skills" as the guiding ideology of physical education teaching and the teaching proportion of physical education theory knowledge are too small [12]. Teachers make teaching students a certain kind of sports skill as the focus of their work [13]. Schematic diagram of balanced development of sports information is shown in Figure 1.

The improvement of the consciousness of physical exercise has not run through the teaching process all the time [14]. The phenomenon of lack of vitality in teaching and low enthusiasm for learning in college sports has appeared. Students generally have the idea of "putting more emphasis on writing than on body" [15]. After entering university, with the increase of age, the mental state of sports slacking appears. They think that physical education is a supplementary lesson, supporting roles, and nothing more than running, voting, and jumping in the stadium, so it is better to sit down and read more books [16]. It is important to teach culture lessons well; some students are addicted to the network for a long time, and they are averse to taking part in sports activities; some students are afraid of being dirty and tired, they are not interested in many teaching contents and have not formed the correct concept of sports [17].

At present, the teaching of physical education in colleges and universities can be divided into the following forms [18]: first, according to the special teaching of physical education, most of them think that this is good for the students to master the basic sports technology, thus can lay some basic foundation for physical training; Secondly, in nongrade teaching, it is believed that it is conducive to training the backbone of sports so that students can lead each other, and it is conducive to the smooth progress of sports teaching. Third, the teaching of boys and girls is divided into classes, and most of them think it is convenient for hierarchical teaching and student management [19, 20]. Thus, it is beneficial for teachers to conduct classification guidance. The traditional teaching mode of physical education is still

the traditional three-step song of explaining, demonstrating, and practicing [21]. The students can only practice passively, thus killing some students' personality development, thus making students tired of physical education teaching [22].

3. Evaluation of the Balanced Development of College Physical Education

Edge computing is not a new thing; this concept is a computing model. This concept has a pivotal position in the Internet of things project [23]. Combined with the latest wireless communication technology, the Internet of things technology can achieve greater technological breakthroughs and realize a truly interconnected intelligent society [24].

Mobile edge computing (edge computing) is computing at the data network generating end, which is the so-called edge end. It is a computing model and concept [25]. Its data processing mainly includes two parts: one is the downstream cloud service. The second is the upstream Internet of everything service [26]. The edge is not unimportant; on the contrary, the edge is the first scene where data is generated or the point closest to the first scene [27]. More professionally, it refers to the network resources from the data generation to the cloud server link job [28]. From the point of data generation to the point of cloud services, on this link, according to the specific needs of the application and the actual application scenario, the edge can be one or more resource nodes on this path [29]. Sports development framework based on edge computing is shown in Figure 2.

As a popular technology, edge computing has been widely used in the business field. Among them, Internet companies hope to extend their existing cloud service capabilities to edge networks with the help of their own relevant advantages in the service industry [30]. At present, the guiding ideology of physical education in colleges and universities is "strengthening students' physique" and "mastering sports skills" as the guiding ideology of physical education teaching, and the teaching proportion of physical education theory knowledge is too small [31]. Teachers make teaching students a certain kind of sports skill as the focus of their work. Microsoft has released edge products such as "Azure IoT Edge" and enhanced streaming data analysis capabilities for Azure cloud services; Amazon has released "AWS Greengrass" edge software to seamlessly extend AWS cloud services to devices [32].

4. Measures to Evaluate the Balanced Development of Physical Education in Colleges and Universities

In the field of physical education, the systematic introduction to the curriculum design model is the five physical education curriculum models proposed by Jewett et al. in 1995: sport education model, fitness education model, movement analysis model, envelopment model, and personal meaning model [33, 34]. It is a whole set of ways to design, organize, and regulate physical education activities. To construct a balanced development evaluation system of physical education, which is suitable for quality education in

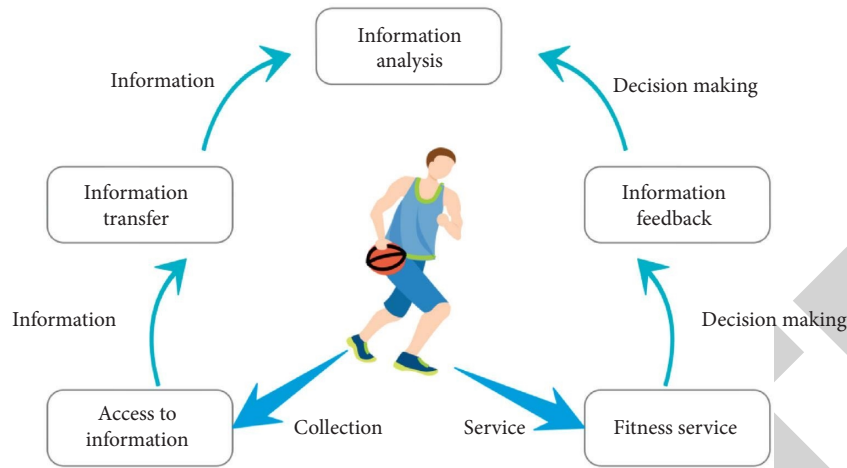


FIGURE 1: Schematic diagram of balanced development of sports information.

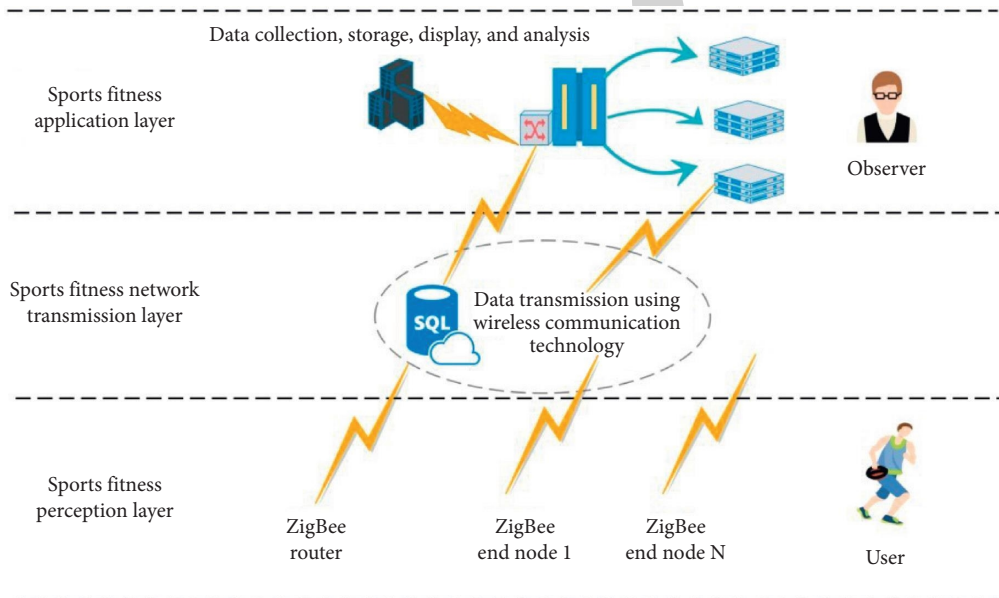


FIGURE 2: Sports development framework based on edge computing.

schools in China [35], improving the quality of physical education is of great significance to the promotion of physical and mental health and personality development of students [36]. The evaluation system of the balanced development of physical education teaching in colleges and universities is constructed mainly from the following aspects [37].

4.1. Strengthening Teaching of Basic Theory of Physical Education and Establishing a New Concept of Physical Education. The physical education teaching mode is a set of methodology system to design and regulate the physical education activities; it guides the practice with a mature theory and enriches the theory with the mature experience [38]. It has great significance to study and construct a physical education model suitable for quality education in schools in China

to improve the quality of physical education and to promote the development of students physical and mental health and personality [39]. The guiding ideology of physical education in colleges and universities should be adapted to the development of the current society in order to strengthen the cultivation of sports consciousness, stimulate the interest in participating in sports, and embody the ability of students [40].

The emphasis of education is to cultivate physical intelligence, that is, to use sports knowledge. From the curriculum system, teaching content, more emphasis on physical fitness, and physical exercise methods targeted students in the grasp of sports knowledge based on improving the meaning of self-exercise so that students benefit for life [41].

In the selection of practical teaching materials, the first consideration should be fitness value, students are easy to

grasp, and the effectiveness of social sports is easy to link up [42]. In the use of teaching methods and means, we should overcome the rigid soup-feeding teaching in the past, teach reasonably, use scientific principles to educate students, and enrich students' scientific exercise knowledge [43]. In the process of teaching implementation, we should not only give full play to the leading role of teachers so that students can master the technical action as soon as possible, but also give full play to the main role of students, stimulate students' interest in participating in physical education teaching and pay attention to their individuality, and teach students to exercise hard as a process of tempering their own will [44].

4.2. Improving Physical Education Teachers' Quality and Improving Teaching Facilities. The shortage of teaching funds and the aging of stadiums and gymnasiums are difficult problems in sports work in colleges and universities. The overall quality and teaching quality of physical education teachers are the important factors restricting the reform of physical education in colleges and universities [45]. Due to the fast speed of knowledge and the rapid development of some interdisciplinary and interdisciplinary subjects, only by constantly improving the quality of physical education teachers can they play a role in cultivating high-quality students. Therefore, we should pay attention to the introduction and training of backbone teachers and encourage PE teachers to improve their teaching ability independently [46].

In order to improve teachers' enthusiasm and sense of responsibility, the teaching level of physical education teachers should be evaluated in terms of teachers' work, sense of responsibility and ability, the number of students participating in the training, training results, and satisfaction rate. For students' physical performance, we can use a comprehensive evaluation method that combines class rate, sports technical examination, and student selfevaluation to limit the physical performance that students must achieve when they graduate [47].

4.3. Creating a Campus Sports Culture Atmosphere. Practice has proved that extracurricular activities can help them to enhance their health awareness and cultivate their interest in classroom teaching [48]. With the form of competition, special topic, and essay speech, it is helpful to further cultivate students' exercise habits and consciousness, improve their cultural accomplishment, and enhance their quality and health level [49]. Physical education in colleges and universities will be continuously reformed and deepened, and physical education teaching should also be innovated and perfected [50]. With the surge of thoughts such as "lifelong physical education and national fitness," it will bring good opportunities to the development of physical education in colleges and universities [51].

As a member of physical education, we should examine and cherish our own work, strive to make bold innovations, and make more meaningful attempts in the fields of training sports talents and teaching physical education. In order to establish the scientific system of college physical education

reform as soon as possible and to make new development and break through the work of physical education in colleges and universities, we should make our own efforts [52].

5. Methods

Based on the above theoretical analysis, the game model of the evaluation system of the balanced development of physical education in colleges and universities is constructed, and the binary logistics regression mapping model is established to analyse the constraint index of the balanced development of physical education in colleges and universities [53]. This paper constructs a constraint parameter model that affects the balanced development of physical education in colleges and universities and a limited dataset of decision variables for the balanced development of physical education in colleges and universities:

$$X = \{x_1, x_2, \dots, x_n\} \subset R^s. \quad (1)$$

The constraint parameters are z_b^{bw*} , z_d^{cp*} , $z_{a,p}^{dm*}$, $z_{a,b}^{\alpha*}$, and $z_{a,d,p}^{\beta*}$. According to the constraint index parameter set of university physical education equilibrium control, the fluctuation function of equilibrium game is constructed as follows [54]:

$$\langle Q_s \rangle = \frac{1}{N} \sum_{i=1}^N Q_i. \quad (2)$$

The Hausman test norm is

$$\sigma_s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (Q_i - \langle Q_s \rangle)^2}. \quad (3)$$

Confidence and confidence intervals are described as

$$p(Q_s) = \frac{1}{\sqrt{2\pi}\sigma_s} \exp\left[-\frac{(Q_s - \langle Q_s \rangle)^2}{2\sigma_s^2}\right], \quad (4)$$

$$\int_{-\infty}^{\infty} p(Q_s) dQ_s = 1,$$

in which X_{ij} ($i = 1, 2, \dots, 6$; $j = 1, 2, \dots, 8$); according to the above constraint parameter model, the variables and model parameters of university teaching equilibrium control are determined, and the DCC-MVGARCH model of university teaching equilibrium development is constructed. The dynamic prediction model function is obtained as follows:

$$\text{EST}_1(v_i, p_q) = \max_{v_j \in \text{prnt}(v_i)} \{p_{\text{-available}}(q) \text{EFT}(v_j, p_m) + k \cdot C(v_j, v_i)\}. \quad (5)$$

The maximum likelihood ratio function is

$$Z_1 = B \sum_{w \in W} q^w - \sum_{a \in A} x_a [t_a(x_a) + \beta v_a], \quad (6)$$

$$\forall v_{\min} \leq v_a \leq v_{\max}.$$

Based on the above design, the empirical analysis model of the evaluation system for the balanced development of

physical education teaching in colleges and universities is constructed, and the dynamic prediction function is obtained as follows:

$$\begin{aligned} & \max \sum_{x_{a,b,d,p}} \sum_{a \in A} \sum_{b \in B} \sum_{d \in D} \sum_{p \in P} x_{a,b,d,p} V_p, \\ & \text{s.t.} \sum_{a \in A} \sum_{d \in D} \sum_{p \in P} x_{a,b,d,p} R_p^{bw} \leq K_b^{bw}(S), b \in B. \end{aligned} \quad (7)$$

Combined with principal component analysis (PCA), the linkage control of balanced development evaluation of physical education teaching in colleges and universities is carried out [55].

6. Experiment

Based on constructing the evaluation system of the balanced development of physical education teaching in colleges and universities, Siunik model is used to carry out the empirical data analysis. The analysis period is from 2013 to 2017. The sports data samples come from the statistical analysis database of college physical education test results. The descriptive statistical analysis method is used to obtain the descriptive statistical analysis results of the balanced development evaluation of physical education teaching in colleges and universities as shown in Figure 3.

It can be seen from Figure 3, the experimental results of the exercise balance test index based on edge computing are very effective. Researching and constructing a physical education model suitable for quality education in Chinese schools are of great significance for improving the quality of physical education and promoting students physical and mental health and personality development. The experimental results of the motion balance test index based on edge calculation time = 30 s are shown in Figure 4.

The physical education teaching mode is a set of methodology system to design and regulate the physical education activities; it guides the practice with a mature theory and enriches the theory with the mature experience. It has great significance to study and construct a physical education model suitable for quality education in schools in China to improve the quality of physical education and to promote the development of students physical and mental health and personality. At present, the guiding ideology of physical education in colleges and universities is strengthening students physique and mastering sports skills as the guiding ideology of physical education teaching, and the teaching proportion of physical education theory knowledge is too small. Teachers make teaching students a certain kind of sports skill as the focus of their work. The guiding ideology of physical education in colleges and universities should be adapted to the development of the current society in order to strengthen the cultivation of sports consciousness, stimulate the interest in participating in sports, and embody the ability of students. Experimental results of sports balance test indicators based on edge computing-time = 30 s is shown in Figure 5.

It can be seen from Figure 5 that according to the statistical analysis conditions and the original data, this article

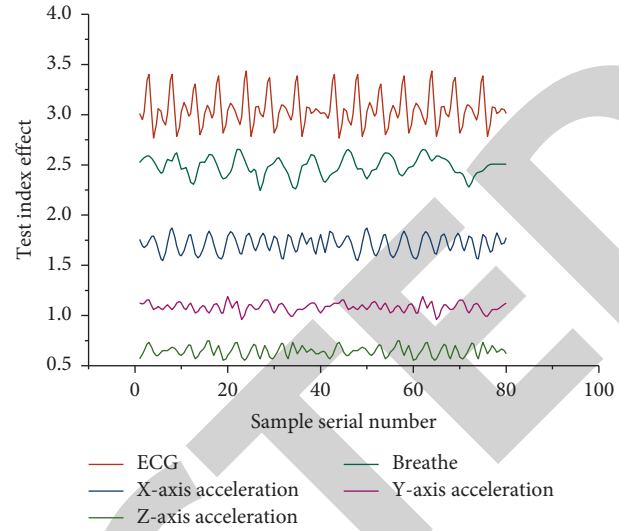


FIGURE 3: Experimental results of sports balance test indicators based on edge computing-time = 30 s.

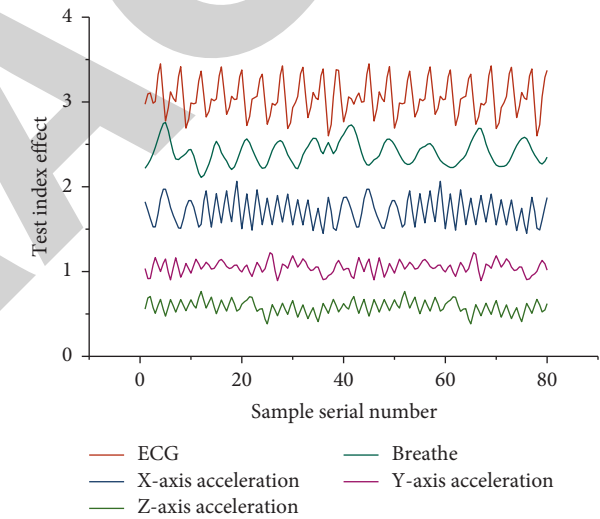


FIGURE 4: Experimental results of sports balance test indicators based on edge computing-time = 30 s.

selects the growth level of physical fitness as the dependent variable and uses this to estimate the physical education investment and the number of participants in colleges and universities. The evaluation index system of balanced development is obtained, and the results of full sample empirical analysis are shown in Figure 6.

Figure 6 shows that this method is used to construct the evaluation system model of the balanced development of physical education teaching in colleges and universities; the results of empirical analysis are accurate and reliable, and the level of confidence is high, which promotes the development of physical education teaching. In order to compare the effectiveness and efficiency of the model established in this article, we compare the model established in this article with the methods in the latest international references. The comparison uses model-based prediction errors as

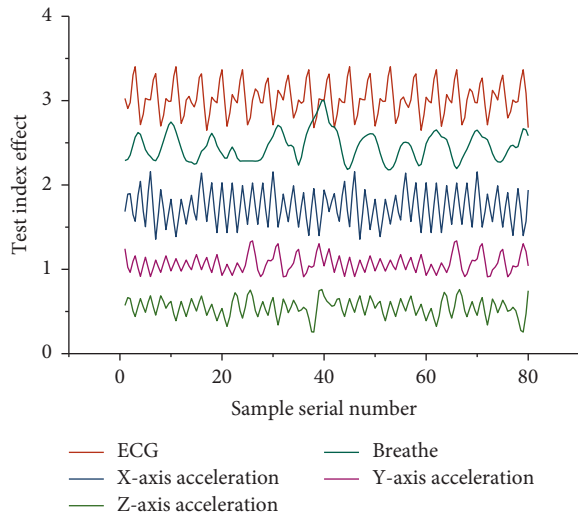


FIGURE 5: Experimental results of sports balance test indicators based on edge computing-time = 30 s.

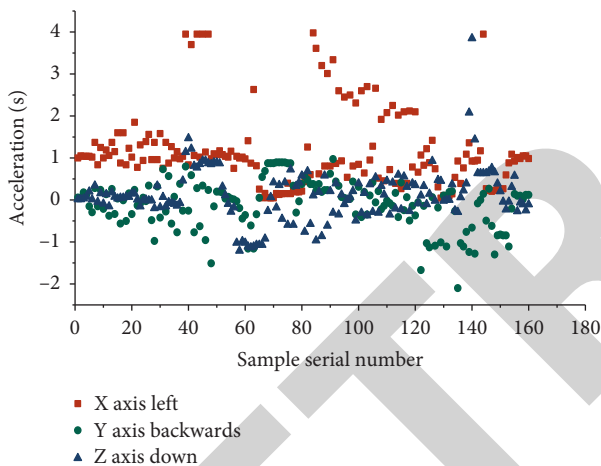


FIGURE 6: Empirical analysis of the balanced development of physical education in colleges and universities.

indicators. The comparison between the model prediction error and other methods in this paper is shown in Figure 7.

As shown in Figure 7, in the prediction error comparison, the model established in this paper has achieved good results. The research results show that the university sports balanced development evaluation system has good application prospects, and the empirical analysis results are accurate and reliable. Similar to advanced algorithms such as fast R-CNN and CNN, the method proposed in this paper has achieved appropriate results in models such as small samples. The basic idea of Faster-RCNN is to distinguish all possible alternative frames based on the extracted features. With CNN classification, the error rate of fast R-CNN is slightly higher than that of CNN in this model. Through the improvement of education and teaching methods, it is beneficial to improve and standardize sports activities. This article will focus on constructing a sports evaluation system suitable for the balanced development of quality education

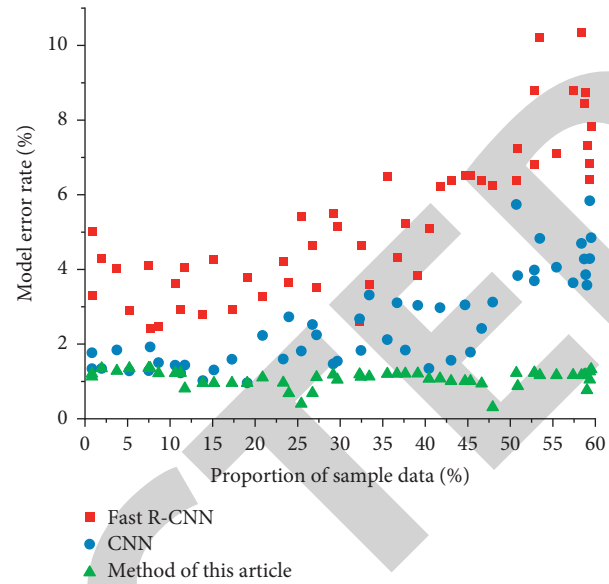


FIGURE 7: Comparison of the prediction error of the model in this paper with other methods.

in Chinese schools. In the field of sports, the systematic introduction of curriculum design models is the five sports curriculum models proposed by Jewett et al.[56]: fitness education model, motion analysis model, envelope model, and sonar meaning model. This is a whole set of methods for designing, organizing, and regulating sports activities.

7. Results and Discussion

The evaluation system of the balanced development of physical education teaching has great significance for improving the quality of physical education teaching and promoting the development of students physical and mental health and personality. As an important part of college teaching system, physical education plays an important role in cultivating high-quality people with strong physique and comprehensive ability. Balanced development is the fundamental goal of sports development. We should do a good job of school physical education, guide students to participate in physical exercise actively, promote a higher level, more comprehensive, of balanced development of physical education, and correctly handle sports and moral education. Changing the relationship between intellectual education and traditional education from exam-oriented education to quality education can ensure the proper position of school physical education in the overall development of education. The equilibrium game model is used to analyse the evaluation system of the balanced development of physical education teaching in colleges and universities. The result of the empirical analysis shows that the evaluation system of the balanced development of physical education teaching in colleges and universities has a good application, the result is accurate and reliable, and the level of confidence is high. It plays an active role in promoting the popularization of sports, promoting the development of national fitness

movement, expanding the sports population, and speeding up the process of sports socialization.

Data Availability

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

Conflicts of Interest

The author declares no conflicts of interest.

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