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ORIGINAL

A NEW MODE OF TRAINING SPORTS BASKETBALL PROFESSIONALS BASED ON THE IMPACT OF ECOLOGICAL ENVIRONMENT

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ABSTRACT

With the rapid development of modern basketball in the process of high popularity and professional development, fierce confrontation and high-level competition make people pay special attention to the selection and cultivation of outstanding talents, among which the quality and level of youth training will play a key role in the future competition. Good ecological environment of basketball class provides basic conditions for teachers and students to carry out basketball teaching activities, and promotes the improvement of students' basketball technical level. By using data mining (DM) technology, this paper extracts implicit and useful knowledge from sports talent data, explores the development and management rules of college basketball talent training, and then explores a new mode of sports basketball professional talent training under the influence of ecological environment. This will enable the educational ecology of basketball teaching to be used and effectively promoted, and achieve sustainable development. The results show that the accuracy of sports talent information mining algorithm in this paper is improved by 23.85% compared with traditional methods. Universities should change the traditional teaching mode of basketball professionals, and cultivate a number of basketball professionals who meet the needs of the society through the structure of strategic education and the countermeasures of comprehensive quality and ability training.

KEYWORDS: Basketball; Talent training; Data mining

1. INTRODUCTION

Basketball is one of the ball games with relatively high popularity in

China. It is easy to popularize because of its low participation threshold, diverse organizational forms, and low site requirements. It is also popular among young people because it has strong entertainment interest, can experience the pleasure of sports in confrontation, and has moderate sports intensity (Kao & Ii, 2017). School is an important base for cultivating high-quality talents for the country, and school physical education is an indispensable part of the school education plan. Modern basketball has rapidly improved in the process of high popularity and professional development. Fierce confrontation and high-level competition have made people pay special attention to the selection and training of excellent talents. The quality and level of youth training work will play a key role in the future competition (Grabara, 2016; Yoshioka, Yaegashi, Yoshioka, & Tsugihashi, 2019). As the main course of physical education in Universities, basketball course has been undertaking the important mission of strengthening students' physique, imparting basketball knowledge and skill system, developing sports professional skills, promoting lifelong sports and promoting the development of Chinese basketball cause to a certain extent (Ozmen, Yuktasir, Yildirim, Yalcin, & Willems, 2014). As a part of school sports construction, college sports teams give full play to the education platform of higher education and draw on the educational resources of universities. It is an important way for China to cultivate high-quality and high-level competitive sports talents for sustainable development (González-Espinosa, Molina, García-Rubio, Medina, & García-Santos, 2017). It is of practical significance to study the training of basketball majors and optimize the training mode for the implementation of quality education and curriculum reform in Universities (Absil, Diao, & Diallo, 2021). The ecological environment of basketball class in universities refers to the research on the natural conditions of teaching, the conditions of venues and facilities and the interaction mechanism between them in order to achieve the teaching goal of basketball class (Steingröver, Wattie, Baker, Helsen, & Schorer, 2017). Good ecological environment of basketball class provides basic conditions for teachers and students to carry out basketball teaching activities, and promotes the improvement of students' basketball technical level. Problems such as insufficient quantity and quality of basketball professionals, serious shortage of reserve talents of competitive basketball, the improvement of the overall level of competitive basketball lags behind that of Europe and America, the general public's low awareness of basketball, and the lack of basketball infrastructure restrict the development of Chinese basketball (Varillas-Delgado et al., 2022). With the continuous emergence of new technologies and methods of data collection, the amount of sports talent information data is increasing rapidly, and the data people have has reached a great abundance, and continues to show an acceleration growth trend (González, Domínguez, Buñuel, & Ozcorta, 2015). It is of special significance to do a good job in the scientific training of teenagers. Only by attaching importance to the echelon construction of reserve talents can China's competitive sports get sustainable development. Based on the theoretical

research of DM technology, this paper describes the application of this technology in information mining of sports basketball professionals, and then explores a new mode of training sports basketball professionals under the influence of ecological environment. The biggest drawback of the training system of reserve talents in various schools in the sports system is the bias and neglect of young athletes' cultural learning, which makes it difficult for athletes to find jobs in society after they retire, that is, the athletes' own comprehensive cultural quality is not high, which causes great pressure on their future life and work (Luo, Lin, Hsu, Liao, & Kao, 2020). Talent introduction and training is an important part of talent training management in universities, which is directly related to the level and development speed of human resources in universities. The ecological environment of basketball class is the premise and foundation of basketball teaching in universities. Only by building and optimizing the ecological environment system of basketball class can we improve the quality of basketball teaching in universities, achieve the teaching objectives of basketball class, and thus improve students' basketball level (Domeika et al., 2020). Cultivating basketball players with higher education, high competitive ability and high quality is the inevitable trend of cultivating high-level sports talents for sustainable development. Universities have the functions of higher education and rich educational resources, which are important positions for the training of Chinese sports talents. In view of the present situation of ecological environment construction of basketball talents training in universities, this paper puts forward the strategy of ecological environment construction of basketball talents training based on DM technology, and provides ideas for further development of ecological environment construction and optimization of basketball talents training in universities. Its main innovations are as follows: (1) In this paper, DM algorithm is used to analyze the information of basketball professionals, and combined with the development strategy and discipline characteristics of universities, strategies are provided for talent introduction and training in universities, and support is provided for human resources management in universities. (2) Study the use of DM technology to extract implicit and useful knowledge from sports talent data, and study the basic composition of the ecological environment for college basketball talent training. The first section is the introduction, which introduces the significance and research methods of basketball talent assessment and sports ecological environment construction. The second section is related work, which analyzes scholars' research on talent cultivation and assessment. The third section is the method and theory part, which analyzes the present situation and significance of training sports basketball professionals, and puts forward the information mining and assessment method of sports basketball professionals based on DM technology. The fourth section verifies the effectiveness of this method through experiments, and puts forward innovative ideas of basketball talent training mode; The fifth section is the conclusion, which puts forward the future development direction on the basis of summarizing the contribution of this paper.

2. Related Work

As China's reserve talent training system is still in a transition period from the national system under the planned economy system to the market economy system, the original national system has not been completely broken, and the new system of combining sports and education has not been well established. To a large extent, it has led to the crisis of the basketball reserve talent training system. There are many non-sustainable factors restricting talent development at present, the talent scale of the sports school system tends to decrease, and the training arrangements made by some grass-roots coaches are unscientific. Bergkamp selects the specific attributes of the talent index system to predict the possibility of individual talents becoming excellent teachers (Bergkamp, Niessen, den Hartigh, Frencken, & Meijer, 2019). Jonker analyzed the current situation of talent training management, talent training management modes in different stages of universities, and solved the problems of talent type division, brain drain prevention and performance assessment system construction (Jonker, Elferink-Gemser, & Visscher, 2010). Clay et al. think that the quantity and quality of professional basketball talents greatly influence the wide popularization and rapid development of Chinese basketball, and sports universities are the most important bases for training basketball professionals (Clay & Clay, 2014). Pion pointed out that the training mode of basketball reserve talents in the planned economy period can no longer meet the requirements of today's sports development and social development, and it is necessary to find a development path of basketball reserve talents with Chinese characteristics (Pion et al., 2015). Woods research pointed out that the training of basketball players should take various ways, not only emphasizing the combination of domestic sports education resources and non-sports education resources, but also strengthening foreign exchanges (Woods, McKeown, Haff, & Robertson, 2016). Conte believes that the training of reserve talents is a systematic project and cannot be achieved overnight (Conte, Tessitore, Smiley, Thomas, & Favero, 2016). Dicesare et al, based on the analysis of the ability structure of basketball professionals, put forward some suggestions for optimizing the training of basketball talents in view of many problems in the training (DiCesare et al., 2019). Pliauga research shows that a good ecological environment of basketball class provides basic conditions for teachers and students to carry out basketball teaching activities and promotes the improvement of students' basketball skills (Pliauga et al., 2018). At present, although there are many schools that train basketball talents in China, there is a general problem that the advantages of sports and education are not complementary, so that the requirements of today's society for the quality of talents cannot be guaranteed. This paper expounds the importance of training basketball professionals in universities, studies the basic composition of the ecological environment for training basketball professionals in universities, and uses DM technology to extract implicit and useful knowledge from sports talent data to explore the development and management rules of training basketball

professionals in universities.

3 Methodology

3.1 The Present Situation of Training Sports Basketball Professionals

The requirements of education and teaching in China are constantly changing with the development of society, which requires us to optimize and improve the teaching. As the main part of physical education, basketball teaching needs innovation and reform. The ecological environment for cultivating basketball talents in universities includes not only group environment, natural environment, but also normative environment. In China, although basketball has a superior mass base, from the current situation, there are many problems in the development of Chinese basketball. Many factors seriously restrict the development of Chinese basketball, such as the insufficient number and quality of basketball professionals, and the serious shortage of reserve personnel in competitive basketball (Gómez-Carmona, Mancha-Triguero, Pino-Ortega, & Ibáñez, 2021). The research and analysis on the training of basketball professionals in universities should focus on training the comprehensive quality of basketball professionals. Through scientific and systematic teaching, students can grasp and improve the comprehensive quality of basketball professionals at a faster speed, and lay a solid and good foundation for serving the society in the future. Athletes' competitive ability includes physical fitness, function, tactical ability, sports skills, sports intelligence and psychological ability, all of which need a long time of training to be obviously improved. Therefore, the formulation of training plan is particularly important. If the training plan is not scientifically formulated, the training will become blind and random, and it is difficult to achieve good results. Table 1 shows the statistics of the contents of the basketball training plan made by the surveyed coaches.

Table 1: Contents of sports training plan formulated by coaches

TRAINING PLAN	MALE COACH		FEMALE COACH		TOTAL	
	N	%	N	%	N	%
ATHLETES' INITIAL STATE DIAGNOSIS	17	85	8	80	25	83.3
TRAINING TASKS AND TRAINING INDICATORS	20	100	10	100	30	100
BASIC COUNTERMEASURES TO ACHIEVE THE GOAL	15	75	5	50	20	66.7
COMPETITION ARRANGEMENT	13	65	3	30	16	53.3
TRAINING METHOD	11	55	7	70	18	60
TRAINING LOAD	13	65	7	70	20	66.7

Education ecology refers to the combination of education and ecological environment, both of which link the relationship between each other with the mechanism and function, and as a research object, it is a new discipline that is convenient for research and development (Gottlieb, Shalom, & Calleja-Gonzalez, 2021). Generally speaking, the teaching building has the mission of education, and it can be used as a plastic art. From the point of view of the degree of campus construction, it can integrate the school system and ideas into it, prompting the students of ordinary universities to affirm the physical education facilities and equipment while studying outdoors, and inspiring the students' enthusiasm for learning.

By strengthening the optimization of natural environment, such as basketball facilities and venues, strengthening the investment of advanced scientific and technological equipment, and combining with today's society, the online first-down teaching mode is constantly improving basketball teaching equipment, so that it can follow the pace of the times, adapt to the development of society, and promote the combination of basketball activities and educational ecological research. Most coaches' training plans are complete, which shows that they have sufficient knowledge of the basic laws of the training process and tend to be perfect in the overall design of the training process.

On the specific content, the coach's training plan pays more attention to the arrangement of training competition, the division of training stages, the tasks and training methods of each stage, but not enough attention to the diagnosis of athletes' initial state, the changing trend of training load and load requirements. Students' assessment of coaches is shown in Table 2.

Table 2: Students' assessment of coaches

ASSESSMENT CONTENT	GOOD		ORDINARY	
	N	%	N	%
PROFESSIONAL SKILL	254	84.7	46	15.3
TEACHING ETHICS	217	72.3	83	27.7
PROFESSIONAL ETHICS	205	68.3	95	31.7
PROFESSIONALITY	248	82.7	52	17.3

The teachers' morality of the survey team is in good condition, and they have good professionalism. However, it is not difficult to find that the current coaches' professional sports experience is generally insufficient, they lack the opportunity to receive professional training from coaches, and their teaching tasks are generally too heavy, which makes it difficult for coaches to give full play to their academic knowledge advantages.

Excessive teaching burden makes it difficult for coaches to devote all their energy and time to training, which hinders the further development of

traditional school basketball teams. Generally, the basketball teaching activities in universities are mainly outdoor, and the geographical location and climatic conditions directly restrict the development of basketball teaching activities. Some schools have indoor basketball courts, and the venue conditions are relatively good. However, generally, the opening hours for college students are limited, and the management and maintenance need to invest a lot of energy. Teaching activities are the main activities to cultivate people.

In teaching activities, there are not only the relationships between teachers, students and students, but also the relationships between teachers, students and the teaching environment. School leaders should actively support school sports activities, especially basketball teaching activities. School sports departments should actively improve teaching level, strengthen scientific research ability, actively organize and optimize basketball teaching forms by using the holistic view and harmonious view of ecology, and show the fun of basketball teaching well.

3.2 The necessity of Cultivating Basketball Professionals in Universities

3.2.1 Meet the Needs of Chinese Basketball

With the change and development of basketball in society and the world, the construction of college basketball knowledge system should constantly adapt to the development and needs of society. Basketball is beneficial to students' physical education, and college students can realize their all-round development on this teaching stage, so that their ideological and cultural level can be further improved.

Playing basketball can also cultivate students' sentiment and promote the all-round development of college students. At present, many educational systems of theoretical knowledge of basketball in Chinese universities are based on pedagogy and biology theory, combined with professional knowledge of basketball. Emphasis is placed on tapping biological skills and potentials, but the education of talents' intelligence is neglected. The adoption of this education system in the training of basketball professionals in universities not only affects the quality of training basketball professionals, but also causes the lack of knowledge of high-level basketball professionals. In the training of basketball professionals, we should greatly enhance and broaden their mental elements, and make up for their tactical and physical deficiencies through strategic knowledge.

3.2.2 Adapt to the Development Trend of Modern Basketball

Basketball can not only promote the unity and cooperation among college students, strengthen the cohesion among them, actively hold relevant

basketball training and competitions, and let them communicate and cooperate as much as possible, so as to facilitate class management more effectively, improve class cohesion and stimulate students' collective sense of honor and pride. Faced with the change of the development trend of basketball, basketball professionals are required to be calm and calm on the fierce and complicated court, and they should make full use of their outstanding body, skills and intelligent mind, and change their actions in time with the change of the situation on the court.

In most people's minds, social function is the most basic function of education, and social function is to realize the mutual transmission of cultures. In the process of cultural transmission, human beings can achieve socialized development and share common social views, values and material concepts. To win every basketball game, strategy and courage must be combined, and wisdom and skills should be placed in the same important position. Therefore, in order to adapt to the development of modern basketball, Chinese universities need to pay attention to the training of basketball professionals, and really cultivate a group of basketball professionals that the society needs.

3.3 Information Mining and Assessment of Sports Basketball Professionals

As far as basketball teaching is concerned, on the surface, although it is mainly based on practice teaching, it is difficult for teachers to control and adjust the teaching process because of its openness, dynamics and directness. At work, teachers should have the abilities of basketball practice and theoretical application, organizing teaching, expressing words, understanding students, creating independently, applying the environment and adapting to new situations. Database is one of the most effective methods to organize and store data at present, but in the face of the ever-expanding data, database query technology has shown its limitations.

Faced with the huge amount of data in computers, people are in the same awkward position, lacking the means to obtain effective information. If we want to make a scientific and reasonable talent introduction plan, we must first consider the characteristics of the school's disciplines, and according to the school's development goals, the construction of school teachers and other factors, the talent introduction strategy we have worked out must be operable.

The whole process of DM is not a simple mining process. If a system only completes some data or information retrieval tasks or deductive query tasks, then this system can only be called information retrieval system or deductive database system. The overall structure of basketball talent cognition system is shown in Figure 1.

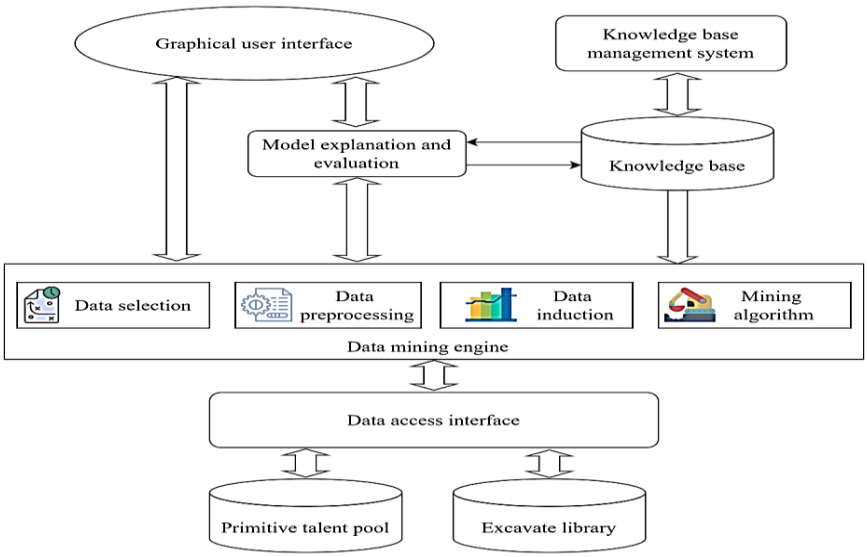

Figure 1: The structure of the basketball talent cognitive system

It is a process that the weighted basketball professional assessment index system is vertically equivalent and can be added, which is expressed as:

$$M\sum_{1}^{N}T_i\alpha_i \quad (i\in(1\sim N),\ 0<\alpha_i<1) \tag{1}$$

Where T_i is the quantized index value, and α_i is the weighting coefficient. Take the average value of its expert assessment as the weight coefficient:

$$\bar{\alpha}=\frac{\sum\alpha_i f}{\sum f_i} \tag{2}$$

In the formula, $\bar{\alpha}$ is the index weight coefficient, α_i is the weight coefficient weighted by the i-th expert, and f_i is the number of people who choose the weight for the i-th index. In order to ensure the quality of the weighting, the a test is finally performed, and the test formula is:

$$k=\frac{s}{\bar{\alpha}} \tag{3}$$

Where k is the equilibrium value, s is the standard deviation of the weighting coefficients of different experts for the same index, and $\bar{\alpha}$ is the weighting coefficient to be tested. The examination results can intuitively show students' mastery of knowledge points and knowledge systems. DM of the results can improve the pertinence of teachers' teaching process and adjust the teaching content more accurately. Using DM and data analysis, we can conduct

more efficient and accurate examination and result analysis. For the introduction of highly educated talents, we must keep the continuous growth of talents in first-class universities. The DM process of basketball professional information is shown in Figure 2.

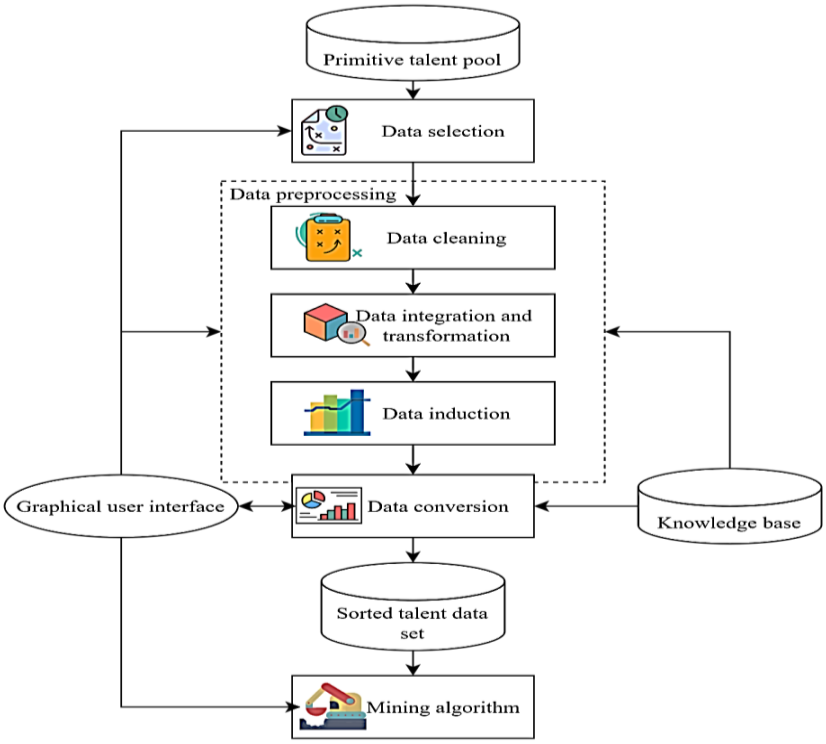

Figure 2: Talent information DM process

Determine the assessment factor set:

$$U = (u_1, u_2, \ldots, u_n) \quad (4)$$

Determine the rating set for assessment:

$$V = (v_1, v_2, \ldots, v_n) \quad (5)$$

According to the simulation information in the rating set assessment table, establish the fuzzy matrix:

$$R = \begin{Bmatrix} r_{11}, r_{12}, \ldots, r_{1m} \\ r_{21}, r_{22}, \ldots, r_{2m} \\ \ldots \\ r_{n1}, r_{n2}, \ldots, r_{nm} \end{Bmatrix} \quad (6)$$

Determine the indicator weight set:

$$A=(a_1,a_2,\ldots,a_n) \quad (7)$$

Carry out fuzzy comprehensive judgment, and get the judgment result:

$$S=A\cdot R=(a_1,a_2,\ldots,a_n)\ldots\begin{Bmatrix} r_{11} & r_{12}\ldots r_{1m} \\ r_{11} & r_{12}\ldots r_{1m} \\ \ldots & \\ r_{n1} & r_{n2}\ldots r_{nm} \end{Bmatrix} \quad (8)$$

Through the comparison of pairwise importance, the judgment matrix is established, and then the weights of the eigenvalues of the judgment matrix are solved. In the process of innovating new teaching methods, we should pay attention to the effect and practicality, and we should measure the appropriateness of teaching methods from the following aspects: the completion of classroom teaching tasks, the learning effect of students and the satisfaction of teachers. Basketball curriculum assessment is to evaluate whether the goal of basketball curriculum has been achieved, that is, whether students have achieved the preset goal of basketball curriculum through learning in the established basketball curriculum design.

From this point of view, a reasonable curriculum assessment can understand the situation and performance of students' learning basketball, and grasp the degree of students' achievement of curriculum goals. In actual data, the collected data is often not the number in the $[0,1]$ closed interval, so these raw data should be standardized, and the average value should be calculated first. For example, there are n samples in the sample set, and n data u_{1k} , u_{2k} , … , u_{nk} can be obtained for a certain index k of the samples. u_{nk} represents the data obtained by the n-th sample for the k-th index. Calculate their average:

$$u_{\bar{k}}^{'}=\left(u_{1k}^{'}+u_{2k}^{'}+,\ldots,+u_{nk}^{'}\right)/n=\frac{1}{n}\sum_{i=1}^{n}u'ik \quad (k=1,2,\ldots,m) \quad (9)$$

Find the standard deviation of these raw data:

$$S_k=\sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(u_{ik}^{'}-u_{\bar{k}}^{'}\right)^2} \quad (10)$$

Then calculate the standard value of each data as follows:

$$u_{ik}^{''} = \left| \frac{u_{ik}^{'} - u_{k}^{'}}{S_k} \right| \quad (11)$$

To use the extreme value normalization formula:

$$u_{ik} = \frac{u_{ik}^{''} - u_{\min k}^{''}}{u_{\max k}^{''} - u_{\min k}^{''}} \quad (12)$$

Under different education and teaching modes, the achievement levels of different classes studying the same course will be quite different. By using DM methods such as correlation analysis and time series analysis, this paper compares the effects of different teaching modes on students' achievement, and mines effective information from the teaching database. The DM technology can be used to process the data of each teaching index value in the database, so as to determine whether the students adapt to the teaching difficulty and scope, whether the teaching schedule is reasonable, whether the teaching ideas and language expressions are clear and understandable, and whether the teaching methods match with the teaching contents and the teaching objects.

4. Result Analysis and Discussion

Students' learning characteristics mainly include their initial learning ability and general learning characteristics. The initial ability of learning refers to the knowledge reserve and skill foundation related to a specific knowledge point in basketball. Data application and decision-making is to clearly transmit the mined effective information to data users. This requires the selection of appropriate visualization tools to deliver the results to users in the form of specific patterns or rules. DM will not automatically discover knowledge without guidance.

DM will never replace the role played by experienced analysts or managers. DM needs to have a clear theme goal, which determines the various operations of DM. The theme and goal of DM can be revised in the process of DM, but its basic principles and contents should remain stable. DM and data analysis methods embody the student-centered educational concept, and teachers and teaching management departments should make dynamic targeted adjustments according to the mined feedback information, so as to realize the precise connection between talent cultivation in universities and the needs of economic and social development.

When the structure and algorithm of DM for sports professionals are determined, the output accuracy of the network depends on the quantity and quality of the input training samples. The more the number of training samples

and the better the quality, the closer the output talent assessment value is to the actual assessment value. The DM and assessment model of sports professionals are analyzed experimentally, and the test results are shown in Figure 3.

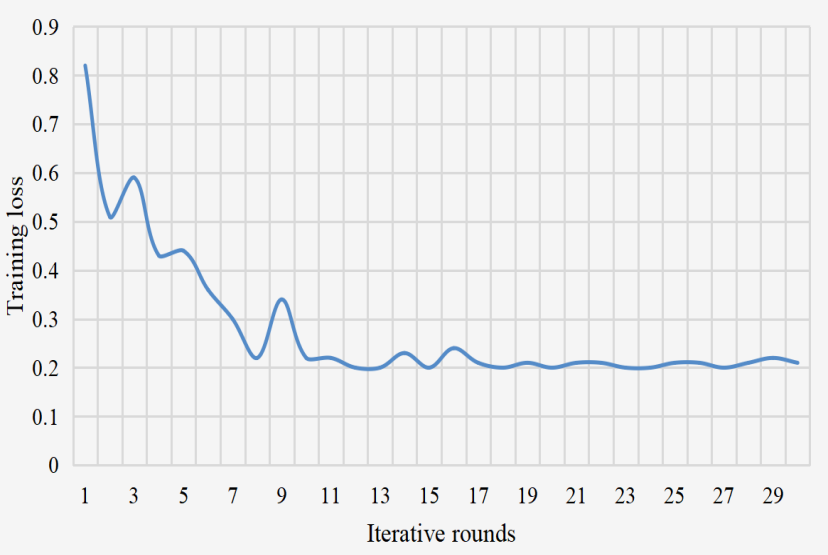

Figure 3: Training loss

It can be seen from Figure 3 that the model basically converges when the training iteration reaches the 11th round, and the loss function value is only 0.23, so the training loss is small. This shows that the proposed model can achieve rapid convergence, and the training effect is ideal. DM is a process of discovering and extracting hidden information or knowledge from large databases or data warehouses. Its purpose is to help analysts find potential relationships among data and find neglected elements, which are very useful for forecasting trends and making decisions. Therefore, the selection of training samples needs to be further improved, so as to improve the assessment effect of network model. Different algorithms are used to predict the assessment results in the sample data of physical education teaching test, and then compared with the actual results. The comparison results are shown in Figure 4.

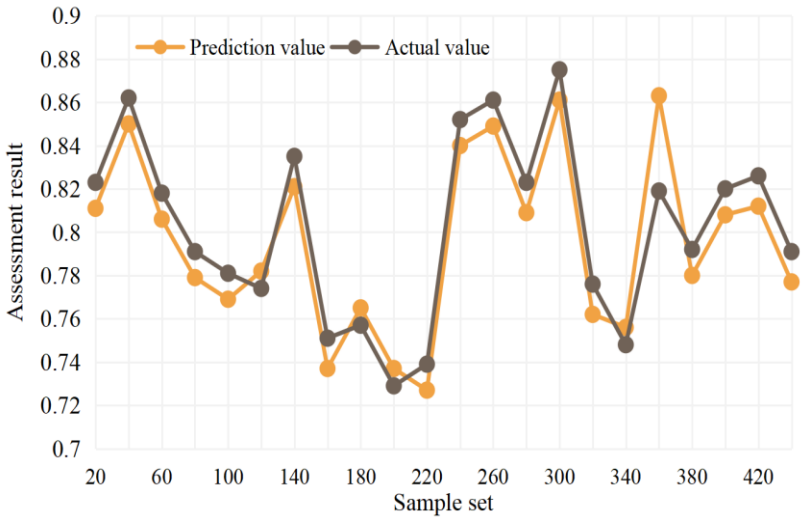

Figure 4: Comparison of predicted results and actual results

Due to the complexity and multi-indicators of the assessment system, it is often used to assess some of the main objectives when judging whether the curriculum implementation has achieved the curriculum objectives. The examination of basketball course is an important link in the information feedback and adjustment of basketball teaching process, and it is also an important basis for checking teachers' teaching effect, improving teaching methods and methods, and improving teaching quality. Through the examination, we can reasonably and accurately evaluate the actual level of students' ability to master theory, technology, tactics and skills. In data analysis, the samples involved often contain many variables, and more variables will bring the complexity of the analysis problem. However, these variables have a certain dependence on each other, that is, there is often a certain degree of correlation between them, sometimes even quite high correlation, which makes the information in the observed data overlap to some extent. The assessment algorithm in this paper is compared with the algorithm in literature [12], and the results are shown in Figure 5.

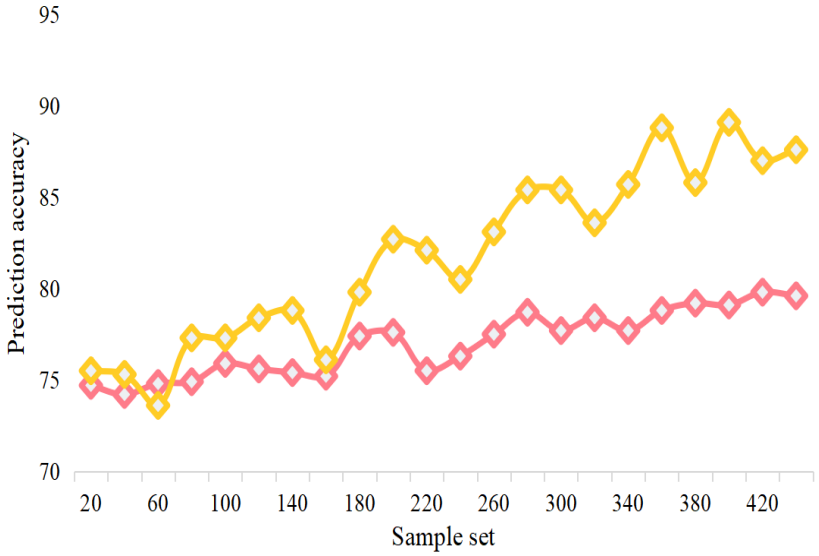

Figure 5: Comparison of assessment accuracy

The results show that this method has higher accuracy than the talent assessment model. DM is a process of discovering and extracting hidden information or knowledge from large databases or data warehouses. Its purpose is to help analysts find potential relationships among data and find neglected elements, which are very useful for predicting talent trends and decision-making behaviors. The scatter diagram of predicted value and actual value using the talent assessment model of literature [12] is shown in Figure 6. The scatter diagram of predicted value and actual value using this talent DM and assessment model is shown in Figure 7.

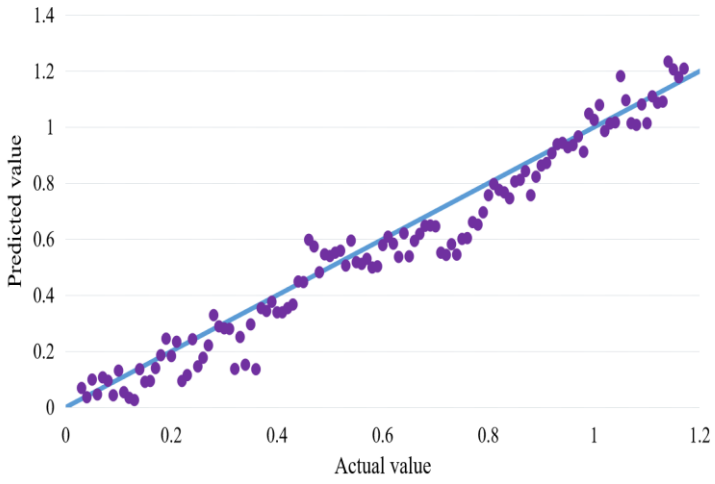

Figure 6: Scatter plot of actual value and predicted value of the method in literature [12]

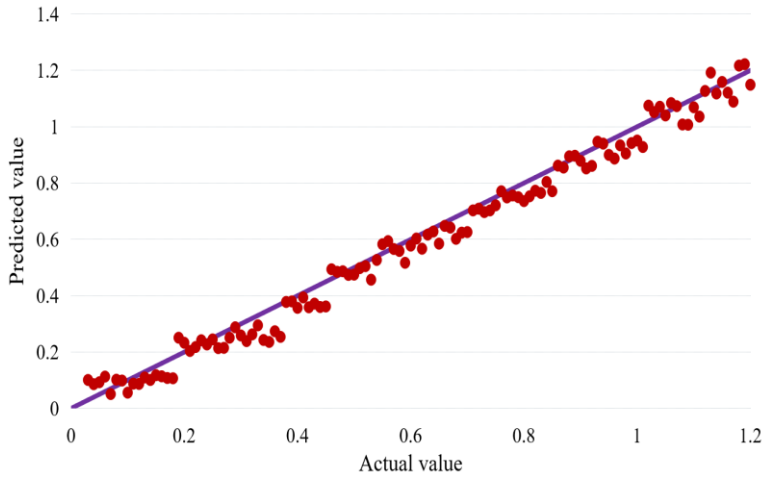

Figure 7: Scatter plot of actual and predicted values of the algorithm in this paper

It can be analyzed that the sports talent DM and assessment model based on this algorithm is better than the comparison method in terms of accuracy and efficiency. Compared with traditional methods, the accuracy of sports talent information mining algorithm in this paper has increased by 23.85%. DM technology can extract the talent information from the database about the working conditions of personnel in the system, and discover the connections and patterns, thus objectively reflecting the composition of talents in the system.

Basketball professionals must coordinate their sensory system, improve their sports behaviors, accumulate sports experience in various situations in daily life, and finally form basketball skills according to the professional movement requirements of basketball and the scenes of basketball matches. As a tool for information extraction, DM can't replace the analysis work of professional analysts in the industry because its output is a reference for decision analysis. Moreover, the mining method to solve a certain problem is not unique, and the application of specific methods depends on the modeling ability and industry experience of data miners.

5. Conclusions

The optimization and construction of the ecological environment of basketball teaching in universities requires scientific analysis of various factors, and on this basis, systematic implementation and inspection are carried out, such as the shortage of days, the natural environment of teaching, material conditions, group environment and standard environment. The essence of basketball course is the educational program with basketball as the medium, which has the characteristics of profound influence, multiple functions, subordinate objectives, practical implementation, complexity of content and professionalism of teaching methods and means. With the rapid growth of information in the era of big data and the change of talent training mode in

universities, it is more and more difficult to find rules from massive data by using traditional methods. Using DM and data analysis to discover the hidden laws in teaching data and provide data support for the transformation of talent training mode has become an effective path of higher education reform. Data preprocessing is the foundation of the whole mining. If there is no good standard data, the quality of mining can't be guaranteed. Compared with traditional methods, the accuracy of sports talent information mining algorithm in this paper has increased by 23.85%.

DM technology can extract the talent information from the database about the working conditions of personnel in the system, and discover the connections and patterns, thus objectively reflecting the composition of talents in the system. It is the main direction and task of universities in the future to study the construction and optimization of ecological environment for the cultivation of sports professionals and innovate the strategies for the construction and optimization of ecological environment.

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