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# ORIGINAL

# CONSTRUCTION OF MULTI-OBJECT EVALUATION INDEX SYSTEM FOR SPORT EDUCATION FROM THE PERSPECTIVE OF PHYSICAL HEALTH

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## ABSTRACT

This paper constructs a scientific and reasonable MOEIS (Multi-object evaluation index system) for sport education and teaching, and analyzes the construction level of practice base in combination with empirical research. In this study, Ridit analysis method is used to screen the evaluation indexes, which objectively ensures the scientificity and rationality of the existing problems and promotion strategies of the index system for the practice base construction. Communication between sites is realized through serialization, global FP-tree is constructed, and global FP-tree is mined to form rules. The results show that the accuracy of the algorithm is increasing, and it tends to be stable after the number of iterations increases to 450, and the final average accuracy reaches 96.52%. The designed algorithm is used to integrate and analyze the data, so as to achieve the evaluation goal of teaching quality. A well-defined evaluation index can help educators identify areas where students excel or need improvement. This targeted approach can lead to more effective teaching strategies, ultimately enhancing students' overall learning outcomes and engagement in physical activities.

**KEYWORDS:** Big Data; Sport Education; Teaching Quality; Evaluating Indicator

## 1. INTRODUCTION

BD (big data) and other information technologies, and also brought unprecedented development opportunities to the information technology of education. Online education based on BD is changing the traditional education methods, and its advantages of "teaching students in accordance with their

aptitude" have attracted great attention in the educational circles. The expansion of university enrollment has led to a rapid increase in the number of students, and the multifaceted social demand has also forced the university to add more courses. In order to improve the quality of sports, all schools are seeking better management mechanism and teaching system (S. Liu, 2021). With the rapid development of economy and society and the demand for high-end talents, the number of sport students, as the representative of the highest degree in the country, has gradually increased. How to continue to guarantee and improve the quality of sport students' training has attracted the high attention of the whole society. With the arrival of the third industrial revolution represented by "informatization", the social demand for high-quality workers and innovative talents has put forward new requirements for talent training. The purpose of improving teaching quality and talent training quality is achieved through the supervision of students' learning process. Therefore, the transformation of university education evaluation system is the core content to solve the problems of teaching management and teaching evaluation, while the process management and process evaluation based on BD are the core methods to solve the problems of talent training (Qianna, 2021). As an important carrier of cultivating the practical and professional abilities of sport students with professional degrees, the practice base plays an important role in cultivating and training the professional ability of sport students to find problems and solve practical problems. However, as the practice base is an important carrier of the combination of industry, learning and research jointly established by universities and enterprises and institutions, the construction of the practice base involves participants from society, schools, enterprises and students (Zhang, Wang, & Zhou, 2019). However, there are still some problems to be solved. For example, the results of teaching evaluation are generally fed back to substitute teachers in the form of 100-percentage system or assessment grade, and teachers are not given any suggestions for improvement. The Academic Affairs Office cannot find some hidden rules from a large number of teaching evaluation data. Then, how to optimize the evaluation method of sport course teaching, make the evaluation system more reasonable and scientific, really promote the improvement of sport education quality, and guide universities to pay more attention to sport teaching quality and course construction. In recent years, the research results of RS (rough set) theory are fruitful, and it has been successfully applied to DM(data mining), decision support and analysis, medical and health services and many other fields. Based on BD theory, this paper constructs a set of scientific and reasonable MOEIS (Multi-object evaluation index system) for sport education and teaching, and analyzes the level of practice base construction with empirical research.

### 1.1 Research innovation

(1) On the basis of following the idea, principle, method and process of

index system construction, this paper comprehensively uses the methods of questionnaire survey, literature analysis, expert consultation and comprehensive evaluation analysis to carry out research and empirical research on MOEIS of sport education and teaching, so that the research results are more scientific, objective and convincing, and provide reference for the evaluation of sport education practice bases with professional degrees in the future.

(2) In this paper, the association rules mining method based on metadata integration is proposed. By mining association rules, it can predict and generate the knowledge that has guiding function in the process of university teaching and student management, and provide decision-making assistance for university administrators through the results of rule generation. The structure of the paper is divided into five chapters. The main contents of each chapter are as follows: The first chapter introduces the background work of the research. The second chapter mainly introduces the present situation of this research. The third chapter puts forward the algorithm model of association rules mining. The fourth chapter verifies the performance of the model studied in this paper. The fifth chapter is the conclusion.

## 2. Related Work

### 2.1 Research on teaching quality evaluation

Wei hopes to train students into new talents with active innovation ability by designing relevant evaluation indicators (Zhang, Wang, & Zhou, 2019). At the same time, some university scholars pay more attention to the teacher-student relationship and regard it as the first level indicator in the indicator system. Jahantigh and others believe that the training of sports in the new situation includes two aspects: course study and the quality of the thesis, and course study runs through the middle part of the training of sport students (Jahantigh & Ostovare, 2020). Jiang et al. established an evaluation index system from four aspects: teaching attitude, teaching content, teaching method and teaching effect by using the expert consultation method (Jiang & Wang, 2020). Liu suggested that the education industry needs to do a top-level design from the perspective of the three-dimensional world when building the learning process evaluation BD, which requires building an independent teaching evaluation BD subset in the construction of smart campus (L. Liu, 2021). Hogo discussed the learning evaluation based on virtual reality system, and constructed the evaluation index system from three dimensions of emotion, process and knowledge (Hogo, 2010). Wonah discussed the learning evaluation under the flipped classroom model of universities under the background of BD, and constructed the index system of student evaluation from four dimensions: before class, during class, after class, and learning results, mainly involving learning resources, learning interaction, knowledge feedback,

Four aspects of academic performance (Ngaji & Wonah, 2019). Xiong et al. used the questionnaire survey method to construct the management model of the practice base from the four stages of planning, implementation, performance evaluation and continuous improvement (Xiong et al., 2017).

### 2.2 BD technology related research

Using BD technology, on the premise of ensuring national information security, some information reported by the school will be publicized online within the scope of participating units, and objections from all parties will be accepted, and the objections will be confirmed according to the evaluation criteria. Shadroo et al. proposed that the BD era of "data-driven schools and analysis to transform education" has come. It is necessary to comprehensively use DM and learning analysis to provide effective support for education and teaching (Shadroo & Rahmani, 2018). Asim et al. used learning analysis technology to build a learner model that describes individual learning characteristics, obtain learning preferences, learning effects and other information, provide a targeted personalized learning environment, and achieve adaptive and personalized learning (Asim et al., 2020). Ding et al. Pointed out that the test of the student academic quality analysis system is strictly based on the requirements of the curriculum standards. It is necessary to ensure the continuity and comparability of the collected data, and the users are mainly educational administrators and scientific researchers (Ding et al., 2018). Cole uses RS in the construction process of decision tree, that is, when selecting a new attribute, the information gain brought by the attribute and the two-layer nodes of the tree should be considered (Cole, 2020). Yoseph et al. used DM to study the selection of sports talents (Yoseph et al., 2020). Mu et al. improved the ID3DM algorithm and applied the algorithm to the system they developed, which better realized the function of auxiliary decision-making (Shengdong, Zhengxian, & Yixiang, 2019). Shi et al. Studied and analyzed teaching evaluation based on DM technology, and established five principles of university teaching evaluation index (Shi & Liu, 2021). Xie et al. Studied the objectivity of teaching evaluation and used association rules to improve the scientificity of teaching evaluation (Xie et al., 2021).

## 3. Methodology

### 3.1 MOEIS construction of sport education and teaching in universities

At present, among the methods used to evaluate the teaching quality of sport courses, there are mainly expert evaluation and student evaluation. The evaluation form of sport classroom teaching quality includes attitude, content, ability, method, display and effect. In this kind of evaluation, there is a lack of teachers' evaluation of learning and social evaluation indicators, especially the objective evaluation of students' learning attitude. When a certain index

evaluation system is used alone, the evaluation standard is single and the evaluation quality is not accurate enough. When referring to many index systems, although the evaluation indexes are rich in content, there is serious redundancy, which reduces the calculation efficiency and even fails to get the corresponding accurate results. BD analysis of teaching is to collect a large number of relevant data in the teaching process of various modes, use DM technology to analyze the data, find out the relationship between the data, and form a self-learning and self-diagnosis algorithm mode, so as to realize the precision and intelligence of teaching evaluation. The fundamental purpose of education is to have a clear understanding of the object of evaluation, and so is the evaluation of multi-object evaluation of sport education and teaching. In addition, MOEIS of sport education and teaching in universities should also have a guiding function, providing a diagnostic and improvement tool for multi-object evaluation activities of sport education and teaching in universities. To construct a comprehensive evaluation index system is to construct a system, including the configuration of system elements and the arrangement of system structure. Here, every single index is a system element, and the relationship between each index is a system structure. The real value of a comprehensive evaluation scheme can only be reflected when it is put into practice, which requires that every index in the index system must be operable. Due to the rich connotation of multi-object evaluation of sport education and teaching, some factors can't be quantified and can only be studied in a qualitative way. Therefore, it is necessary to pay attention to both quantitative factors and non-quantitative factors in multi-object evaluation of sport education and teaching and pay attention to the combination of qualitative and quantitative factors in the selection of evaluation indicators, but the final result should be expressed in a quantitative way. Education informatization is the key to realize education modernization, and education modernization cannot be realized without education informatization, and education BD is an important way to implement education informatization. Education BD will lead education to accuracy, individuality and demonstration. Compared with traditional educational data, the collection of educational BD is more real-time, coherent, comprehensive and natural, and detailed data records can achieve more subtle and accurate insights. Teachers' grasp of learning situation mainly depends on experience or a small amount of data, which is difficult to be comprehensive and accurate. Education BD is the aggregation of data from the whole process of education, all objects and all directions. It can accurately reflect the learning situation, improve the effectiveness and pertinence of pre-learning and lay a solid foundation for further realizing accurate classroom teaching. From the perspective of evaluation purpose, the purpose of process evaluation is to correct students' problems in course learning, while process-oriented evaluation is more inclined to course assessment. Similar to the feedback content of constructivist learning theory. At the same time, the connectionist learning theory assumes that learners have learning initiative. Therefore, in the

evaluation dimension, we should also pay attention to students' initiative in forming learning networks, which is similar to constructivist learning participation initiative. This section adopts the expert consultation method to design the evaluation index applicability questionnaire, and uses the Rid it analysis method to screen the evaluation indicators, which objectively guarantees the scientific Ty and rationality of the index system for the problems existing in the construction of the practice base and the improvement strategy. In the end, this study obtained the MOEIS of sport education and teaching composed of indicators, as shown in Figure 1.

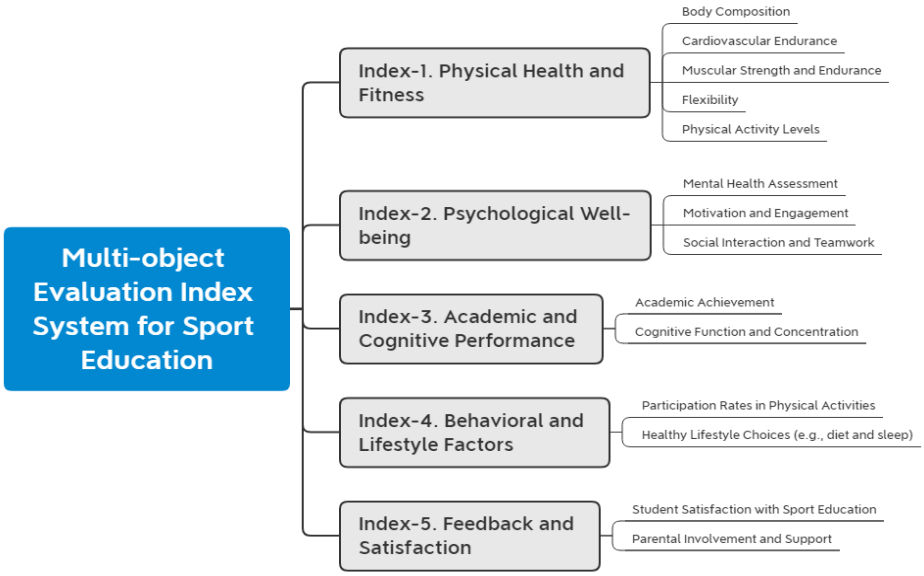


**Figure 1**: Sport education MOEIS

It can be seen that there are comprehensive and systematic evaluation indexes in every stage of sport enrollment, from course study, practical operation, thesis reading and writing to degree awarding, so as to make an objective, fair and meaningful evaluation of the whole process of sport education. The results show that only by integrating the results of students' evaluation of teaching, experts' evaluation of teaching, teachers' evaluation of learning, students' self-evaluation and school evaluation can a course be evaluated fairly and objectively, and the teaching quality of sport students can be improved.

### 3.2 Determination of evaluation index weight

DM technology is to solve the problem of extracting hidden useful information from a large amount of data stored in the database. It can make full use of existing historical data and reveal the hidden relationship behind the data. The data that can be used for DM includes many forms, which can be relationships. The data records stored in the database can also be unstructured data information stored in text, Web data information from the network, or even complex multimedia data information (Zhu et al., 2018). Teaching evaluation is

an important part of the school's educational affairs work. The results of teaching evaluation can be used as an important basis for teachers' promotion and various awards, and can also obtain the development trend of the professional level of teachers in various subjects through data statistics and analysis (Fang, 2021). There are many methods for determining the weight of indicators, and the more commonly used methods include principal PCA (principal component analysis), expert scoring method, AHP (analytic hierarchy process), weight factor analysis method, and fuzzy evaluation method. The problem of weight assignment in this paper is complicated. Therefore, this paper chooses this assignment method. This method combines the subjective knowledge of experts with mathematical calculation, to some extent, eliminates the subjectivity of expert scoring method, and makes the weight conform to the objective situation. The specific process is as follows: (1) Constructing a judgment matrix; By comparing the indexes of the same level pairwise, and according to the importance, according to Saaty scale, the evaluation matrix is formed according to the evaluation results. (2) Calculate the maximum eigenvalue and eigenvector; After constructing the judgment matrix according to the results of the expert questionnaire, the square root method is used to calculate $\lambda\, max$ and eigenvector. The calculation process is as follows: Calculate the $n$ -th root of each row of the matrix, and get the initial weight vector.

$$W_i = \frac{w_i^{'}}{\sum_{i=1}^{n} w_i^{'}} \tag{1}$$

$W = (W_1, W_2, \cdots, W_n)_r$ is the weight sort vector, and the maximum eigenvalue is calculated.

$$\lambda\, max = \frac{1}{n}\sum_{n=1}^{n} \frac{(AW)_i}{W_i} \tag{2}$$

where $(AW)_i$ represents the $i$th element of vector $AW$. (3) Perform consistency test on the judgment matrix, and calculate the consistency test coefficient:

$$CR = \frac{CI}{RI} \tag{3}$$

When $CR < 0.1$ is used, the degree of inconsistency is within an acceptable range, and the consistency test is passed; when $CR > 0.1$ is used, it means that there is a huge disagreement among experts, and it is necessary to find problems, conduct opinion statistics again, and revise the judgment matrix. (4) Determine the absolute weight $W_i$ of each evaluation factor, and then multiply the relative weight of the next evaluation factor by the relative weight of the corresponding evaluation factor at the previous level, so as to obtain the absolute weight of each evaluation factor relative to the evaluation

target, and form the final index weight result. The fundamental purpose of MOEIS in sport education is to improve the construction level of practice base for sport education with professional degree, and its effectiveness needs to be tested according to practical application. Through the empirical evaluation of practice base, we can know the overall level of practice base construction for professional degree sport students at present, find out the main problems existing in the process of practice base construction, master the influencing factors that restrict practice base construction, and put forward targeted countermeasures and suggestions for the construction and development of practice base. RS is a very practical subject, and has achieved fruitful results in many fields. At present, RS theory has been successfully applied in many fields Knowledge acquisition is to find useful information from analyzing a large amount of raw data, that is, to transform knowledge from a form of raw data expression into a form that is easy for human and computer to understand and process (Saputra et al., 2022). This paper combines RS and decision tree technology to analyze students' teaching evaluation data. Given an information system $\langle U, C \cup D, V, f \rangle$, $R \subseteq (C \cup D)$, $\forall X \subseteq U$ and the division $\pi(U) = \{X_1, X_2, \cdots, X_n\}$ of the universe U independent of the equivalence relation R, the importance of knowledge R about the set X is defined:

$$sig_R(X) = \frac{|U - bn_R(X)|}{|U|} \tag{4}$$

The importance of knowledge $R$ in dividing $\pi(U)$ is defined as：

$$sig_R\big(\pi(U)\big) = \frac{\sum_{i=1}^{n} |U - bn_R(X)|}{n|U|} \tag{5}$$

Association rule means that two things have some implicit relations under a rule, which needs to be discovered by DM algorithm because it is implicit. The concepts of support and confidence are introduced into the association rule algorithm, and the calculation formula is:

$$P(A|B) = \frac{P(AB)}{P(B)} \tag{6}$$

The relationship between support and confidence can be converted by probability calculation:

$$Conf = (Y|X) = P(Y|X) = \frac{P(XY)}{P(X)} \tag{7}$$

The significance of mining frequent item sets is to find out the implicit association information between items in transactions, which is the association rule information and the basis of association rule DM algorithm. Association rule mining has been widely used in BD environment. When the original association

rule mining algorithm is applied to BD, the overall efficiency of the algorithm is greatly reduced. In order to ensure the data security of each site, considering the large capacity of each site's data, the data can't be integrated for mining, so it is of great significance to study association rules mining in distributed environment. This section puts forward the theoretical framework of association rule mining algorithm based on metadata integration, which is convenient for readers to understand the specific steps of this algorithm more clearly. The framework is shown in Figure 2:

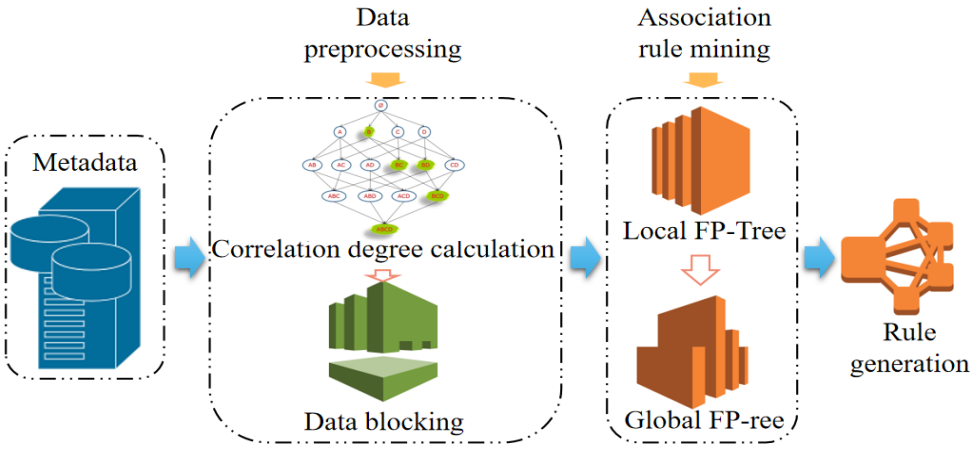


**Figure 2:** Association rule mining algorithm framework based on metadata integration

As the guiding knowledge of DM, global metadata is used to standardize the scope of further data sampling when calculating the attribute correlation degree of data. In this paper, the sampling algorithm is improved by introducing bit matrix. Converting data into bit matrix can reduce the data dimension, reduce the amount of data, and improve the memory processing efficiency. As shown in formula (8):

$$D_j = (d_{j1}, d_{j2}, \cdots, d_{jm}), d_{ji} = \begin{cases} 1, & I_i \in T_j \\ 0, & I_i \notin T_j \end{cases} \tag{8}$$

Among them, $D_j$is the $\iota$ row in the bit matrix, and $D_{ji}$ represents the $\iota$ column of the $j$ row. If the transaction item contains an item, it is converted to 1; if the transaction item does not contain an item, it is converted to 0. In the decision table $(U, C \cup D)$, the quotient $U/D = \{D_1, D_2, \cdots, D_l\}$ determined by the decision attribute set $D$, where $D_i \cap D_j = \emptyset, i \neq j$. The lower approximation $\underline{R}(X)$ for set $X$is:

$$\underline{R}(X) = \{x | x \in U, [x]_R \subseteq X\} \tag{9}$$

Similar to similarity, different types of data have different calculation methods for the dissimilarity between their data objects, but their similarity can be mutually transformed. Min's distance formula can be transformed into not only Euclidean distance, but also Manhattan distance and supremum distance

through transformation. The following is min's distance formula:

$$d(x,y) = \left(\left(\sum_{k=1}^{n}(x_k - y_k)^r\right)^{\frac{1}{r}}\right) \quad (10)$$

In the formula, $r$ is the parameter, when $r = 1$ is the Manhattan distance; when $r = 2$is the Euclidean distance; when $r \to \infty$ is the supremum distance. Therefore, the parameter $r$ is different, and the distance represented by the above formula is also different. Whether the evaluation results of the student evaluation system can truly reflect the teaching level of teachers, the key lies in the establishment of evaluation index items. Because evaluating the teaching quality of teachers is a very complicated task, it is easily affected by various factors. In the process of teaching evaluation, firstly, the administrator generates the teaching evaluation scheme according to the teaching assignment, then the students grade the teachers of this semester according to the scoring standard, and finally record all the scoring results. Teachers can view their own evaluation results, and administrators can obtain the summarized evaluation results.

## 4. Experiment and Results

An important link in the establishment of the index system is the determination of the relevant weights. Although each factor constitutes an index in the system, it plays a different role and has a different impact on the entire system. This paper mainly uses AHP to establish university sport education. Teaching multi-object evaluation index weight system. The scale method of 1-9 and its reciprocal was used to conduct a comprehensive survey on more than 20 experts for the evaluation indicators. The questionnaire is detailed in the appendix, and a judgment matrix was constructed. And then the arithmetic mean of the weight values of the ten experts is further calculated. Finally, the weight value of the evaluation index of the professional degree sport practical education base is obtained as shown in Figure 3 and Figure 4.

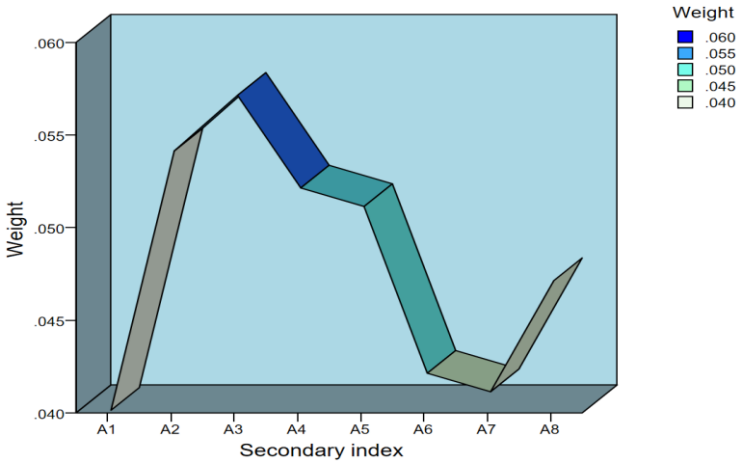


**Figure 3:** Weight value of secondary indicators

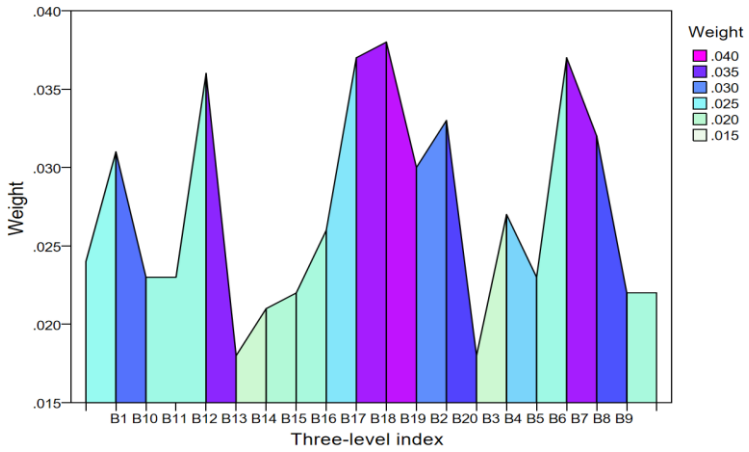


**Figure 4:** Three-level indicator weight value

The main method of RS-based teaching quality evaluation of data science and BD technology majors is to comprehensively analyze the original teaching quality evaluation indicators of relevant majors in the college of information management, and then compare and analyze the relevant performance indicators. After qualitative and quantitative data After the processing, a discretized data table is formed. As shown in Table 1.

**Table 1:** Comprehensive table of sport education quality evaluation

| EXPERT | INDEX-1 | INDEX-2 | INDEX-3 | INDEX-4 | INDEX-5 | OVERALL EVALUATION |
|---|---|---|---|---|---|---|
| **1** | 9 | 9 | 8 | 6 | 5 | Excellent |
| **2** | 6 | 7 | 7 | 7 | 8 | Excellent |
| **3** | 6 | 8 | 8 | 5 | 5 | Excellent |
| **4** | 8 | 9 | 6 | 9 | 9 | Excellent |
| **5** | 7 | 7 | 8 | 9 | 7 | Excellent |
| **6** | 7 | 7 | 5 | 5 | 8 | Good |
| **7** | 7 | 7 | 5 | 3 | 5 | Qualified |

To measure the sprot education quality of data science and BD technology in higher education, it is necessary to use RS model to process the collected data because of its long data collection cycle, difficult to collect opinions and asymmetric information. By using the attribute reduction method in RS, the redundant indexes are deleted to simplify the index system. Intuitively, this method can reduce the number of relevant columns in the decision table, so that specific indicators of sprot education quality evaluation can be efficiently discovered. The field inspection of the practice base mainly focuses on the construction of the two bases and the arrangement of internship students, and communicates and discusses with the person in charge of the base on the organization and management of the practice base, the management of internship students. For the index weight of liberal arts courses, it needs to be investigated separately for the teachers of liberal arts. Therefore, the following

index weight calculation is mainly for the weight assessment of science and engineering courses or practical courses. Each indicator is converted into an equivalent 100 points; Secondly, experts compare the ideal state of the index with the actual situation and give specific scores; Finally, according to the scores and index weights of the indicators of the 10 practice bases, the comprehensive scores and rankings of the 10 practice bases are obtained after the scores of the experts are unified. The specific results are shown in Fig. 5 and table 2.

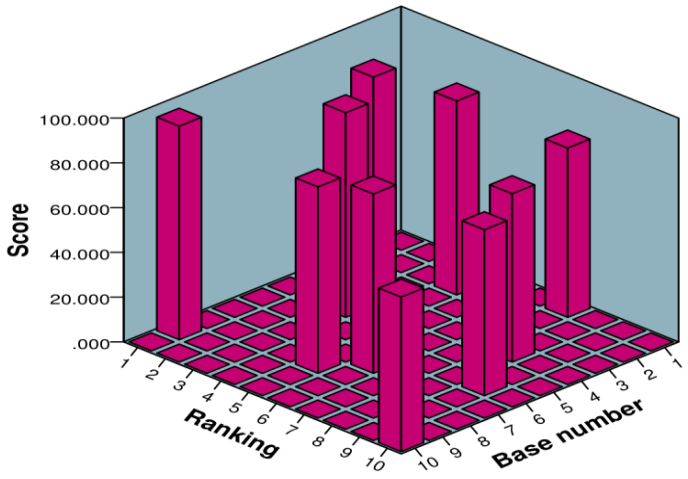


**Figure 5:** Comprehensive score and ranking of professional degree sport education practice bases

It can be seen that the scores of practice bases are hierarchical, and the index system can intuitively reflect different base construction levels. Two of the 10 practice bases scored above 90, and there were two practice bases between 80 and 90. This shows that practice bases of different majors have different construction levels.

**Table 2:** Score of each indicator

| PRACTICE BASE NO | ORGANIZATION MANAGEMENT | BASIC CONDITIONS | PERSONNEL TRAINING |
|---|---|---|---|
| **1** | 89.642 | 91.905 | 79.938 |
| **2** | 68.79 | 70.079 | 81.797 |
| **3** | 83.84 | 92.011 | 94.351 |
| **4** | 68.675 | 79.5 | 83.067 |
| **5** | 81.836 | 88.71 | 97.35 |
| **6** | 67.547 | 91.616 | 84.992 |
| **7** | 66.721 | 69.697 | 85.237 |
| **8** | 73.855 | 95.292 | 91.101 |
| **9** | 83.741 | 80.482 | 81.807 |

It can be seen from table 2 that practice base 3 and practice base 5 have

the highest scores in talent training, and have also made good achievements in scientific research results, which is very consistent with the results of our field research; However, due to the constraints of teachers and insufficient funds for laboratory construction, there is a serious lag in the introduction of new technologies, new processes, and new materials required for the practice of this specialty, and there are obvious deficiencies in practical teaching. As a result, the comprehensive score of this practice base is lower than that of other practice bases. Through the data analysis of teaching evaluation, this paper sets up 10 index items to describe teaching evaluation, and establishes the DM model analysis table of "teaching evaluation index classification". Figure 6 shows the statistics of sample classification accuracy.

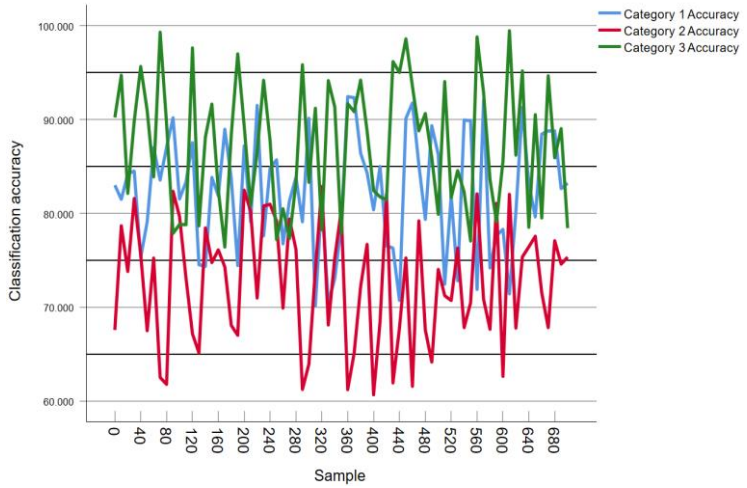


**Figure 6:** Sample classification accuracy

It can be seen that the accuracy rate of the calculation results is increasing and tends to be stable after the number of iterations increases to 450, and the final average accuracy rate is 96.52%. After that, with the increase of iteration times, the accuracy decreases. Since the recommendation of educational resources is based on user ratings, the dataset used in this algorithm comes from Group Lens to simulate educational resources. Selecting different users in the data set to compare the algorithm performance on the movie rating data, as shown in Figure 7:

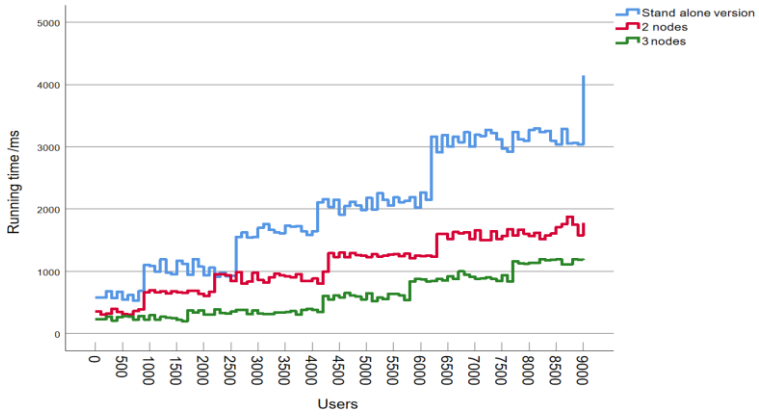


**Figure 7:** Comparison of operating efficiency of different node algorithms

The analysis shows that the running time of the algorithm increases exponentially with the linear increase of the number of users in the stand-alone environment. When the number of users, that is, the scoring data, increases to a certain amount, the performance of the algorithm decreases significantly. Compared with the cluster with 3 nodes and 2 nodes, it is found that the algorithm performance is similar when the data volume is small, but when the number of users increases to 400, the calculation time of 3 nodes is significantly lower than that of 2 nodes. This is because the data copy and data transmission are the main factors affecting the algorithm performance when the data volume is small in the parallel environment. Therefore, the larger the data volume in the parallel environment, the more advantages.

## 5. Conclusions

The construction of a Multi-object Evaluation Index System (MOEIS) for sport education represents a significant advancement in assessing and improving sprot education quality within this field. By utilizing the Ridit analysis method and the global FP-tree algorithm, this research provides a scientifically grounded framework that effectively evaluates the performance of sport education practices. The high accuracy achieved, stabilizing at 96.52% after 450 iterations, underscores the reliability of the proposed model in identifying areas for enhancement, ultimately guiding educators toward more effective teaching strategies. This study is of considerable significance as it addresses the critical need for systematic evaluation in sport education, promoting the integration of physical health into educational outcomes. The findings not only facilitate better educational practices but also emphasize the importance of fostering healthier lifestyles among students. However, the research does have limitations, including a reliance on specific algorithms that may restrict adaptability to various educational contexts, as well as a primary focus on quantitative metrics, which may overlook qualitative factors that influence student engagement and well-being. Looking to the future, there is potential for expanding the MOEIS to incorporate advanced technologies like artificial intelligence and machine learning, which could enhance real-time data analysis and feedback mechanisms. Additionally, as awareness of mental health in physical education continues to grow, future research could integrate psychological health indices into the evaluation system. With sustained support from educational institutions and policymakers, the implementation of this index system has the potential to significantly elevate the quality of sport education, creating an environment that nurtures healthier, more engaged students in the years to come.

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