

Research Article

Multisource Analysis of Big Data Technology: Accessing Data Sources for Teacher Management of Sports Training Institutions

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In the information age, “mobile Internet,” “cloud computing,” “Internet of Things,” and “data mining” concepts are emerging at the same time, as well as other fields of related data-based applications. The mobile application will be born as a result. Therefore, in the information age, big data, which involves information in a specific key or specialized field, has gradually begun to receive a lot of attention in recent years. In 2011, the US consulting firm McKinsey and Company first proposed the arrival of the “era of big data” and in August 2015 in China’s State Council issued a notice of action outline “to promote the development of big data.” Meanwhile, big data has gradually become an important factor in driving national reform and innovation, promoting scientific and technological progress, improving the way society is managed, and guiding changes in education and research. Big data is driving a very influential shift in thinking in an era where big data is changing the way we live, becoming the way we understand the world, and gradually becoming the source of new inventions and services. At the same time, the rapid development of big data technology for physical education teachers needs big data for management and training and other institutional managers to provide more effective ways and means of education management, but up to now, the status of big data for management is still another serious challenge, sports and training and other institutions of big data and processing process of data nonintelligent, nonclosed-loop processing, data nonlinked processing, etc. Many problems are also still very obvious. According to the new characteristics of sports big data refinement management, the current situation of sports professional training institutions teacher management, combined with sports training institutions to find some more practical sports training institutions teachers big data management methods can effectively improve the efficiency of management, teacher team building, strengthen sports training institutions to improve the quality of teaching teachers, and promote the overall quality of students have a positive impact. In this paper, we combine the characteristics of “big data” and the construction of teachers in sports training institutions, and put forward some suggestions on how to improve the level of teachers in sports training institutions in the era of big data and conclude that the construction of teachers in sports training institutions should seize the key era now and enter the “|big data era.” We conclude that the construction of teachers in sports training institutions should seize the critical era and enter the “big data era,” so as to rely on science and technology to improve the construction system of teachers in sports training institutions.

1. Research Background

Today’s world is an information world in which the scale of information resources is rapidly expanding and changing, big data technology can bring about a wide range of social concerns, and social influence will increase. The international market and the whole domestic market are always maintaining the continuous high growth of big data market scale, which can also explain the future development of big data

industry investment will also continue to grow at a high speed, the benefits will also get a continuous high-speed rapid increase, and the future development of enterprises in big data-related industries will also be very good prospects. The arrival of the “big data era” has completely changed the work habits of modern people, and the company’s new business model and industry division of labor. In short, it will make people start to rethink and redefine everything. Many Internet companies have begun to realize that big data is a real asset

that can really play a more important role in driving their business forward [1]. The large amount of data collected will be classified, stored, analyzed, and displayed through various information terminals in order to become the basis for business decisions, customer behavior, predicting market trends for the company, achieving precision marketing, and improving work efficiency, and innovative business models will be improved and optimized across the board [2].

In recent years, with the rapid development of social productivity, people's living standards and quality of life continue to improve, and the importance of education is also increasing, thus making the market demand for education grow. According to the statistics of the institute, the market scale of the national education and training industry is increasing in 2018 [3]. Generally speaking, the education and training industry is mainly divided into public schools and private education and training institutions outside the system. Therefore, more and more businesses realize the huge potential of the education and training industry, and have begun to deploy in the market. According to statistics, by the end of 2018, there were as many as 81,100 private education and training institutions outside the system in China. The private education and training institutions outside the system mainly include children's training, IT training, civil service training, vocational training, etc. [4]. As an important part of China's education system, private education and training institutions outside the system have attracted particularly high attention and are playing a very important role in improving people's knowledge. The scale of education training market is getting bigger and bigger, and the market competition is getting more and more fierce. It can be seen that the big data wave and education big data applications are an essential force for social development. With the booming development of education and training in China, more and more education and training institutions, the competition is getting more and more brutal, and the innovation and development of big data will be promoted by in-depth research and exploration of education and training [5].

The idea of "human resource is the first resource to promote social and economic development" widely recognized, and the overall condition of teachers will directly affect the quality of the talents cultivated. The traditional teacher management model is no longer able to meet the development needs of today's training institutions. Therefore, there is an urgent need to apply the concept of multisource analysis of big data to teacher management and establish a modern teacher management model. The times have placed new demands on educators and managers. Educational administrators should respond to the times, investigate, compare, summarize, and conclude the current situation and development of teacher management in sports training institutions at home and abroad, explore suitable teacher management models, and contribute to the benign development of teacher management in sports institutions [6].

1.1. Big Data. In recent years, the rapid development and popularity of big data seems to have become a common phenomenon. From national strategies to corporate

strategies, big data seems to exist as if no one knows about it [7]. There is no uniformity in the concept of big data. The famous scientific research institute Gartner defines big data as follows: "big data" is a huge, high growth, and differentiated digital information asset that requires innovative processing for scientific decision-making, insight, and process optimization [8]. Amazon (AWS) data scientist John Rauser mentioned a simple definition: big data goes beyond the ability of computers to process large amounts of data. R&D team Big Data: "Big data is the most valuable advocacy technology and the most fashionable and cutting-edge technology. In these particular cases above, the definition is very confusing." Big data analytics is one of the more popular online vocabulary technologies currently being used in the IT industry in China. According to McKinsey, one of the management consulting and management consulting firms, "big data analytics," has gradually begun to enter into the application and service functions of today's society and many other management industries, and has begun to become an information-producing resource with great potential. Through the in-depth theoretical research and comprehensive analysis and application of these large amounts of consumer data, a new wave of consumer data with new characteristics reflecting the development of social productivity and meeting the surplus needs of consumers has emerged [9]. More and more advanced and mature mobile Internet companies and technology research and development companies have begun to slowly realize that the ability to analyze and process big data is slowly becoming the most critical strategic value of the core assets of Internet companies, and the ability to analyze and integrate data mining will become an increasingly important core competency of enterprise organizations in the future.

Compared with traditional structured data, big data is highly abstract and has not yet been defined in academic circles. The McKinsey Global Institute (MGI) defines big data as a set of data used to capture, store, manage, and analyze larger datasets than traditional database software tools [10]. The National Science Foundation (NSF) defines large-scale data in terms of data sources and characteristics. It considers big data as a large, diverse, long-term, and complex distributed dataset generated by a variety of data sources (e.g., scientific instruments, Internet transactions, sensor devices, audio and video software, etc.). Gartner, a leading IT consulting group, considers computer-processable computing power as a core element in defining big data capabilities and defines big data as an extreme information management and processing problem. One or more dimensions are beyond the traditional information technology processing capabilities. These different organizations have different perspectives and representations on the definition of big data, but the views on data volume, data source types, data transfer methods, data processing speed, and low data value density are essentially the same [11]. Based on the characteristics of large-scale data storage, transmission, and computation, the authors believe that the processing capability of big data mainly refers to the large and complex data structure system and various complex types of data collections built based on the cloud computing model in big

data processing and applications. Through the integration of systems, data sharing and a variety of data processing methods, such as cross-filtering useful data assist in the development of strategic solutions and assist in decision-making.

Big data has typical “four” characteristics: diversification, mass, value, and speed [12].

- (1) The data storage and calculation of massive data reflect the large scale of big data. At present, the scale of big data has evolved from GB, TB, PB, EB to ZB. According to the official documents released by technology companies, the data era 2025 released by the International Data Corporation (IDC), the global data circle will expand to 163 ZB in 2025, equivalent to 16.1 ZB data obtained in 2016 increased by 10 times; the total amount of global data will grow 50 times to 5.2 ZB.
- (2) Diversity refers to various types of data sources, including not only structured data, but also unstructured data such as text, web pages, audio and video, comment statements, and semantic analysis. With the rapid development of mobile Internet, e-commerce, and social networks, after actual research, unstructured data show an explosive growth trend[13].
- (3) Fast means that the generation speed, collection speed, transmission speed, processing speed, and analysis speed of big data are faster than traditional data processing methods, and the analysis dimension is wider.
- (4) This also indicates that the use of big data development and application research will have its very high potential socioeconomic value and applied scientific research and development value, and more and more excellent Chinese enterprises have begun to gradually realize the meaning behind “data.” Data asset management has gradually formed a huge potential core strategic resource advantage and enterprise core competitiveness for the new development of enterprises, fully utilizing and effectively using enterprise big data resources to contribute to the healthy and sustainable rapid development of enterprises in various business areas.

The concept of big data represents not only its rich data content, but also big data technology. Among them, various types of training institutions are the concentration of integrated management of big data [14]. There are not only various types of organizations, but also more responsibilities and processes [15]. Therefore, in this complex environment, there is such a wide range of information data source channels between different departments, various information channels of management organization, and information flow of interlocking departments, all of which undoubtedly provide a challenge to the way of information management organization of various education and training management organizations [16]. For all kinds of education and training service institutions in the country to carry out the

management of training teachers for big data management, can be more effective use of big data and powerful professional network technology support, revitalize training data resources, improve the data flow between the training service institutions teachers management data operability, enhance the accuracy of training teachers information flow management data. This is also a new challenge for education and training institutions in the new era.

Technical analysis is a kind of explanation of the development tools, data management systems, and advanced development technologies that need to be mastered and operated to develop the information management of the training institution’s faculty, and the analysis of these advanced technologies provides theoretical support for the smooth completion of the system’s research. The main technologies used to develop the professional management platform are ASP.NET, AJAX, SQL Server, etc.

Data source is the database or database application using database server. Data source is the premise of all analysis to mine the data source, and access and maintain continuously updatable data through real time and nonreal time. Provide a comprehensive, friendly interface to configure data source information, through the task scheduling data collection, support custom-sensitive information encryption processing, support a comprehensive range of data sources, such as MySQL, Oracle, and SQL Server.

SQL (Structured Query Language) is a structured database query language, which can be used to build the interconnection between various database system statements for better and more effective data communication, and the standard statement pattern of various database system statements can be unified to achieve data sharing [17]. The standard statement pattern of SQL can also be used in the process of querying various data types, including updating various data information queries and data extraction related to various data types stored in various database system statements. Microsoft SQL Server is also a server model that can be used in a language environment that supports certain languages, and is a database system designed with a server architecture (C/S). It is a database system designed with a server architecture (C/S). Users are also able to achieve simple and perfect search and local operation in this model environment [18]. There is also a very important part of the database management system that can improve the database process, and can further ensure the high security of data storage and maintain the high integrity of stored data information, and it also hopes to further improve the real effective data operation mechanism in the database to achieve a more efficient way of data analysis and processing. This means that for the database data management itself, a very critical management function is how to achieve the data management and eventually become a major tool in database management [19]. Whether you are an organization, enterprise whether internal unified enterprise e-commerce system management or external to the enterprise organization of office management and enterprise administrative management of all the applications of the database system for the overall unified management is for a business when necessary, the need to establish a safe, efficient and reliable

unified and long-term stable operation can be used to permanently save all the enterprise system data. The drill-down database management system and database management software [20]. And all the data information can be saved as a direct file form in a computer database system needs to use such a computer database system with special functions for large and complex computer system services to help complete the daily management and maintenance of the unified database and system planning. At present, there are relatively more database software applied in the Chinese market, and the MySQL Server database of Microsoft and Oracle database of Oracle are more frequently used in China. These two major databases have their own advantages and disadvantages, for the use of Microsoft's application development tools to develop software; of course, the use of SQL Server database is the first. Compared with the Oracle database, its installation and operation are relatively easy, and the Microsoft exit database can improve the performance and functionality of the system.

Web 2.0 website technology is one of its greatest advantages to allow users to participate directly in the creation of website content [21]. It can also be said that it has a large degree of technical difference with the general website information release processing method; first of all, some of the main content information in the website is directly by the website users to participate in the creation of content information release processing; to some extent, it has increased a lot of website user interactivity and increased a great degree of website user interactivity, so that the website users at the same time also. In this way, website users are both the main viewers and the main producers of web content information, which shows that the Web 2.0 website will bring more new opportunities for website users to participate in the creation of website content information; for example, we now see some social networks and For example, we now see some social networks and Sina Weibo that is a typical user participation in the creation of information content information is a guiding idea, through such a new Internet technology can be these user-created content information to re-categorize [22]. Moreover, Web 2.0 sites pay attention to interactivity, so that users can not only use the site's server, but also interact with our prewritten programs, and it is possible to communicate with other different users. In this way, people will be able to give birth to many different types of network-related applications at the same time, which will greatly facilitate the convenience of network applications and increase the mutual adhesion between network users, which is not simple on the one hand, but also conducive to the innovation of the network, and more importantly, it provides a further development of the whole network-related industry in the future. Web 2.0 has a standardized approach to the development of the Web [23]. Web 2.0 has a standardized web design, standard is a very important web specification, which is also a very important technical key, he will help design and develop a better compatibility between different browser languages, to improve the user experience is very critical, the general so-called Web standards are usually referred to the construction of the web page of the language based on the language, in fact, In fact, Web

standards have not actually become a standard for anything. It is inaccurate to say that standards are actually a collection of standards that allow us to access the web across browsers and platforms because of the existence of these standards [24]. Its advantages are obvious, and it makes the website design code specification, so it greatly reduces the workload of the code, but also greatly reduces the waste of network bandwidth and improves the speed of network access; in fact, the final benefit of the majority of users, the user experience will be greatly enhanced because of these changes. The most important point is that a web standard compliant website is more user- and search engine-friendly.

The ASP.NET language has undergone revolutionary changes and is a compiled programming language, which is a great improvement and breakthrough for the ASP programming language, which on the surface seems to be an upgraded version of, but in fact, there is nothing directly related to the two. There is a large degree of difference between the basic working principle of the internal system and the various programming languages used and their internal operation mechanism [25]. The ASP.NET language is used to implement programming features, and the Web application environment used for development does not refer to a language program built entirely from a built-in common language programming framework that can be applied to the Web application development server and can implement and create a more comprehensive architecture-based application. The development platform provides the advantage of a more powerful model of application in a web programming environment. ASP.NET applications are based on Common Operating Language (CRL) programs built to run on a Web application server [26]. NET no longer performs the traditional function of just explaining the program, but compiles the current running application on the service when it is first requested. For the development of the program for the compiled program compared to the explanatory program, its efficiency has been greatly improved and increased; the current better object-oriented programming tools such as ASP.NET and JSP are compiled.

1.2. Faculty Management. Faculty management is teacher management. The content of teacher management has been clearly pointed out in the "Teachers Law" promulgated and implemented in 1995, mainly including: (1) teachers' rights and obligations; (2) teachers' qualification and appointment; (3) teachers' training and improvement; (4) teachers' treatment and reward; and (5) teachers' assessment and evaluation [27].

Education and education are the most important of many school tasks. Teachers are the main workers in accomplishing educational tasks and are the actual managers and operators of the educational process. The manager of the training institution manages the school and the management, rationalizes the resources of teachers, and effectively implements the management functions of teachers, professional support facilities, united and coordinated, well-structured, appropriate number of professional teams of teachers with high personal and overall quality, and strong level of scientific competence, which is inevitably a necessary

condition and an important guarantee for the educational prosperity and development of the training institution [28]. As one of the main forces of the training institution, teachers are both educators and managers. Therefore, the importance of teacher management is that teachers effectively regulate the management of the institution. Two quantities need to be mastered; namely, teachers cannot be completely passive, blind, and simply accept management. Instead, they need to be proactive in the management of the institution and participate proactively in the management of the entire training institution. In classroom management, teachers are managers as opposed to students, and teachers need to accept rational suggestions from students to manage the curriculum. Therefore, the openness of teacher management is positive, which allows for the validity of teachers' opinions and suggestions, and the practical management of teacher management using advanced concepts in human resource management. It can contribute to the long-term development of the institution.

Teacher resource management in sports training institutions refers to the process of planning, organizing, coordinating, and controlling the recruitment, deployment, use, evaluation and development of teaching staff in training institutions, and ultimately building a team of teachers with good quality, excellent quality, and unity, so as to maximize the overall work goals of training institutions [29]. Foreign countries generally consider education as a supplier of human resources, and the human resource management of service education includes issues such as attracting, training, and retaining effective teachers. Scientific, rational, and effective human resource management of training institutions can promote the faster and better development of training institution education.

2. Problem Solving

The teacher management system of sports training institutions is to solve the problems of teacher training, teacher ethics, and teacher assessment in training institutions, and to improve the information management ability of teachers. Before developing the system, we first communicate with the teachers' affairs department and personnel department of training institutions to familiarize ourselves with the policies of teachers' training institutions, determine the basic business of teachers' information management, and determine that the information management of teachers' training institutions includes the information management of teachers' files, teachers' training management, teachers' recruitment, teachers' ethics management, and teachers' training management. Information management, teacher moral and ethical construction management, performance assessment management of teachers and staff, comprehensive information query management of teacher construction, and user rights and role management are the seven core businesses [30].

2.1. System Management Business Analysis. Teacher information management system is a module for system setting of basic parameters in the system and initialization data for system operation. Teachers and employees can manage

teachers' assessment information only if the categories of assessment parameters and related parameters are set first. This business module allows only administrators to log in and operate, add teacher assessment types, and then add their corresponding assessment parameters and configure index scores for the relevant types. The specific faculty system management business activities are shown in Figure 1.

2.2. Analysis of Faculty and Staff File Information Management. Faculty and staff file management is the user object in the information management system of faculty construction. All faculty and staff data are firstly obtained uniformly through the external personnel management system to ensure that the information of faculty and staff is unified with the faculty and staff of training institutions and other systems. Therefore, in order to realize the data connection with external systems, we need to set up an external interface in the personnel management system to obtain the information of faculty and staff. By accessing the interface, the faculty construction management system can get the faculty data and determine the information of the training institution's faculty members' seniority and titles based on the information of the faculty members in the personnel system, laying the foundation for the establishment of the training institution's faculty file and the assignment of user rights. In addition to importing data from external systems, the administrator can also add new staff information that does not exist. The specific faculty and staff file information management business activities are shown in Figure 2.

2.3. Business Analysis of Faculty Recruitment Management. This module enables the release of part-time faculty requirements and collects all external applicants for faculty positions to fill in the information related to annual faculty recruitment through the faculty construction management platform within the specified recruitment resume reporting time period, including the filling in of job applications and the uploading of original scanned copies of supporting materials. Once the information is approved by the registrar, no candidate can modify or delete the information. External staff can first download the unified information reporting module and fill in the information according to different types and then upload it in batches or add new application information one by one. Teacher application management module is mainly responsible for the unified management of the application information and resume of each teacher applicant, which is an auxiliary module in the information management system for teacher construction and provides the basis for training institutions to establish a resource base of external teachers. Only the administrator can review and manage the recruitment information, as shown in the diagram of the specific teacher recruitment information management business activities (Figure 3).

2.4. Business Analysis of Teacher Training Management. Teacher training is established by training institutions to improve teachers' business ability and provide more learning opportunities for young teachers. Firstly, each

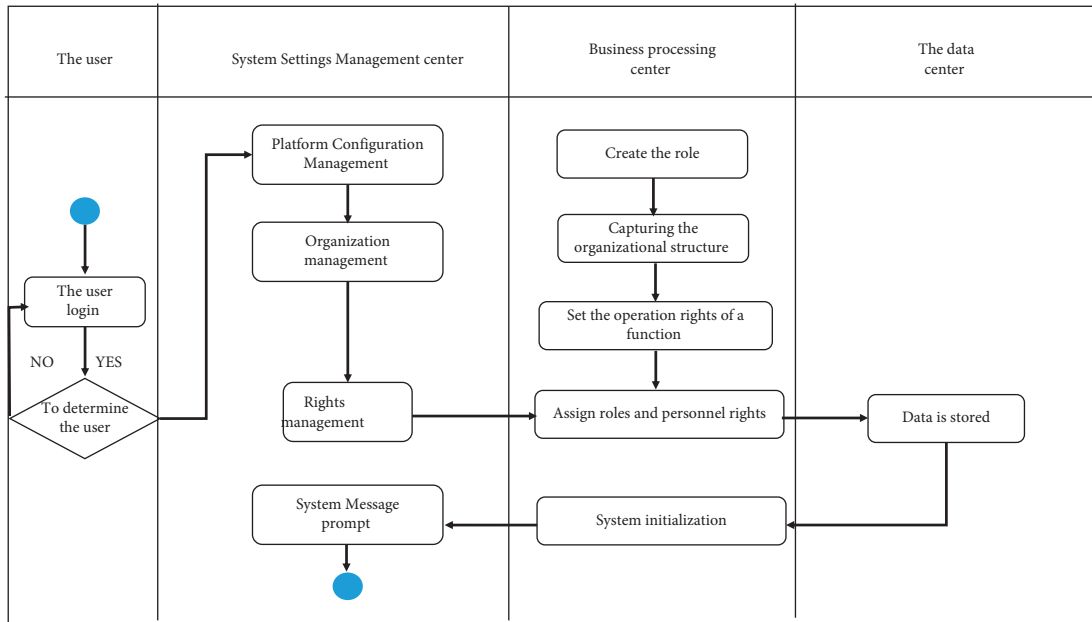


FIGURE 1: System management business activity diagram.

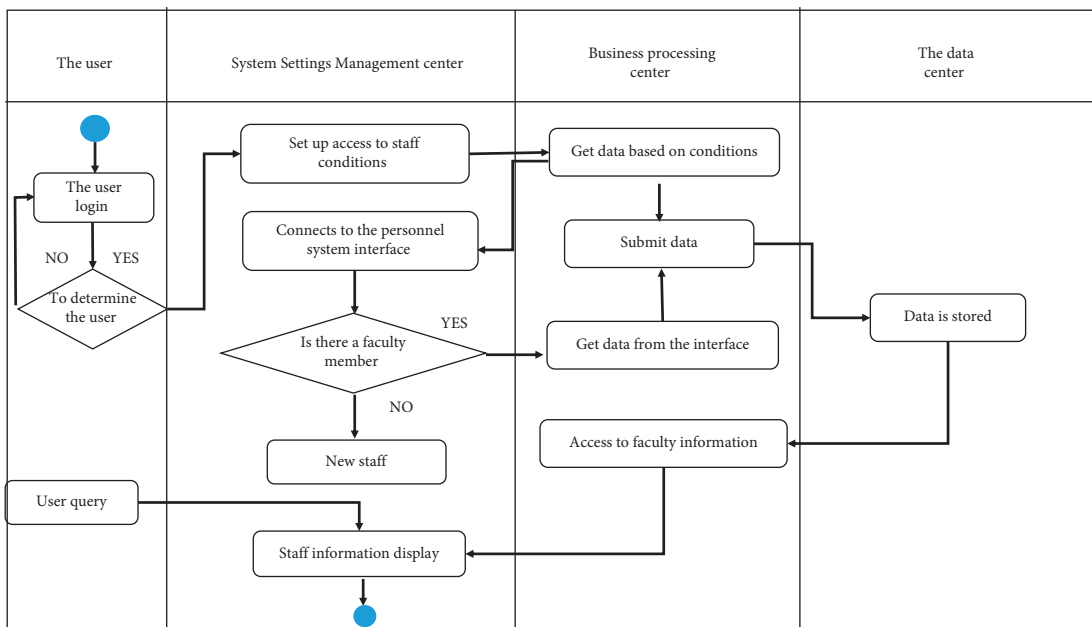


FIGURE 2: Business flowchart of faculty and staff file information management.

teaching department proposes annual training plan, etc., and then the Academic Affairs Office unifies to review and make specific annual training plan and release it, and teachers can apply for it according to the released training status. Only teachers' training information that has passed the audit can be aggregated. The administrator first sets up the conditions for obtaining training management process and then obtains the system teachers' training data according to the conditions and makes classification and aggregation. Then, the training analysis report is formed by comparing the teacher

training plan made by the training institution with the actual training completed. The administrator can track the teachers' daily training through this module, and after the training is finished, the teachers need to fill in the training summary and upload it instantly through the network. Only teachers who pass the final review of the administrator can indicate that their training is really finished; otherwise, the teacher's training will be recorded as invalid, as shown in the specific teacher training management business activity diagram (Figure 4).

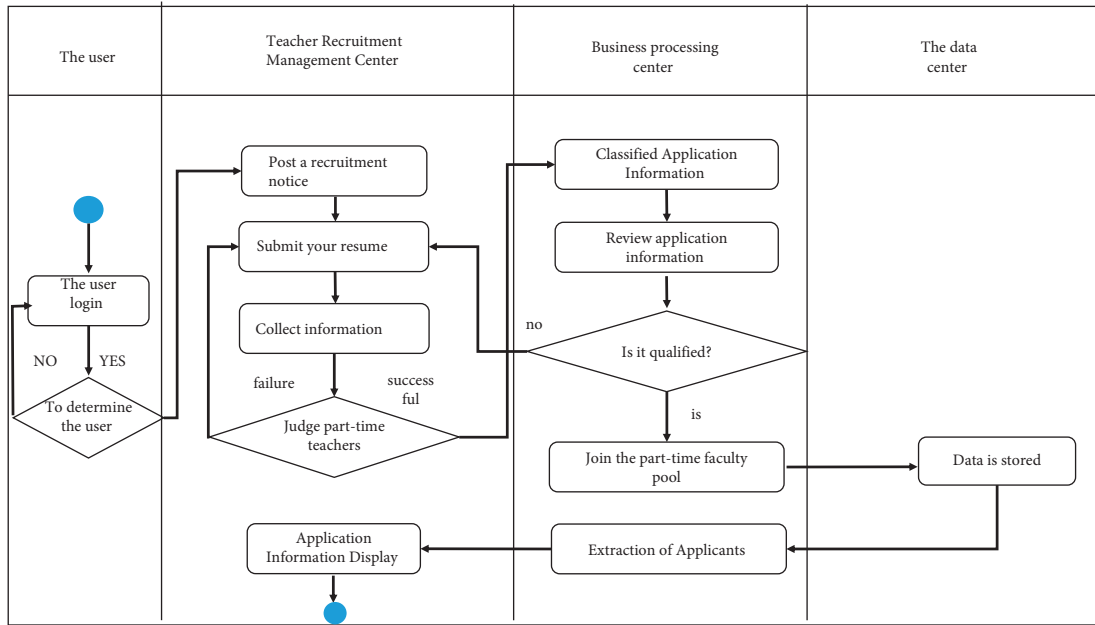


FIGURE 3: Teacher recruitment management business flowchart.

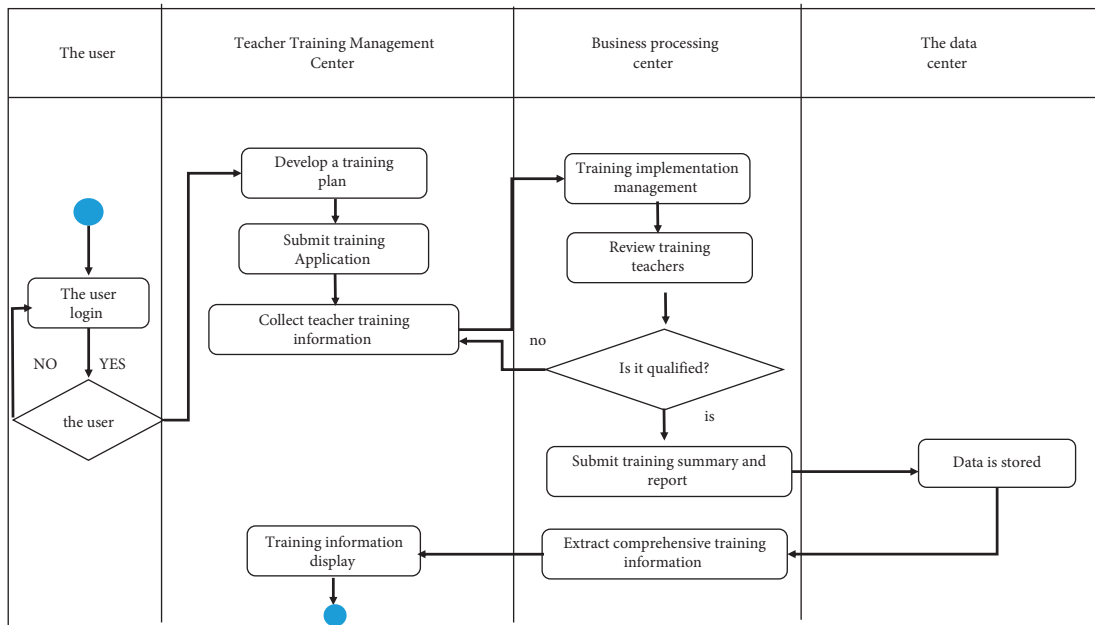


FIGURE 4: Teacher training management business activity diagram.

2.5. Business Analysis of Teacher Moral and Ethical Assessment Management. Teacher moral and moral assessment is an important assessment for all full-time teachers, which reflects their specific performance in teaching. Through this assessment, leaders of the Academic Affairs Office can track the teaching situation of full-time teachers in the teaching departments of training institutions. Assessment settings are mainly the detailed settings of forms, test indicators, scores, processes, and related parameters for various forms and types of tests, and the system performs assessment based on these settings. Assessment management is mainly to create,

publish, and start relevant assessments by relevant assessment managers, and to view the assessment results and summarize and analyze the results at any time, which is the core function of assessment work. The evaluation of full-time teachers' moral character is mainly composed of students' evaluation, teachers' mutual evaluation, and branch leaders' assessment, which provides basic data for teachers' performance evaluation. All evaluation indexes and scores can be set arbitrarily, and the corresponding evaluation table and summary table are automatically generated after the evaluation. The data and results of the evaluation of teachers'

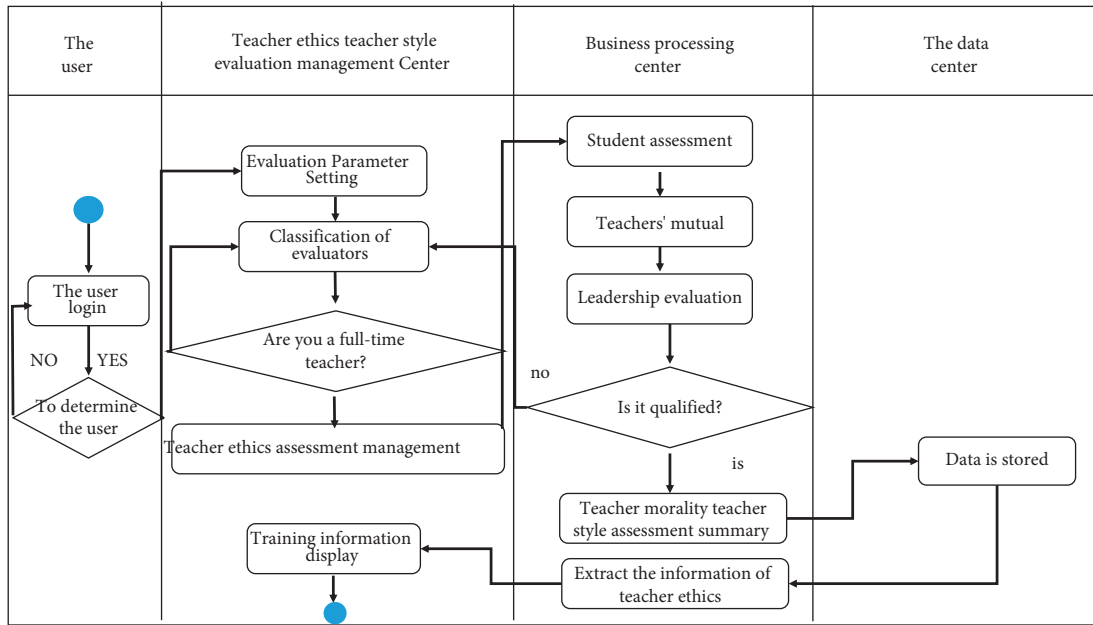


FIGURE 5: Diagram of teacher moral and ethical evaluation management activities.

moral and ethical conduct are statistically analyzed, and various charts are formed. The specific teacher ethics assessment management activity diagram is shown in Figure 5.

2.6. Business Analysis of Teacher Performance Evaluation Management. In order to establish teaching ability, practical ability, scientific research ability, and ability to serve enterprises and society as important contents of teachers' performance appraisal, the evaluation combined with multiple parties such as students' evaluation, teachers' mutual evaluation, supervisors' evaluation, and industry enterprises' evaluation is taken as an important basis of quality appraisal index, and the same performance appraisal and the same performance reward are implemented for full-time and part-time teachers. The appraisal settings are mainly the detailed settings of templates, indicators, scores, processes, and related parameters for various forms and categories of appraisals, and the system performs appraisals based on these settings. Appraisal management is done by relevant personnel to create and release appraisals in the system, view the appraisal results at any time, and summarize the appraisal results. The performance appraisal assessment is used for each appraisal subject to conduct self-assessment, the superior receives and participates in the appraisal of subordinates, gives feedback, and publishes the results of the appraisal, and the indicators and scores of the appraisal can be set arbitrarily in the system. This module is public and can be called a public module, which can be used by all people who log in to the information management system of faculty construction, but there are also permissions. Teaching staff can only view the information about their performance in each semester, and they can check their basic information through this module. The teaching managers of each teaching department of the training

institution can check the summary ranking of the performance assessment information of the faculty (department) through this module, and they can export the queried performance assessment information, while the system administrator can check all the performance information of the teaching staff in school. This facilitates the management of faculty performance information and improves the quality of faculty information management in training institutions. The specific teacher performance appraisal activity diagram is shown in Figure 6.

Based on this, the architecture of the sports training institution's faculty construction management system is designed using a three-layer browser network database architecture, with the browser providing a browsing mode, the service providing requests and processing, and the database realizing the storage of system data. The user of the system can operate the system by providing a browser on the client side to add, modify, delete, and query the data in real time. The three basic layers of ASP.NET are the representation layer, the business logic layer, and the data layer. The representation layer contains the components that define the user interface consisting of forms, menus, and control panels, and provides an effective channel for users to interact with external system users directly and make calls to the external business layer. The service logic layer consists of the following two parts: the service logic layer and the access layer of service data. The business logic layer is to achieve control of the user interface layer, data interaction between the data and access object layer, and automatic acquisition of business data in the database layer, so as to realize the logical management of the service access object layer and the logical management of business data for the implementation of the service. The data access layer can be used to realize the operation of data retrieval, data addition, change, and clearing. The data layer stores the data in the system. The

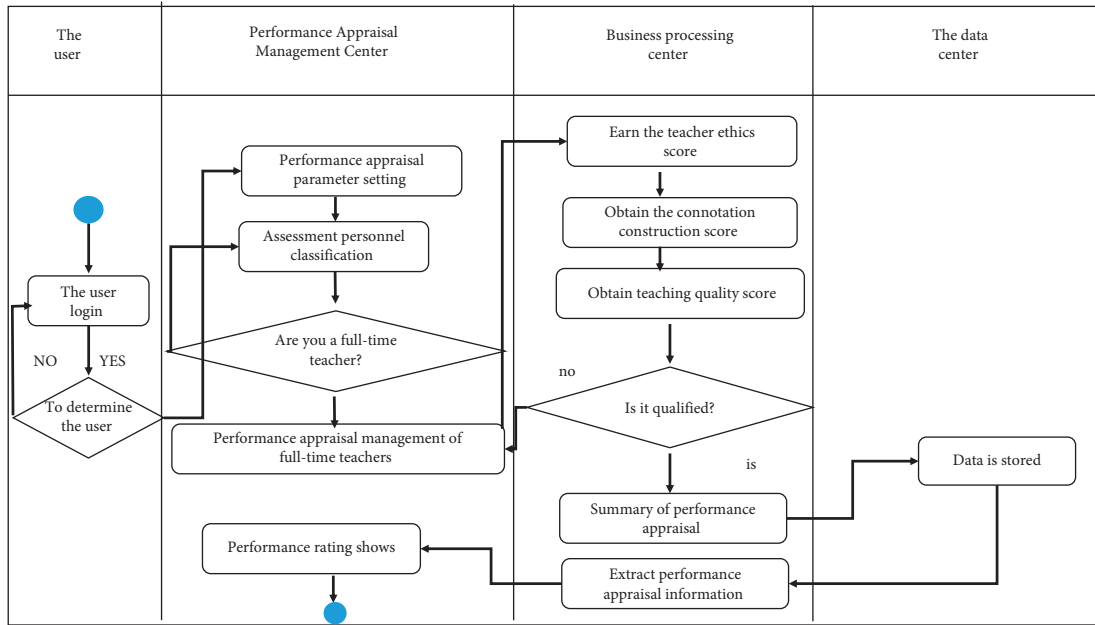


FIGURE 6: Teacher performance appraisal activity diagram.

three-tier framework system is a relatively mature, easy to use, and easy to popularize the use of the application framework, which can be divided into an application framework independent of at least three relatively separate packages. The design ideas of each layer and the specific role are as follows.

The main function of the representation layer in the application is responsible for the actual operation of the dialogue system between the users, the human-computer dialogue window directly interacts with the user interface, and the representation layer can be used for the system to provide the operation of the user to display data or input and output interfaces. Change the interface of the operating user, you only need to display control of system functions and data inspection, and you can rewrite the logic processing without affecting the other two. For the business logic layer, the system plays a role in the functional layer for the exchange of data, access to database data returned to the client, and the data submitted by the client back to the database, which plays a top-down function of the Jonquil, the main business achievements need to develop business rules, through this interface can send user input and output information data layer, the data layer request and response back to the business logic layer. Data layer requests and responses are returned to the business logic layer.

The data layer is mainly responsible for reading, writing, updating, deleting, and adding data to the database, and performs physical processing of data, which requires a large number of SQL statements.

The system adopts the current mainstream browser business layer database three-layer architecture for design, its browser is a browser mode, and the user side of the operation to submit data on the system and the system layer is mainly responsible for the final processing results. The

Web layer, also called the interlayer, is responsible for converting the data format between the business processing and the implementation system. In order to further improve the stability and efficiency of the system, the system uses JSON format for operating system data. To complete the business logic of the class and database operations of business processing and data transfer will be the traditional development of data feedback to the client's data control, this mode of operation has a huge impact on system performance, and here the submission of data formatting, JSON format to the client generated data, the client can submit the JSON format rich client technology to achieve the receipt of data, and therefore further improve the performance of the information management system, thus achieving efficiency in processing service requests. The database layer is responsible for providing a data storage system for the NET architecture-based content management system using the database management system SQL Server 2008 to ensure data storage (Figure 7).

3. System Design

The implementation of the faculty building platform management system requires strict adherence to the software architecture design and functional module design of the previous system. The implementation of the system is based on the design concept of software engineering. Before the implementation of the software project, it is necessary to determine the planning of the network system, to build the network of each functional module of the system using the program code, and then to test the performance and functions of the system network management system. Finally, the programming language for the functions implemented in the system is given. In the development of the

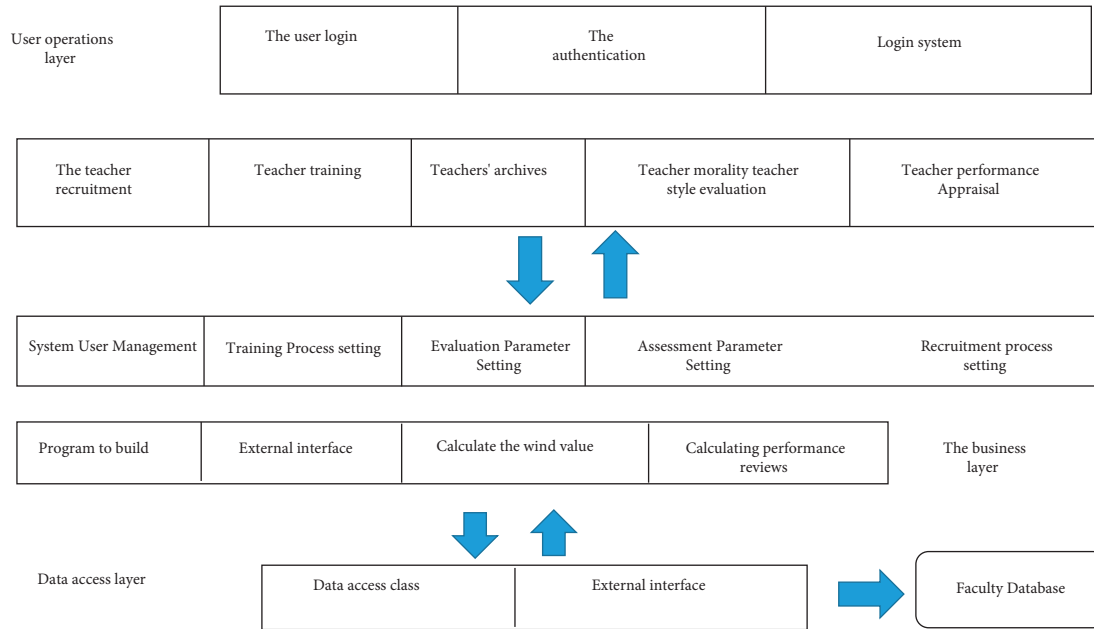


FIGURE 7: System architecture diagram.

faculty development management system, C# and SQL Server database were also used to develop the Web application in order to facilitate the expansion with other systems.

A data interface was established between the Faculty Development Management System and the Academic Affairs Management System and Personnel Management System developed by the training institution to share data between the systems and ensure data consistency. The information of teaching affairs can be obtained directly from the teaching affairs management system, and the information of teaching staff's files can be obtained from the personnel management system. The interface between the different systems can be implemented in various ways, but since the systems are deployed on the same server and use the same development tools, the data exchange between them can be done in many different ways. Therefore, it is relatively easy to exchange data and interface between them. We created a dynamic connection file in the academic affairs management system and personnel management system, and wrote all the methods to be opened to the public into the file, so that we can get the required data by directly referring to the file in the faculty construction management system.

Class access open interface code

```
//public DataTable getClassInfo(){...}
```

Faculty and staff access open interface code

```
//public DataTable getTeachers(){...}
```

Considering the cross-platform data interaction and processing efficiency, the external interface of teaching management designed in this system is more practical than the open interface mentioned above. The specific approach is to automatically generate files of the data to be opened to the public, which can be accessed by other systems.

4. Summary

With the development of science and technology, the teacher management of sports training institutions in the era of big data and personnel management institutions teacher construction and development are facing opportunities, but also accompanied by challenges. The big data application of sports training institutions should be regarded not only as a resource but also as a tool. While improving the ability of physical education teachers to manage training institutions, it is more important to use big data intelligent management technology to effectively transform teacher management. The rapid development of big data technology provides more opportunities for the management of teachers in sports training institutions. At the same time, there are increasingly obvious contradictions that need to be resolved. The informatization of faculty management process can match information accurately and quickly with the help of large databases, but the processing of big data information base cannot be fully intelligent due to overlapping information and other reasons, which requires opening the faculty management information base, opening multiple information sources, and strengthening faculty information interaction.

Faculty management information is available in all system files. Even if the faculty management teaching process can be carried out smoothly in a relatively independent and complete teaching system environment, it may still be nonclosed-loop management in terms of compatibility and effective connection between various teaching system environments. Therefore, strengthening the teaching process and matching it with the endpoints can be done to make the best use of big data in education and better manage the faculty effectively. Moreover, in the era of big data in

sports, although faculty management in sports and training management organizations can access data and other applications simultaneously on the same regional base data, all these data are still not linked from the data distribution across provinces and municipalities and the flow to the outside. Open channels of communication and cooperation among multiple parties and setting uniform requirements for information items are important tools for open linkages. Big data technology can help sports training institutions to provide scientific and reasonable data analysis in talent selection and play an important role in the teacher evaluation system. When providing services to teachers, sports training institutions should also focus on service quality and provide teachers with the most needed and best quality services through data analysis [31].

Data Availability

The labeled dataset used to support the findings of this study is available from the corresponding author upon request.

Conflicts of Interest

The author declares no conflicts of interests.

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