Hindawi
Mathematical Problems in Engineering
Volume 2022, Article ID 4325984, 9 pages
https://doi.org/10.1155/2022/4325984

Research Article

Information Resource Sharing Based on University Dance Big Data Management and Utilization System Design

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Received 1 April 2022; Revised 25 April 2022; Accepted 29 April 2022; Published 24 May 2022

Academic Editor: Wen-Tsao Pan

With the expansion of college enrollment, the number of college students is increasing, and the amount of information to be dealt with in the information management of college students is increasing. In most colleges and universities, managing college student information is done artificially. In this context, how to effectively manage and utilize the dance big data of college students has important research value. Therefore, this article takes the development and realization of student dance under the public service platform system of colleges and universities as the subject and design the university dance big data management and utilization system based on information resource sharing. Due to the high mobility of college students, this work also carries out an information resource sharing strategy to establish the dance big data management and utilization system for universities; after the implementation of the student dance big data management service system, colleges and universities can provide more convenient transfer, management, query, and other services of student files.

1. Introduction

Nowadays, the world has entered the information age, and the amount of information to be dealt with in the management of college students has become larger and larger, and the speed has become faster. In order to make university administrators timely understand the accurate and reliable information of students and the corresponding feedback information, we must rely on computer technology to establish a comprehensive and efficient information management system [1, 2]. In addition, the expansion of college enrollment has increased the difficulty of college management, and the traditional manual way of file management is not suitable for the rapidly growing workload of student information management. The traditional manual way of file management requires administrators to find the paper files of students, and the corresponding information needs to be added manually during the management of students. This traditional way is obviously backward in the information age [3]. In the information age, the amount of information of college students is increasing day by day. It is difficult to improve the management level of school students by manual method, and it is time-consuming and exhausting [4].

In order to better meet the needs of people's life, survival, development, and other aspects, it is necessary to provide efficient social public services. The state is also introducing various policies and measures to improve the efficiency of public services. As an important part of society, colleges and universities should also provide their campus public service [5]. According to the characteristics and requirements of public service, colleges and universities should build a public service system, establish a public service platform, and carry out a one-stop window service. At present, most of the university information portals for university teachers, students, staff, and alumni integrate five core application systems (decision-making, educational administration, student finance, and scientific research) [6].

The purpose of constructing a university public service platform is to provide a variety of complicated services for students, faculty, and administrative staff of each

department. The number of students is large due to transfer, promotion, and graduation, leading to student mobility, and determines the workload of student file management, so it is particularly important to build a perfect student information management system [7]. Traditional management methods are paper-based and collected and managed by manual means, which are characterized by unsafe management, easy loss, low efficiency, and inconvenient use [8]. The use of a campus network platform, with the collection, processing, and system analysis of students' personal information, file information, academic performance, and other information as the core, to achieve efficient management of university students' file management services, can promote the development of university public services [9].

Dance, as an exotic product, has developed rapidly since it was introduced into China, but its popularity is not as good as other sports. With the development of the market economy, the market force will eventually replace the administrative force to become the decisive factor in resource allocation in the process of sports industrialization in China [10]. The dance industry is recognized as a sunrise industry with high permeability, cross-cutting, and pulling force in today's world. For this reason, we need to explore the potential value of dance, a sunrise project [11–13]. At present, we are living in the era of sharing. By establishing a sharing platform, the social economy and dance industry can promote each other. Therefore, the dance big data management platform in colleges and universities has a great application prospect. Due to the particularity of dance, sports dance association has been divided into its own school since it was introduced into China; thus, its function is not fully utilized. The scattered resources of sports dance associations are not conducive to the development of college sports, leading to no reasonable allocation of resources and chaotic management [14].

Big data technology can improve work efficiency, eliminate the need to repeat tasks, lower labor costs, save time, and relieve the staff of tedious work. Big data computer technology is the fastest developing science and technology, and computer technology has become the most widely used technology in people's daily life [15]. Through years of development, computer technology has developed into technology to solve a variety of tasks through the combination of computer software and hardware and, with the relevant development software, can be designed according to the needs of the application of the corresponding solution. The professional system, development platform, and scientific network management are manifestations of the university information system development trend. It is an inevitable trend to combine computer technology with dance data management for college students [16]. Therefore, the development of winding technology for the management system of university student information to meet the needs and habits of user groups will also be enhanced substantially. In this article, we standardize the management system of the Bureau of School of Computer Technology and Network Technology based on all information on dance students according to the library, and management can effectively increase the students' search rate and the students' information updates [17–19]. On this basis, students' key information can be efficiently managed and processed, which helps to further standardize the university student management. The university student management is a school's basic work and is also an important part of the school work; its level will directly affect the quality of university talent training [20]. Therefore, the realization of dance data management system in line with the actual demand of colleges and universities can improve work efficiency, save the cost of human and material resources and time, and adapt to the current development trend of college student management. Big data technology can improve work efficiency, eliminate the need to repeat tasks, lower labor costs, save time, and relieve the staff of tedious work. It is an inevitable trend to combine computer technology with dance data management for college students [21].

At present, smartphones have been popularized and network connection has become a necessity in people's lives, so it is very convenient for students, teachers, and school administrators to access the network. Without the additional provision of corresponding technology, the use of mobile phones can be in the network of this technology. Therefore, the network of computer technology and winding technology development of the management system of the university student information needed to meet the using habits of user groups. The research subject in this article is the standard of the Bureau of the School of Computer Technology and Network Technology. The combination of all information on students' dance numbers according to the library and management can effectively increase the students' search rate and the students' information updates [22]. Meanwhile, this system can effectively manage and optimize student information and help further standardize university student management. The university student management system is an important part of the school work, and its level will directly affect the quality of university talent training. Therefore, the realization of dance data management system in line with the actual demand of colleges and universities can improve work efficiency and save costs. Finally, the system will better adapt to the current mainstream trend of college student management [23].

The design and development of this system can realize the informationization of student information management and promote the informationization process of the whole teaching management. The information management system of college students is a testing point for other management work in colleges and universities. It can promote the reform of other fields of college management by studying the information management system of college students [24]. It will greatly improve the management level and efficiency of colleges and universities [25]. The research of university student information management system is conducted mainly through the operational the use of all aspects of the effective resources, the computer system of the management is realized, and the value of university students is used; at the same time through the computer information

system management, teachers' work efficiency will be greatly improved, which will also reduce the school the teacher's labor costs [26].

Foreign scholars have studied the archives management system very early. In 1995, NARA (Archives Information Navigation System) was established in the United States. Now, it can achieve seamless, integrated archives management. The United Kingdom has also created an integrated archival network system to provide users with access to archives across the country. Canada has also created its own automated online search tool, which enables users to easily search and query the archive database they have created [27]. The case filing informationization of foreign universities has been well developed. The University of Adelaide Archives has clearly defined the purpose and use of all types of archival resources [28].

At present, China's existing public service platforms, such as human and social security, geographic information, educational resources, and small and medium-sized enterprises, can provide basic functional needs, and more service platforms and functions are constantly developing and improving. Most universities in China, such as Nanjing University, Wuhan University, Zhejiang University, and Southeast University, provide public services on their campus websites, which are classified into life services, administrative services, teaching services, and education services. There are student service, faculty service, alumni service, visitor service, and examinee service [29].

At present, the university student archives information management can manage the files of school graduates by time segment classification and the main reward and activity performance of students. There are still many problems in the student information management system to be improved [30, 31]:

(1) Student archives archive material is not rich enough, and the information content is not complete enough. The archiving material mainly involves three aspects: first, it mainly focuses on students' political performance; second, the relevant materials of school roll; third, students' physical health materials. Other materials related to integrity, mental health, etc., were not collected.

(2) There is no unified mode to manage student files, and the resource sharing level is low. There are great differences in the scientific degree, operation process, and operation mode of archives management among different schools, resulting in uneven service efficiency. The degree of informatization varies greatly, and the corresponding operational provisions are lacking.

(3) Student files with a low resource utilization rate can fully reflect the quality of students in all aspects during school. Because the way of inquiry is not convenient enough, we will rarely consult student archives materials to select student cadres or excellent selection and choose and employ persons to select talents.

(4) Existing file management systems have limitations on the style of file data, most of which can only deal with text files. If the lack of images and audio files, it can not be a comprehensive and objective record of students learning life in all aspects of the management system, but the safety performance of the system is lacking. The file storage method based on file management makes the query inefficient and slow [32].

Based on the above background, this topic will be based on information resources sharing technology combination of dance with the student information system, designing a student dance information storage scheme based on large data; the data stored in the blockchain can not be changed. The traceability finally realizes the open and transparent application of the decentralized system to solve the problem of dance information security [33], mutual distrust, and other aspects of the problem, reducing the occurrence of educational information fraud. The research on this topic is of great social value. For colleges and universities, there is a comprehensive, true, and objective understanding of students when recruiting masters and doctors. For enterprises, when recruiting talents, reduce the complicated and tedious process of job-seeker education information certification and meet the needs of enterprises for accuracy and rapidity of educational information so as to save a lot of human and material resources and financial resources [34].

2. Information Resource Sharing Based on University Dance Big Data Management and Utilization System

2.1. Information Resource Sharing. With the in-depth development of reform, opening up, and economic construction, China has officially entered the information age with information resources as the core of large data. Everyone is creating a large amount of data every day and can infer people's next behavior by analyzing this data-carrying information. In the past five years, China has started to promote the implementation of the Internet plus project and built a large number of large-scale national databases so that many people can only run once in handling matters, simplify the complicated process of approval, and let the people feel the fundamental desire of the government to serve the people. The development of big data and informatization plays an obvious role in information management, realizing information resource sharing among departments, and opening up information islands. However, how to reduce administrative cost better, more effectively plays the function of social management; on this basis, achieving scientific and efficient sharing of government information resources is a key to social development. During this period, the CPC Central Committee and the State Council issued a number of government regulations on information sharing, which is enough to understand the importance of this work. All sectors of society are always paying attention to the process of information development. The typical information resource sharing dance data management platform is given in

Figure 1. From the figure, the platform mainly contains Internet, server, database server, and file server.

In the resource sharing platform, managers, partners, consumers, and other stakeholders are all participants of the platform, so the wisdom and talent of the group provide the platform with vitality continuously. Therefore, resource sharing and intellectual property rights, relevant laws, and regulations are coordinated to facilitate the creation of intellectual achievements. A good platform is like a large department store, also like an entrepreneurial base, where a large group of people can create and inject vitality and power into the creation of resources. Its intellectual properties are energy, labor, and financial returns; it can stimulate their desire for creation, provide a creative space for the general user community, and greatly reduce the cost of the platform in the future; the resource sharing range is wide. The development of the dance class industry can increase the orderly progress of the regional economy.

2.2. Research Methods. Effective analysis of data impact on the management effect of dance big data of college students is performed. Generally, there are two data types of analysis: accurate data and fuzzy data. Accurate data refers to the values that can accurately describe the dance teaching effect on college students. The fuzzy data refers to the dance teaching effect, which is difficult to determine the parameter value and generally needs to be described by the fuzzy value. In terms of style, it generally includes interval, chart, model, text, and other forms. Suppose the value of the influencing factor is vi, then the influencing factor of dance big data management is as follows:

$$V_{\Omega(j)} = \left[v_{\Omega(j)}^{lef}, v_{\Omega(j)}^{rig}\right]. \tag{1}$$

Then, the expandable distance of dance big data influence factor is as follows:

$$\rho\left(v_i, V_{\Omega(j)}\right) = \left|v_i - \frac{v_{\Omega(j)}^{lef} + v_{\Omega(j)}^{rig}}{2}\right| - \frac{1}{2}\left(v_{\Omega(j)}^{rig} - v_{\Omega(j)}^{lef}\right). \tag{2}$$

If the union domain of the system is as follows:

$$V_{\Omega(o)} = \left[v_{\Omega(o)}^{lef}, v_{\Omega(o)}^{rig}\right], \quad v_{\Omega(o)}^{lef} \le v_{\Omega(o)}^{rig}. \tag{3}$$

Then, the extension distance between the influence factor and the management system is given as follows:

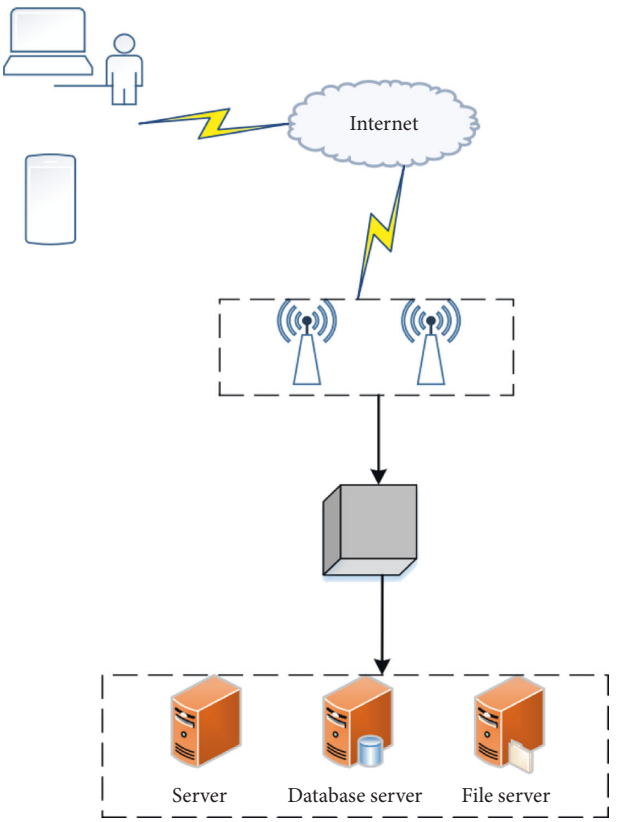

Figure 1: Information resource sharing dance data management platform.

$$\rho\left(v_i, V_{\Omega(o)}\right) = \left|v_i - \frac{v_{\Omega(o)}^{lef} + v_{\Omega(o)}^{rig}}{2}\right| - \frac{1}{2}\left(v_{\Omega(o)}^{rig} - v_{\Omega(o)}^{lef}\right). \tag{4}$$

The influencing factors of the management system are as follows:

$$V_i = \left[v_i^{lef}, v_i^{rig}\right], v_i^{lef} \le v_i^{rig}. \tag{5}$$

The extension decision domain of influencing factors is as follows:

$$V_{\Omega(j)} = \left[v_{\Omega(j)}^{lef}, v_{\Omega(j)}^{rig}\right], v_{\Omega(j)}^{lef} \le v_{\Omega(j)}^{rig}. \tag{6}$$

Then, the extension distance between the influencing factors and the classical management system is as follows:

$$\rho\left(v_i, V_{\Omega(j)}\right) = \frac{\rho\left(v_{v_{\Omega(j)}^{lef}}, V_{\Omega(j)}\right) + \rho\left(v_{\Omega(j)}^{rig}, V_{\Omega(j)}\right)}{2} \frac{\left(\left|v_{v_{\Omega(j)}^{lef}(j)} - v_{\Omega(j)}^{lef} + v_{\Omega(j)}^{rig}/2\right| - 1/2\left(v_{\Omega(j)}^{rig} - v_{\Omega(j)}^{lef}\right)\right) + \left(\left|v_{\Omega(j)}^{rig} - v_{\Omega(j)}^{lef} + v_{\Omega(j)}^{rig}/2\right| - 1/2\left(v_{\Omega(j)}^{rig} - v_{\Omega(j)}^{lef}\right)\right)}{2}. \tag{7}$$

Based on (7) and (8), the correlation coefficient between the influence factor and the management system is given as follows:

$$K_i\left(V_{\Omega(j)}\right) = \begin{cases} \dfrac{-\rho\left(v_i, V_{\Omega(j)}\right)}{\left|V_{\Omega(j)}\right|}, & v_i \in V_{\Omega(j)}, \\ \dfrac{\rho\left(v_i, V_{\Omega(j)}\right)}{\rho\left(v_i, V_{\Omega(o)}\right) - \rho\left(v_i, V_{\Omega(j)}\right)}, & v_i \notin V_{\Omega(j)}. \end{cases} \tag{8}$$

Accordingly, the comprehensive correlation coefficient of multiple management levels is as follows:

$$K\left(V_{\Omega(j)}\right) = \sum_{i=1}^{n} \left(w_i * K_i\left(V_{\Omega(j)}\right)\right). \tag{9}$$

Based on equations (1)–(9), Figure 2 gives the dance big data management and utilization system proposed in this article. The platform mainly includes data acquisition, data processing, data output, and task scheduling management.

3. Experimental Results and Analysis

3.1. Introduction to Experimental Dataset. In terms of data acquisition, a questionnaire survey is adopted to obtain the factors affecting the effect of big data management on college students' dance, and the data are analyzed by combining literature, expert interviews, mathematical statistical analysis, and other methods. By selecting some college students as the survey objects and adopting the method of the questionnaire survey, the main purpose is to find out the influence degree of various factors on the quality of dance big data management system in colleges and universities. Using the method of literature, expert interview, and mathematical statistics analysis as the auxiliary data acquisition methods of influencing factors, the article solves some analysis data that is difficult to obtain through conventional methods and converts them into a form that can be combined with the data obtained from a questionnaire survey, which is convenient for subsequent analysis and utilization.

A total of 2500 questionnaires were distributed. After manual and machine screening, 2296 valid questionnaires were finally obtained, with an efficiency of 91.84%. As 80% of the questionnaires were distributed online, the quality of the questionnaires could not be guaranteed. According to the set of questions and the control of the basic information of the respondents, and in order to ensure the validity of the data, a relatively strict screening method is adopted, which is also the reason for the low efficiency of the questionnaire.

3.2. Experimental Results Analysis. Based on the previous theory, a resource sharing dance big data system is established, and the data introduced in Section 3.1 is used to verify the proposed system. The specific results are described as follows: the final use environment of the system determines the hardware and software environment adopted by the implementation of this system. Because the users of this system are teachers who manage the work for college students, the hardware and software environment is basically a general office environment. According to the design requirements and detailed design, the system was developed to achieve the basic hardware and software environment. The system interface is tested by Dreamweaver, the database is tested by SQL Server 2005, and the web server is Firefox browser. Hardware environment: CPU adopts the latest I5 processor; memory capacity is more than 2 GB; the hard disk capacity is 1 TB. Software environment: the operating system is Windows 7 or later. In order to verify the running speed of the proposed system, this chapter takes the MPI and OpenMP to study the run time of the model proposed above. The runtime based on MPI and OpenMP is shown in Figure 3. Most of the functions of the student information management system are to manage the student data information, mainly focused on the management of students all kinds of information, so the test function is also mainly for these.

The teacher training organized and conducted by large dance institutions can not only promote the improvement of technical ability among dance institutions but also promote the improvement of technical ability among universities and secondary colleges. Between school and enterprise of teacher resources and the realization of teachers mutually, hire a renowned professional dance technology backbone in first-tier cities to school teaching, school professional dance teachers in first-tier cities to participate in the exercise, famous experts to drive the teachers' troop quality of dance, dance technology and teaching ability, and various aspects of ascension, through teacher training and other ways to improve the quality and ability of all aspects to improve teacher sharing. Video is the most common display form of big data. In this system, audio and video compression and decompression are realized in the MPEG algorithm framework. The advantage of the compression algorithm is that the time and space vectors can be used to encode the video efficiently in a real-time compilation of dynamic sequence video. The specific dance big data display interface is shown in Figure 4. As can be seen from the figure above, uploaded videos can be compressed or decompressed by the compression algorithm, and time, space, and visual redundancy can also be removed. It can also compress video based on computer hardware. At the same time, calculate the size of the computer hard disk occupied by the compressed video. Therefore, it can greatly improve the efficiency of video compression and storage and facilitate the management and utilization of dance big data.

The demand of university groups lies in the deep utilization of relevant functions, such as the configuration

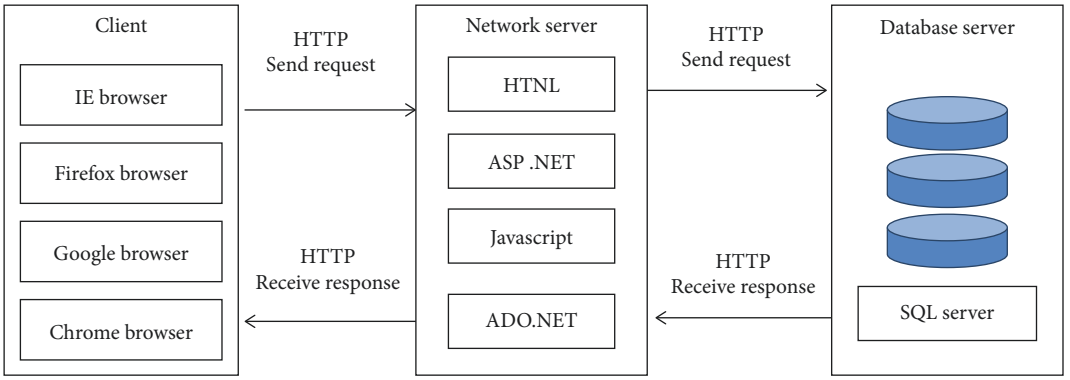

Figure 2: Dance big data management and utilization system proposed in this article.

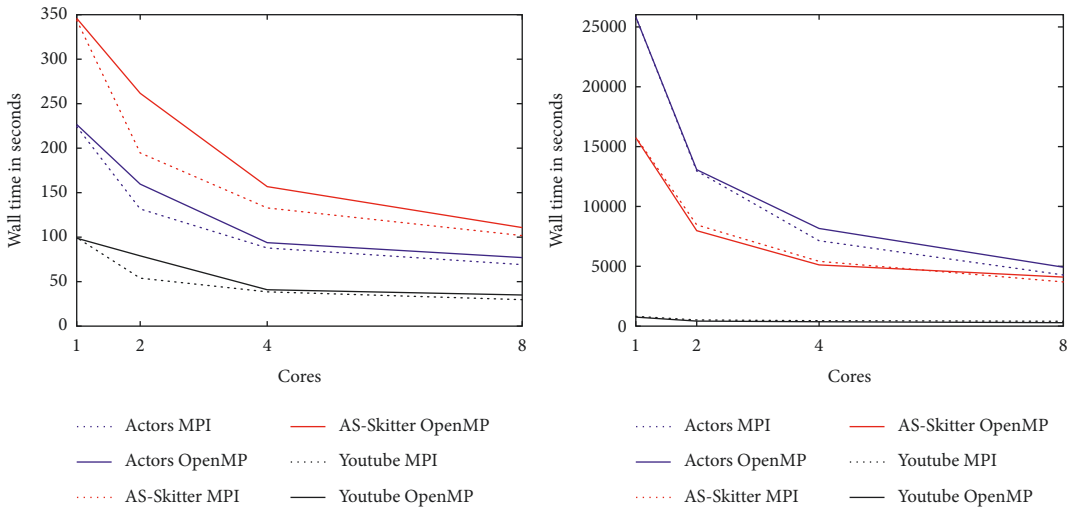

Figure 3: Runtime based on MPI and OpenMP.

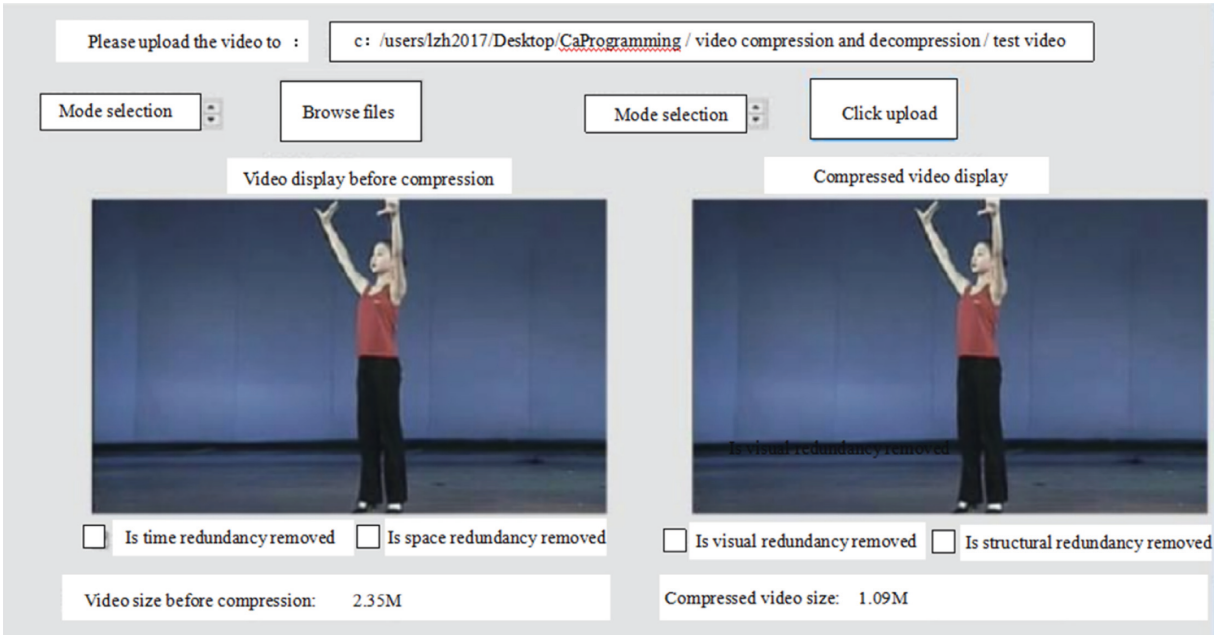

Figure 4: Big data management based on MPEG video compression algorithm.

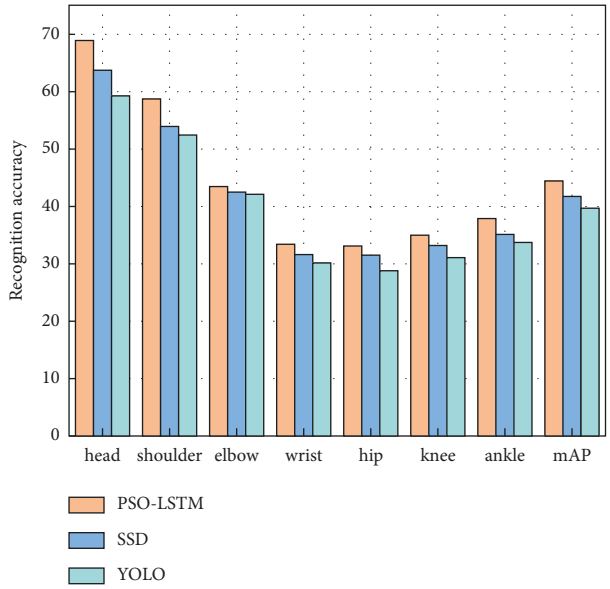

Figure 5: Dance pose recognition accuracy of different algorithms.

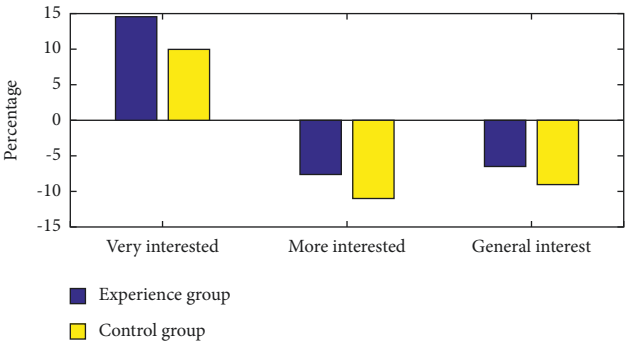

Figure 6: The influence of dance big data management system on students' interest.

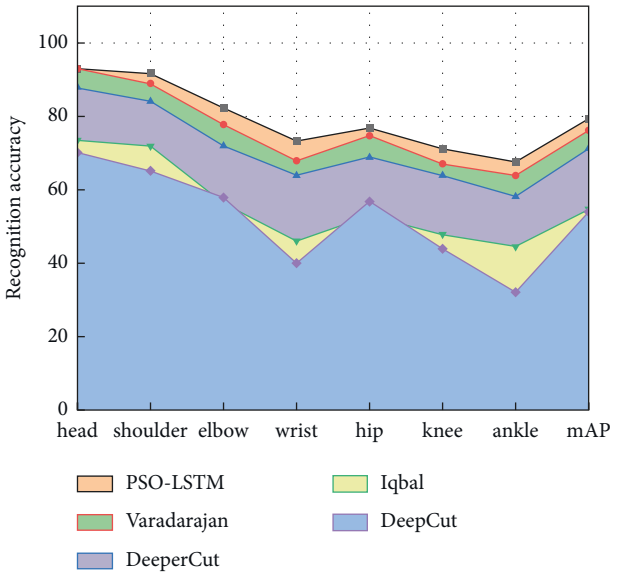

Figure 7: Comparison of skeleton point recognition rate of different algorithms.

and use of site resources, teaching resources, and human resources, and the high integrity and security and the synchronization and equivalence of existing information should be maintained in the process of configuration and use. The construction of the teaching resource library is also directly related to several departments. Both the open MOOCs offered by colleges and universities and the relevant level examination set by associations can be included in the teaching resource library, and the corresponding teaching resources can be obtained by entering the platform through different identity authentication. In order to test the stability of the proposed system, several independent experiments were carried out regarding different algorithms, such as PSO-LSTM (Particle Swarm Optimization- Long Short-Term Memory) [35], SSD (Single Shot MultiBox Detector) [36], and YOLO (You Only Look Once) [37]. The dance pose recognition accuracy of different algorithms is shown in Figure 5. As can be seen from the figure, LSTM, a typical representative algorithm of deep learning, achieves the best recognition accuracy on all body joints in dance.

In addition, the impact of the proposed big data management system on students' interest is also verified, and the specific results are shown in Figure 6. It can be seen from the figure that after the landscape big data management system, the number of students who are interested in dancing increases by 13.7%, while those who are not interested in dancing and those who are generally interested in dancing decrease by 5.4% and 7.2%, respectively. This proves the effectiveness of the proposed system in managing dance big data in colleges and universities.

Figure 7 gives the comparison of the skeleton point recognition rate of different algorithms. From the figure, we know that the PSO-LSTM algorithm is superior to other algorithms in detecting human body nodes. The test result of the comprehensive evaluation index MAP is 79.3%, 3.2% higher than 76.1% of other optimization algorithms. The main reason is that the PSO-LSTM algorithm is a deep learning algorithm, so it is particularly suitable for dealing with big data problems. The big data management framework designed in this article is consistent with the expected results. From another point of view, the validity of the framework proposed in this article is proved.

Figure 8 gives the identification accuracy of bone points by different methods. As shown in Figure 8, it can be clearly seen that the human bone detection algorithms have a good recognition effect on the head, shoulder, and elbow. However, the recognition effect of the wrist joint, knee joint, and ankle joint is poor. After adopting PSO, the recognition effect of the algorithm is improved obviously. Thus, the effectiveness of the proposed neural network in the designed dance big data management platform is proved.

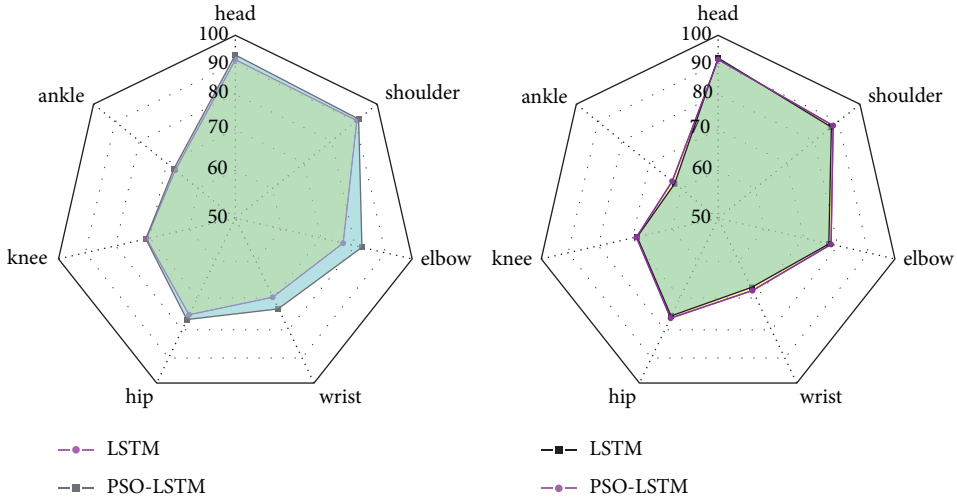

Figure 8: The identification accuracy of bone points by different methods.

4. Conclusions

As we all know, student information is a comprehensive collection of information about a student's study, work, thoughts, and other situations when they enter a school. Compared with the simple student course transcript, student dance big data is a more detailed material proof. Learning dance big data can reflect students' performance in study and work in colleges and universities in detail and can correctly reflect students' comprehensive situation at school. Compared with academic performance, it more reflects students' situation in school and can provide more objective and real materials for schools and employers.

This system is designed to quickly find and view all students' dance-related information. In order to reduce manual operation, the query can be done through the student number input, viewing all the information of the students according to the content to be updated to add or modify and achieve fast data with new and real-time student management. Through the student number, all the information of the individual can be queried. Regarding the implementation of the system on the basis of satisfying the query of students' dance information, there are still some sufficient places and improvement space for some control considerations such as the security of the system interface design and the incompleteness of students' information. Therefore, the system still has a great space for development. We will strive to form a perfect intelligent student dance information big data management system as soon as possible.

Data Availability

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

Conflicts of Interest

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

References

[1] M. Kovacova and E. Lewis, "Smart factory performance, cognitive automation, and industrial big data analytics in sustainable manufacturing Internet of Things," *Journal of Self-Governance and Management Economics*, vol. 9, no. 3, pp. 9–21, 2021.

[2] K. E. Psannis, C. Stergiou, and B. B. Gupta, "Advanced media-based smart big data on intelligent cloud systems," *IEEE Transactions on Sustainable Computing*, vol. 4, no. 1, pp. 77–87, 2019.

[3] J. A. Ahumada, E. Fegraus, T. Birch, and N. Flores, "Wildlife insights: a platform to maximize the potential of camera trap and other passive sensor wildlife data for the planet," *Environmental Conservation*, vol. 47, no. 1, pp. 1–6, 2020.

[4] P. Törnberg and A. Törnberg, "The limits of computation: a philosophical critique of contemporary Big Data research," *Big Data & Society*, vol. 5, no. 2, 2018.

[5] Z. Li, M. Zhou, and T. Teo, "Mobile technology in dance education: a case study of three Canadian high school dance programs," *Research in Dance Education*, vol. 19, no. 2, pp. 183–196, 2018.

[6] S. Deterding, "Gamification in management: between choice architecture and humanistic design," *Journal of Management Inquiry*, vol. 28, no. 2, pp. 131–136, 2019.

[7] Y. You, "Online technologies in dance education (China and worldwide experience)," *Research in Dance Education*, vol. 16, pp. 1–17, 2020.

[8] T. Vaiyapuri, V. S. Parvathy, V. Manikandan, N. Krishnaraj, D. Gupta, and K. Shankar, "A novel hybrid optimization for cluster-based routing protocol in information-centric wireless sensor networks for IoT based mobile edge computing," *Wireless Personal Communications*, vol. 7, pp. 1–24, 2021.

[9] Y. Yu and A. Qi, "Teaching system of smart learning environment for aerobics course," *International Journal of Emerging Technologies in Learning (iJET)*, vol. 13, no. 05, p. 165, 2018.

[10] A. D. M. Dobson, E. J. Milner-Gulland, N. J. Aebischer, and C. Beale, "Making messy data work for conservation," *One Earth*, vol. 2, no. 5, pp. 455–465, 2020.

[11] M. Kovacova and G. Lăzăroiu, "Sustainable organizational performance, cyber-physical production networks, and deep learning-assisted smart process planning in Industry 4.0-

based manufacturing systems," *Economics, Management, and Financial Markets*, vol. 16, no. 3, pp. 41–54, 2021.

[12] K. Zhang, Y. Chen, and C. Li, "Discovering the tourists' behaviors and perceptions in a tourism destination by analyzing photos' visual content with a computer deep learning model: the case of Beijing," *Tourism Management*, vol. 75, pp. 595–608, 2019.

[13] A. Charro and D. Schaefer, "Cloud manufacturing as a new type of product-service system," *International Journal of Computer Integrated Manufacturing*, vol. 31, no. 10, pp. 1018–1033, 2018.

[14] K. Chung, H. Yoo, D. Choe, and H. Jung, "Blockchain network based topic mining process for cognitive manufacturing," *Wireless Personal Communications*, vol. 105, no. 2, pp. 583–597, 2019.

[15] H. Fu, C. Zhao, C. Cheng, and H. Ma, "Blockchain-based agri-food supply chain management: case study in China," *The International Food and Agribusiness Management Review*, vol. 23, no. 5, pp. 667–679, 2020.

[16] L. Ran, "Necessity of dance resource management system platform construction under the background of big data," vol. 5, no. 1, pp. 005–014, 2019.

[17] A. A. Süzen, "A risk-assessment of cyber attacks and defense strategies in industry 4.0 ecosystem," *International Journal of Computer Network and Information Security*, vol. 12, no. 1, pp. 1–12, 2020.

[18] R. S. Segall and J. S. Cook, "Handbook of research on big data storage and visualization techniques," *IGI Global*, vol. 12, no. 1, pp. 1081–1094, 2018.

[19] Z. Wu, J. Sun, Y. Zhang, and Z. J. Wei, "Recent developments in parallel and distributed computing for remotely sensed big data processing," *Proceedings of the IEEE*, vol. 109, no. 8, pp. 1282–1305, 2021.

[20] S. Hu, Q. Meng, D. Xu, I. Katib, and M. Aouad, "The spatial form of digital nonlinear landscape architecture design based on computer big data," *Applied Mathematics and Nonlinear Sciences*, vol. 12, no. 2, pp. 121–132, 2021.

[21] M. C. Riddle, L. Blonde, H. C. Gerstein, and E. W. R. R. J. M. G. A. A. W. T. Gregg, "Diabetes care editors' expert forum 2018: managing big data for diabetes research and care," *Diabetes Care*, vol. 42, no. 6, pp. 1136–1146, 2019.

[22] K. A. Lawless and J. Riel, "Exploring the utilization of the big data revolution as a methodology for exploring learning strategy in educational environments," *Handbook of Strategies and Strategic Processing*, vol. 25, pp. 296–316, 2020.

[23] Y. Gao and D. Xu, "Exploration of dance teaching mode based on the information technology era," *Frontiers in Art Research*, vol. 3, no. 3, 2021.

[24] J. C. S. Dos Anjos, K. J. Matteussi, P. R. R. De Souza, and G. J. A. G. A. J. L. V. G. V. V. R. Q. C. F. R. Grabher, "Data processing model to perform big data analytics in hybrid infrastructures," *IEEE Access*, vol. 8, pp. 170281–170294, 2020.

[25] M. F. Khan, M. Azam, M. A. Khan, and F. M. I. I. Algarni, "A review of big data resource management: using smart grid systems as a case study," *Wireless Communications and Mobile Computing*, vol. 2021, Article ID 3740476, 18 pages, 2021.

[26] L. Qian, J. Zhu, and S. Zhang, "Survey of wireless big data," *Journal of Communications and Information Networks*, vol. 2, no. 1, pp. 1–18, 2017.

[27] C. Chen, F. S. Alotaibi, and R. E. E. Omer, "3D mathematical modelling technology in visual rehearsal system of sports dance," *Applied Mathematics and Nonlinear Sciences*, vol. 4, pp. 167–177, 2021.

[28] M. Zhang and X. Li, "Design of smart classroom system based on Internet of things technology and smart classroom," *Mobile Information Systems*, vol. 2021, no. 2, Article ID 5438878, 9 pages, 2021.

[29] P. Ataei and A. Litchfield, "NeoMycelia: a software reference architecturefor big data systems," *IEEE*, in *Proceedings of the 2021 28th Asia-Pacific Software Engineering Conference (APSEC)*, pp. 452–462, Taipei, Taiwan, December2021.

[30] J. Shi, "Application of 3D computer aided system in dance creation and learning," in *Proceedings of the International Conference on Machine Learning and Big Data Analytics for IoT Security and Privacy*, vol. 17, Springer, Cham, pp. 88–95, October 2021.

[31] L. Ma, "Traditional music protection system from the ecological perspective based on big data analysis," *Ekoloji*, vol. 28, no. 107, pp. 3667–3676, 2019.

[32] Y. He, "Design of online and offline integration teaching system for body sense dance based on cloud computing," *Journal of Interconnection Networks*, vol. 31, Article ID 2147001, 2021.

[33] Q. Chen, A. Albarakati, and L. Gui, "Research on motion capture of dance training pose based on statistical analysis of mathematical similarity matching," *Applied Mathematics and Nonlinear Sciences*, vol. 33, no. 3, Article ID e5242, 2021.

[34] T. D. Nguyen, "Exploring input enhancements big data analysts need to improve a credit qualification model to support large banks in their risk management operations," *Colorado Technical University*, vol. 11, no. 3, pp. 239–246, 2020.

[35] Y. Yu, X. Si, C. Hu, and J. Zhang, "A review of recurrent neural networks: LSTM cells and network architectures," *Neural Computation*, vol. 31, no. 7, pp. 1235–1270, 2019.

[36] W. Liu, D. Anguelov, D. Erhan et al., "Ssd: single shot multibox detector," in *Proceedings of the European conference on computer vision*, Springer, Cham, pp. 21–37, September 2016.

[37] Y. Tian, G. Yang, Z. Wang, and H. E. Z. Wang, "Apple detection during different growth stages in orchards using the improved YOLO-V3 model," *Computers and Electronics in Agriculture*, vol. 157, pp. 417–426, 2019.