Retraction

Retracted: Assisting Laboratory Management Based on Network Big Data Mining Technology

Journal of Function Spaces

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] Y. Xu, "Assisting Laboratory Management Based on Network Big Data Mining Technology," *Journal of Function Spaces*, vol. 2022, Article ID 2087287, 7 pages, 2022.

Research Article

Assisting Laboratory Management Based on Network Big Data Mining Technology

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In today's big data context, the composition of virtual networks is becoming increasingly complex, so it is neither easy nor difficult to strengthen the control of network security issues. This paper studies the important content of network big data mining-assisted laboratory management. On the basis of discussing the connotation of laboratory safety, combined with management practice, this paper puts forward some suggestions on laboratory safety management. This paper puts forward some views and thoughts on some problems existing in the management and experimental teaching of chemistry laboratory. By judging the stability of instruments and equipment, we know whether the calibration status of instruments and equipment has changed during this period, so as to ensure the sustainable use of instruments and equipment and the accuracy and traceability of laboratory test results. The use of laboratory management system can greatly improve the utilization rate of laboratory equipment, promote students' autonomous learning, and promote the standardization of laboratory construction. Improve the network monitoring method of big data mining technology and the application mechanism of big data network monitoring, in one type of laboratory. Teachers and students in the laboratory can reasonably arrange their own time according to their own interests to guide and operate experiments. Through continuous operation and practice, students' practical ability and experimental knowledge level should be improved as much as possible.

1. Introduction

With the progress of human beings and the development of science and technology, computers have become a necessary tool in people's life and work. Because of the weakness of traditional network security technology, information leakage has become a breeze [1]. At the same time, with the development of data mining technology itself, there are big data mining technologies represented by high-performance data mining, data stream mining, and complex data mining technologies. The traditional laboratory management mode has been unable to adapt to the current development trend. Therefore, modern management methods and technologies are used to carry out laboratory informatization construction. The experimental link has been relatively weak, and the national investment is seriously insufficient. Not only are the experimental instruments outdated and the number of sets insufficient, but also is the experimental environment poor, and the facilities such as lighting and ventilation are imperfect. This situation has seriously affected students' learning enthusiasm and interest and restricted the cultivation and improvement of students' experimental research and hands-on ability. Traditionally, most of them are large-scale speeches handed down from street to street. If you want to get information, you need to go through private surveys and unannounced visits. Compared with online access, the cost is high and the efficiency is low [2]. Moreover, with the increase of the number of laboratory equipment, the number of laboratory equipment can no longer meet the normal teaching use, which seriously affects the training of students' experimental skills. It is precisely because of the crazy growth of data that "big data" is slowly being studied by all walks of life.

In some western developed countries, especially the United States, their scientific and technological level has always been in the leading position in the world. These countries have earlier researched on computer and network information technology, so they have developed very

rapidly. In recent years, although the Ministry of Education and each state have issued a number of documents to improve teaching quality, high-level teachers are encouraged to undertake basic course teaching tasks, and attention should be paid to the practical teaching of undergraduates [3]. Due to the hidden nature of the Internet, it brings us convenience and many uncertainties. If we can control those that endanger society in advance and seize the initiative, then we can better exert our advantages. With the improvement of the society's requirements for students' comprehensive quality, the laboratory teaching management system is gradually improving [4]. The traditional laboratory management model can no longer meet the current teaching methods, and the traditional management model needs to be broken. As an important part of laboratory management, strengthen laboratory safety management. It is an important task for laboratory management departments to build a normal operation and safety guarantee system for teaching and scientific research. The purpose of the reform of the laboratory management system is to improve the efficiency of the laboratory, realize the sharing of equipment and resources, and provide good material conditions and guarantee mechanisms for the reform of experimental teaching [5]. As a means of information processing, data mining technology has advanced functions such as analysis and prediction. Network security can also be guaranteed by improving the accuracy of network intrusion detection. As far as the current network security technology is concerned, although some progress has been made, there are still some problems such as weak protection capability and more security vulnerabilities, which are prone to network security accidents [6]. The network is the basis and barometer for network public opinion to guide work. Change traditional network public opinion-guided thinking with big data concept, apply big data mining technology to network monitoring well, and discover the information behind the network. However, the construction and management of information technology are not a simple process but require time and practice to reach a satisfactory level.

Laboratory is an important base for colleges and universities to cultivate innovative talents, conduct scientific research, and serve the society, and it is also an important symbol to reflect the level of teaching and scientific research and show the strength of running a school. Data mining technology is a means of processing information at present; on the one hand, it can realize the analysis and prediction of network data [7]. On the other hand, it can also effectively improve the efficiency and accuracy of network intrusion detection. It is of great theoretical significance and practical value to guide the network public opinion in the current environment and then help the government to make decisions and maintain the network social security. From the content point of view, information management mainly includes two parts: scientific management and resource management. Although the emphases of the two parts are different, they are closely related to each other. The laboratory management is weak, the utilization rate of experimental teaching resources is not high, and the benefits are low [8]. Undoubtedly, the above situation is incompatible with the requirement of cultivating high-quality undergraduates. Traditional laboratory management is only for the management of laboratories, experimental equipment, and experimental personnel. And with the continuous improvement of the society's requirements for students' comprehensive quality, students' independent innovation ability has become the standard of today's new talents, and the drawbacks of traditional laboratory management methods have gradually emerged [9]. Therefore, how to scientifically control and manage the safety of the laboratory is an important issue faced by our laboratory managers.

The transformation of teachers' ideas is the key and premise of implementing innovative education. We should get rid of the shackles of traditional teaching ideas and strengthen our own ideas of advancement, openness, application, and democracy. We should give full play to the leading role of teachers and the main role of students and mobilize students' enthusiasm and initiative in learning. Secondly, we should create the best teaching procedure and the best teaching situation according to the teaching objectives and students' personality differences. Thirdly, teachers' awareness of knowledge authority should be changed, and the traditional indoctrination education should be changed into heuristic, discussion, and inquiry, so that students can study in a relaxed and happy mood. Encourage students to explore different ways to solve problems boldly, so as to further stimulate students' internal learning motivation. We should integrate all kinds of teaching resources. Because each student's basic knowledge, learning experience, self-study ability, and other factors are different, and their academic performance is different. Therefore, all kinds of teaching information resources with different degrees of difficulty should be set up in the teaching information resource database to meet the learning needs of students at different levels. At the same time, we should further build and timely update the multimedia teaching information resource system, including multimedia material library, multimedia textbook library, and multimedia courseware library. Actively optimize and combine various teaching media to realize the optimization of teaching process.

2. Related Work

No matter from foreign or domestic research, there have been some related academic papers on data mining technology and its application in network monitoring in the field of big data, but on the whole, there are still few related studies, lacking systematic and in-depth research. Luo et al. think in one article: big data has triggered a reexamination of scientific research methodology and is triggering a revolution in scientific research thinking and methods [10]. Yang et al. put forward in a paper: data mining helps network monitoring and guidance to choose the path, including network association analysis, network level division, network clustering, and network tendency analysis, and analyzed the practical value of network monitoring and guidance in the view of data mining [11]. Lou establishes scientific data management system applied in entry-exit inspection and

quarantine, taking the important nodes in the laboratory data management process as the research object, comparing the characteristics and advantages of traditional data management methods and laboratory scientific data management systems, and establishing a data management system suitable for inspection and quarantine laboratories through research and introduction [12]. Xu and Liu pointed out in their article: the progress and development of big data technology research have brought great opportunities for the development and application of data mining technology, and data mining technology will enter a new development period, giving the future development direction of data mining technology in the era of big data [13]. Huang established the laboratory of the Guizhou Geology and Mineral Center as an example; he expounded the big data and its enlightenment to the analysis and testing of geological and mineral resources. On the basis of introducing the connotation of big data, analyze the characteristics of big data [14]. Scholars such as Li and Xiao mentioned in their article that the patterns, trends, and correlations of big data can reveal social phenomena and predict the laws of social development. Network science and data science provide a new scientific methodology for social science research [15]. Wang proposed: combined with the impact of big data on social research, he analyzed the advantages of social research in the era of big data in data collection, data storage, data processing, and data presentation [16]. In the article, Rong and Gang designed a monitoring system deployed on the Internet, which monitors various information media such as web pages, forums, and microblogs on the Internet and automatically collects data on Internet pages [17]. Another trend is to analyze the environment, risk, research direction, and practical value of network monitoring in the big data environment from the macro level.

3. Exploration and Practice of Laboratory Safety Management

3.1. Standardize Infrastructure Construction and Eliminate Potential Laboratory Safety Hazards. The basic condition of laboratory is the first condition to ensure the safety of laboratory. Attach great importance to laboratory safety issues, start from the source, and incorporate safety construction standards into the planning and construction of laboratory infrastructure. The school occupies an important position in the teaching and scientific research work. But for a long time, experimental teaching has been attached to theoretical teaching. As the verification of curriculum theory teaching, the construction and management of laboratory are basically attached to the teaching and research section or research group. The birth of data mining technology comes from the irregularity, complexity, diversity, and other characteristics of the original data. Using data mining technology, valuable information in the original data can be extracted to make it play more roles [18]. Faced with the complexity of big data, some scholars try to use statistical methods and complex network methods to study how to reduce big data on demand [19]. With the rapid development of the Internet all over the world, people are full of curiosity and interest in

this emerging field, and the Internet has also started from a small research project. After more than 20 years of development, it has finally become the communication system that most people in the world rely on. By generating a function that maps data items to a real-valued forecast variable, regression analysis finds the dependence among variables and studies the forecast and trend characteristics of data series. The laboratory is provided with a card swiping machine. After entering the laboratory in the spare time, students will read their all-in-one cards on the card swiping machine, and the courses that the students have taken will be displayed in the system [20]. Active exploration and practice have also been carried out in the teaching of chemical theory and experimental courses, as well as students' scientific research training. The data structure of the power controller table is shown in Table 1. The data structure of the device information table is shown in Table 2. The data structure of the control association table is shown in Table 3.

A 24-hour monitoring of laboratories and hazardous substances shall be carried out to prevent outsiders from contacting and entering the laboratories, thus eliminating the loss and improper use of hazardous substances.

$$
\begin{aligned}
\text{Centroid} = m_i &= \frac{1}{n_i} \sum_{X \in C_i} X, \\
\text{Radius} &= \sqrt{\frac{\sum_{X \in C_i} (X - M_i)^2}{n_i}}.
\end{aligned}
\tag{1}
$$

Sample deviation matrix A and sample covariance matrix S are

$$
\begin{aligned}
A &= \sum_{X \in C_i} (X - M_i), \\
S &= \frac{A}{n - 1}.
\end{aligned}
\tag{2}
$$

When $q = 1$, the first-order Minh distance is

$$
\begin{aligned}
L_1(X_i, X_j) &= \lim_{d \longrightarrow \infty} \sum_{k=1}^{d} |x_{ik} - x_{jk}|, \\
L_2(X_i, X_j) &= \left(\lim_{d \longrightarrow \infty} \sum_{k=1}^{d} |x_{ik} - x_{jk}|^2 \right), \\
d_{ij}M &= (X_i - X_j)' S^{-1} (X_i - X_j), \\
d_{ij}L &= \lim_{p \longrightarrow \infty} \frac{1}{p} \sum_{k=1}^{p} \frac{|x_{ik} - x_{jk}|}{(x_{ik} + x_{jk})}.
\end{aligned}
\tag{3}
$$

3.2. Establish Rules and Regulations and Improve Safety Management Network. Only when the system is perfect, scientific and reasonable, and feasible can the safety construction of the laboratory have laws and rules to follow. The establishment of experimental center is an important

Table 1: Power control table.

Data item name	Data item type and length	Data item description
PC_PCID	Int	Primary key: controller number
PC_Mac address	Varchar, 20	Controller Mac address
PC_start date	Date time, 8	Put into use time
PC_manufacturers	Varchar, 60	Controller manufacturer

Table 2: Data structure of device information table.

Data item name	Data item type and length	Data item description
LE_LEID	Int	Primary key: controller number
LE_equipment name	Varchar, 20	Device name
LE_manufacturers	Varchar,50	Equipment manufacturer
LE_start date	Date time, 8	Equipment put into use time

Table 3: Data structure of the control association tables.

Data item name	Data item type and length	Data item description
CR_ LE_LEID	Int	Foreign key: experimental device number
CR_PC_PCID	Int	Foreign key: power controller number
CR_state	Bit	Association status

attempt in the reform of laboratory system, and its brewing and establishment have been strongly supported by the school leaders. The neural network can also be regarded as a collection of multiple nerve units, so that the problem of large clusters of biological neurons connected by axons can be effectively solved. As the position of scientific research, the laboratory has many shortcomings, and it is bound to be impacted by big data. Big data mining technology is mainly applied in network security. The development of human society is a process of continuous updating. Big data plays an important role in the development of science and technology and the change of human concepts, and it exists everywhere. Or use the association rule method, through which the relationship between data items in the database can be described. If a certain item in one group of data and a certain item in another group of data appear at the same time, it can be judged that the two groups of data are related or interrelated. Under the same data set, with the increase of the number of nodes, the running time gradually decreases, which reflects the scalability of the algorithm. With the same number of nodes, the running time increases with the increase of data set. The main job of the laboratory administrator is to operate and manage all subfunctional modules. Therefore, I believe that laboratory managers must be cost-conscious and should implement institutionalized

simple management to achieve the goal of high efficiency and low cost. To make student lab report results. In addition, teachers can print and export data online for student scores or experimental reports through the score statistics function. It also implements the accountability system for laboratory safety work, with clear responsibilities and accountability. The laboratory director is the person in charge of the safety of the laboratory and is responsible for the school and college. Strictly implement the relevant safety management regulations of the University and college, and organize the formulation of laboratory safety management rules in combination with the actual situation of the unit. Regularly educate relevant personnel on prevention and safety laws and regulations, and urge them to consciously abide by various safety management rules and regulations. Regularly organize safety inspections, and keep safety records. Find hidden dangers and loopholes, and deal with them in time. If it is difficult for the office to rectify due to objective factors, temporary emergency measures must be taken.

4. Effective Application of Big Data Mining Technology in Network Security

4.1. Shortcomings Exposed in Traditional Network Security Technologies. At present, the network security technology used by people in daily life and work is mainly designed for a certain or a certain network security problem. Therefore, to some extent, these network security technologies can only solve some or some network security problems. However, these network security technologies cannot solve other related problems, let alone effectively protect the entire network system. For example, the access control and identity authentication technology used in people's network technology can only solve the problem of network user identity confirmation. However, the security of information transmission between users cannot be guaranteed. With the rapid development of network technology, the problem of network security has been paid more and more attention by the public. Nowadays, the data generated in medical, transportation, finance, education, and other fields is huge, and it belongs to the category of big data. The laboratory administrator is mainly responsible for inputting new experimental equipment information in the system; modifying, deleting, and querying the equipment information; etc. Once the equipment fails, it will report for repair. Only when a laboratory can meet these key factors can it have the best premise of providing users with high-quality services. Transaction response time mainly refers to the time it takes for the system to complete the operation after the user logs in to the system and performs the corresponding operation. The average transaction response time of the target system is shown in Figure 1.

In this way, users will be interested in the lab, and the lab will continue to be popular with users. In order to improve the management efficiency of each link, computer can be used to conveniently arrange the related teaching process of students, teachers, and laboratories. Under the new situation, lab safety work urgently needs us to actively change the
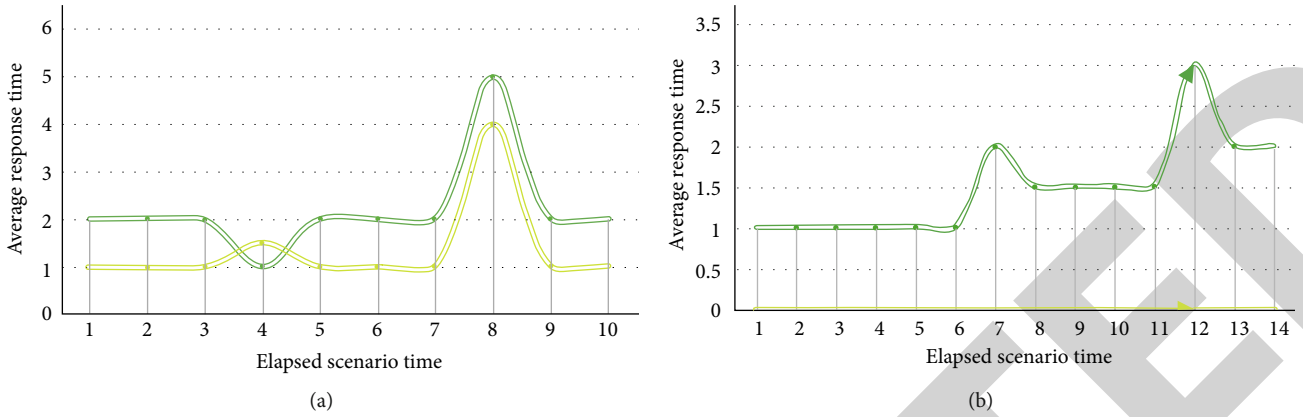
(a)

(b)

Figure 1: Average transaction response time.

mode of safety management, advocate safety services, and focus on prevention. Increase the breadth and depth of laboratory safety management, and use information technology, science, and technology and cultural means to change postevent management into preventive management. Trends provide a comparative analysis of the attention of multiple keywords, as shown in Figure 2.

According to the teaching needs, it is no longer restricted to "owning me," but emphasizing "available for me," so that the school can adjust and control from a macro perspective, so as to "turn the parts into whole." The application value of data mining technology in the manufacturing industry is mainly reflected in the inspection of product quality, such as finding out the rules by researching and analyzing product data or by analyzing the production process to find out the main factors that affect the production efficiency and product quality. Since it is useful for public health programs, an attempt was made to further validate the model with the weekly ILI percentage for individual states. The CDC did not publish interstate data, and researchers used the percentage of ILI published by Utah to validate, as shown in Figure 3.

The laboratory incorporates the results generated by the above quality control methods and the laboratory's self-quality requirements into the big data analysis to screen out the project data that is necessary for quality control. Under the conditions of traditional network technology, information storage also needs to rely on manual input, which is not only inefficient but also prone to input errors, resulting in a large manual workload.

4.2. Effective Application of Big Data Mining Technology in Network Security Management. To some extent, no matter what kind of network security problem, its infringement on network security is traceable, especially for network viruses. With the help of data mining technology, users' data can be classified, collected, and evaluated through corresponding technical means, so as to achieve the purpose of dynamically scanning system data. In the process of applying big data mining technology to prevent network security problems, the application process is relatively complex. The amount of data involved is also relatively large, so it is necessary to clearly grasp the characteristics of each link and make a reasonable plan. Build multiple analysis modules
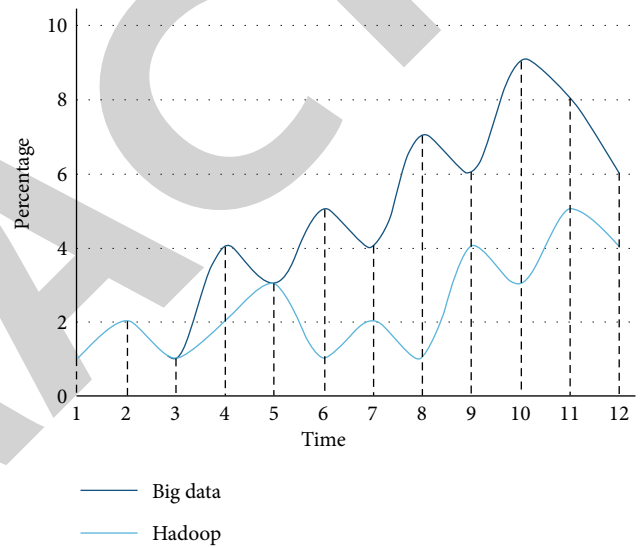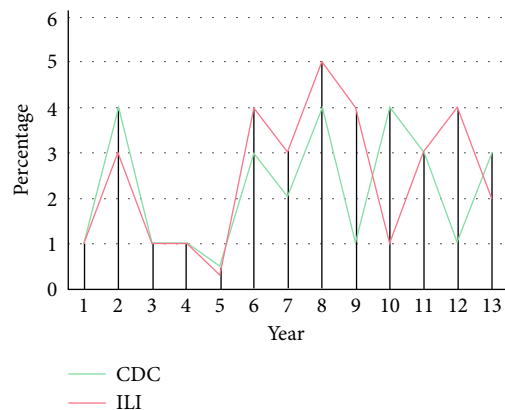

Figure 2: Search trend comparison score.

Figure 3: Model comparison diagram.

to ensure the security of network applications. Based on the systematic characteristics of large data technology, the specific working status of large data technology can be divided into four parts, namely, collecting information, preprocessing information, mining information, and pattern evaluation
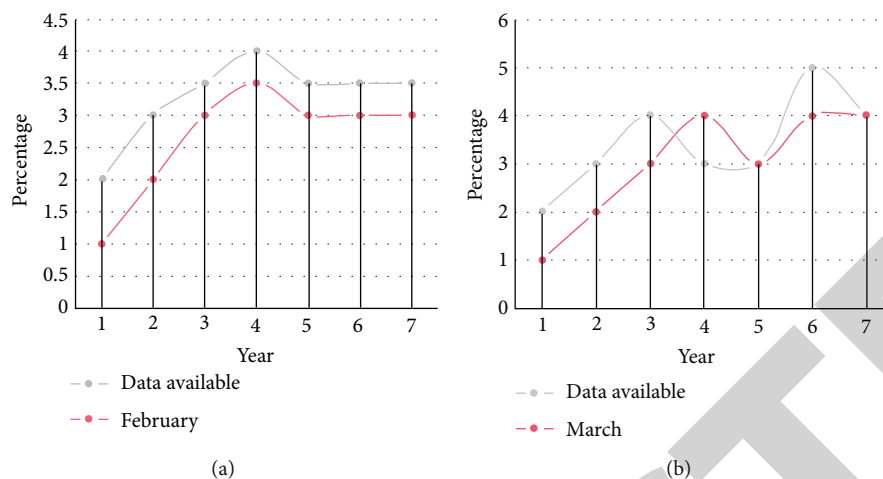
(a)

(b)

Figure 4: Comparison of data between two model areas.

information. The big data approach involves not only acquiring or storing data but also analyzing it to understand and discover its value. Among them, the director of the experimental center can arrange the experimental projects according to the school's teaching plan, manage the information of the experimental courses and the experimental projects, and can also view the optional records of the experimental courses. It not only serves postgraduate training and tests of various scientific research projects but also faces undergraduates [7], besides meeting the teaching needs of instrumental analysis experiments and comprehensive chemical experiments. If there are classes in the laboratory, it is judged whether the user's credit card swiping time is within the class time. If it is in the class time, according to the class scheduling information in the database, query the class and teacher of this class in the laboratory. Strengthening the supervision and control of laboratory environmental pollution has become the consensus of teachers, students, and leaders. The data is shown in Figure 4.

First of all, set goals and make implementation plans from the level of teaching reform. Now, the first phase has been completed, and the second phase construction will be adjusted on the basis of summing up the experience of the first phase construction. In this case, telecom enterprises must take effective measures to improve their technical level and service quality, so as to ensure customer satisfaction and loyalty. In practice, we should constantly strengthen the improvement of intrusion detection and improve the application scope of big data technology. Ensure the effectiveness of each work link, and ensure the security of the network environment.

5. Conclusions

With the rapid development of information technology and network technology, people rely more and more on science and technology. Network monitoring in the context of large data environment needs the convenience provided by large data mining technology. It is also necessary to improve the

network monitoring method of big data mining technology and improve the application mechanism of big data network monitoring. In a class I laboratory, teachers and students can reasonably arrange their own time. Conduct experimental guidance and operation according to their own interests, and improve students' practical ability and experimental knowledge level as much as possible through continuous operation and practice. However, there are still many specific problems to be solved. This paper puts forward some views and thoughts from the perspective of some problems existing in the management and experimental teaching of chemical laboratories. The use of laboratory management system can greatly improve the utilization rate of laboratory equipment, promote students' autonomous learning, and promote the standardization of laboratory construction. By judging the stability of instruments and equipment, we can find out whether the calibration state of instruments and equipment has changed during this period, which ensures the sustainable use of instruments and equipment and the accuracy and traceability of laboratory test results. Therefore, it is necessary to carry out more detailed and specific research work, constantly improve and innovate the data mining technology, and improve the intrusion detection efficiency and network security characteristics more effectively through application research. However, the research has certain limitations. It is also necessary to set parameters and deeply mine intrusion behavior paths. At the same time, the corresponding algorithm is applied to predict the intrusion behavior scientifically, so that abnormal intrusion detection can predict and detect unknown intrusion behavior in time and improve its protection effect. This needs further supplementary analysis in future research.

Data Availability

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

Conflicts of Interest

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

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