

# The Problems and Solutions of Computer Room Management in Vocational Colleges

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**Abstract**—In recent years, with the rapid expansion of enrollment scale in vocational colleges, the load of computer rooms has also increased, and many problems have arisen in computer room management. It is particularly important to effectively manage the computer room to accommodate the increasing number of students on campus. The article analyzes the main problems and causes of network failures, software installation issues, damage to public equipment software and hardware, virus infections, and other issues in the current computer rooms of vocational colleges. Corresponding solutions are proposed from the aspects of improving administrator capabilities, establishing computer room archives, improving computer room management systems, emphasizing network security, and student participation in computer room management. The research in this article has reference value for improving the quality of computer room usage and thus improving the quality of education and teaching in vocational colleges.

**Keywords**—vocational colleges, computer room management, problem, solution

## I. INTRODUCTION

With the expansion of enrollment scale in vocational colleges, the number of students in vocational colleges has rapidly increased in the past decade. In addition, with the development of computer technology, computer technology has played a very important auxiliary role in vocational education. Not only has computer courses become a compulsory course for every college student, but many other courses also require the support of computer technology. These courses have a common characteristic that the computer room has become the main place for learning (Yang, 2019).

In addition, the computer room also undertakes various exam tasks such as campus exams, computer level exams, and even social exams, and serves as a training venue for students during various training weeks. However, vocational colleges often face a shortage of funding, and the increase in the number and quality of computer rooms cannot keep up with the increasing demand for computer rooms. Therefore, it is particularly important to effectively manage computer rooms, reduce their failure rate, and extend their service life. In order to make the management of the computer room more reasonable and humane, in addition to doing a good job in the management and maintenance of the computer room foundation, we also need to accumulate experience, record relevant data, and ultimately develop the most suitable management system for vocational colleges (Wang, 2010).

## II. COMMON PROBLEMS AND CAUSE ANALYSIS IN COMPUTER ROOMS

### A. Network Cable Failure in Computer Room

Network cable failure is one of the most frequent problems in the computer room. Network cable failures can lead to slower or disconnected network speeds, which can affect normal classes for teachers and students. Therefore, network cable failures are a problem that we must solve. Due to the fact that network cables are fixed during the construction of the computer room to prevent students from moving them, it is difficult to repair problematic network cables in a short period of time when network cable faults occur. Often, the entire computer room needs to be inspected in sections, which requires a longer maintenance time (Song, 2021).

To solve the problem of network cable faults, we can choose high-quality and long-lived network cables during the initial construction of the computer room, and also choose a reliable construction team for installation. This can greatly reduce the possibility of network cable failures, reduce the possibility of later repair and rework of network cables, and improve the convenience of computer room management and maintenance (Yuan, 2020).

### B. Software Installation Issues in the Computer Room

At present, most computer courses in universities require the installation of various system software and application software required for teaching in computer rooms. The software required to be installed varies depending on the course taught by each teacher. Due to the general shortage of educational funds in vocational colleges, they are unable to afford the hardware upgrade or construction of new computer rooms. Although they vigorously promote genuine software, they often cannot afford to purchase it. A computer room usually undertakes the teaching tasks of multiple courses, and the teaching software required for each course is also different. Therefore, a computer room often needs to install multiple application software to meet the needs of different courses. At the same time, these softwares may also be updated and upgraded periodically, resulting in new costs. Taking the domestically produced office software Kingsoft WPS OFFICE as an example, a machine license costs 300 yuan, and a computer room also costs 15,000 yuan. If all the software in a computer room is genuine, the cost would be over 100,000 yuan, which is beyond the capacity of ordinary vocational colleges. So, when choosing teaching software, most teachers prioritize using pirated software from an economic perspective, with only a relatively small number of universities using genuine software. Pirated software often encounters various unpredictable and difficult to solve

problems during use, which brings difficulties to computer room management (Shen, 2020).

### *C. Damage to Software and Hardware of Public Equipment in the Computer Room*

In vocational colleges, the main users of computer rooms can be divided into two categories: teachers and students on campus. Students in school are the main users of computer rooms, but there are also some issues that need our attention. With the expansion of enrollment in vocational colleges, the overall quality of vocational college students has decreased, mainly manifested in their poor self-control ability, lack of awareness of caring for public equipment such as computers, mice, keyboards, tables and chairs in the computer room, and frequent bringing of beverages, mineral water, bread and pastries into the computer room without taking them away when leaving. These issues need to be taken seriously when we manage the computer room (Zhan, 2020).

In addition, the computer rooms used in professional courses, like regular computer rooms, may also encounter the aforementioned problems, which can lead to the destruction of computer equipment and the occurrence of malfunctions. Because the main user group of computer rooms is college students, at the age of the strongest thirst for knowledge, most college students are lively and curious, and some operations when using computers are not standardized, which can lead to the destruction of some hardware facilities of the computer.

And computer rooms are all a whole, including servers, teacher computers, student computers, network devices, etc. In addition, there are various software such as system software and application software. These components in the computer room are all connected to each other to a certain extent. Once some parts fail, the normal operation of other parts will also be affected.

In addition, if hardware components such as servers and network devices inside the computer room fail, we need to promptly locate and repair the faulty machine to prevent a series of fault problems from occurring. But in practical work, there are many internal hardware facilities and complex structures in the computer room, so the troubleshooting process requires a lot of time, which can easily affect normal work.

### *D. The Computer Room is Infected with Network Viruses*

In the daily work of the computer room, some staff often neglect software operation and maintenance due to fear of increasing workload, and even fail to perform software operation and maintenance for a long time, which brings great security risks to the operation and use of computers. So in our daily work, we need to update and upgrade the system in a timely manner, conscientiously carry out computer network security protection work, and eliminate all major and small security hazards in the computer room. If there is negligence in this regard, it can easily lead to a decrease in the speed of machine operation in the computer room, an increase in garbage advertisements, and so on, thereby affecting the normal classes of teachers and students. With the development of the times, especially the comprehensive popularization of mobile networks, computer rooms are facing more security threats from the network, especially mobile networks, and the chances of virus infection are also

further increasing. With the rapid development of information technology, viruses have also developed rapidly, and various types of viruses are also increasing, such as Trojan horses, worms, system viruses, and so on. These viruses are more destructive, more covert, less easily detected, and pose a great threat to computers. Once infected, they will affect the normal classes of teachers and students (Zhang, 2022).

## III. EFFECTIVE SOLUTIONS FOR MANAGING COMPUTER ROOMS

### *A. Improve the Comprehensive Ability and Quality of Computer Room Administrators*

Improving the comprehensive ability and quality of computer room management personnel is the top priority of effective computer room management solutions. If the practical experience and professional abilities of the computer room management personnel are lacking, there may be situations where they do not know how to solve problems or misoperate when maintaining the computer room. This not only affects the performance of the computer room equipment, but may even lead to equipment damage, the entire system crash, or data loss of the server and computer in the computer room. This not only greatly reduces the efficiency and quality of computer room maintenance, but also has the potential to have a serious impact on normal teaching, causing incalculable losses (Yan, 2021).

Applying project management methods to computer room management can effectively improve the efficiency and quality of computer room management. Although in some cases, the computer room management personnel have already applied project management methods, due to the lack of project management knowledge, they only passively applied project management ideas and methods, without realizing that the lack of project management knowledge would restrict the effective management of the computer room. When renovating or building a computer room, we not only need standardized management processes and steps, but also need to mobilize computer room administrators to actively learn and apply project management concepts and methods, and apply them to the daily management of the computer room (Xiao, 2021).

In addition, school administrators should have a correct understanding of the importance of computer room management work. Some school administrators underestimate the position of laboratory technicians, believing that their work is simple and easy. In fact, the concept of emphasizing practical teaching in vocational colleges determines that the management of computer rooms in vocational colleges inevitably involves many highly specialized and practical knowledge. The development of the information technology industry is changing rapidly, and software and hardware updates and iterations are very fast. Only by maintaining a spirit of continuous learning and continuously improving their business capabilities can computer room management work be done more effectively.

### *B. Improve the Computer Room Management Mechanism in Vocational Colleges*

In the current era, most undergraduate colleges and

universities have established a basic and complete set of computer room management systems, and have played their due role in the daily teaching and maintenance of computer rooms. This is worthy of reference and learning for computer room management personnel in vocational colleges. However, for open computer rooms, they have the characteristics of long opening hours, multiple and complex users, and high usage frequency, making management particularly difficult. For example, there are often teachers or students who still need to use the computer room at night or on weekends. Once the computer room machine malfunctions, the computer room management personnel are generally unable to perform maintenance in a short period of time. So we must deeply adjust and optimize the computer room management system based on the characteristics of the computer room. Only through continuous improvement and optimization of the computer room management system can we achieve a better secure, efficient, and reliable computer usage environment (Liang and Li, 2021).

Therefore, we need to carefully analyze and summarize the shortcomings of computer room management in the current context, and develop effective solutions and implementation measures for the existing problems. The management system that needs to be optimized and adjusted includes the use of the computer room by teachers on weekends, the application of off campus teachers to use the computer room, and the management of night use of the computer room. Only through continuous improvement and optimization of the computer room management system can we achieve a better secure, efficient, and reliable computer usage environment.

#### *C. Optimizing the Installation Process of Computer Room Software*

The software installation methods used in the past were mostly traditional hard disk copy installation methods. In the current era of advanced information technology, traditional installation methods are time-consuming and labor-intensive, and there are many loopholes that are no longer suitable for continued use in current computer rooms. So now the way we install software needs to keep up with the times. Firstly, we need to prioritize the software needs of the teachers and try to use genuine software. The software version must be consistent with the teaching needs. Secondly, we should try our best to simplify the software installation process, fully utilize the characteristics of current machines that are already networked, and adopt the method of building big data servers to achieve cloud data sharing, in order to achieve software installation automation.

#### *D. Establishing Computer Room Archives for Vocational Colleges*

In order to provide better services for teachers and students in the computer room, and to better manage the computer room in the future, we need to establish a comprehensive and standardized management file for the computer room, including but not limited to the content of installed software, maintenance and records of hardware damage, etc. After software installation, it is necessary to record the version of each software installation, record the usage of teachers and students, and update the operation and maintenance records and usage status in a timely manner after each operation and maintenance. We also need to record the wear and tear of the

hardware in the computer room during daily use. Every hardware replacement needs to be recorded in the computer room's archives and updated in a timely manner, so as to make the work in the computer room more orderly and standardized. Such archive records can provide us with convenience, making the management and operation of the computer room more efficient and reliable.

By establishing comprehensive computer room archives, we can better manage and maintain computer room equipment and network systems, ensuring their normal operation and security. At the same time, archive records also provide a basis and reference for future maintenance work, making computer room management more scientific and sustainable.

#### *E. Pay Attention to the Network Security of the Computer Room*

The popularization of computer networks not only brings convenience to us, but also makes our computer rooms more open and vulnerable, and more susceptible to attacks by viruses, hackers, etc. Moreover, the losses caused by attacks are greater. Therefore, it is particularly important to strengthen the network security management of computer rooms. Especially, accurately identifying various network risks and taking effective prevention and control measures, constructing a reasonable and standardized network risk prevention mechanism, minimizing the harm of hackers and network viruses to the computer room, and ensuring the system security of the entire computer room.

Therefore, when managing computer rooms in vocational colleges, it is necessary to attach great importance to the management of computer network security, minimize or prevent harm caused by hackers, viruses, and other factors to the computer room, in order to ensure the security of the software and hardware in the computer room. The most effective method is to build an effective network risk prevention mechanism. Specifically, when managing the computer room, we can take the following measures in a standardized manner based on the actual situation: first, conduct a comprehensive analysis of the components of the computer room, including servers, teacher computers, student computers, network devices, office desks, chairs, and even the location of doors and windows in the computer room environment. Systematically understand and grasp the functions and characteristics of each component, analyze potential risk points, and then develop corresponding measures. A highly operational computer room management plan that takes corresponding measures to minimize various risks in response to existing risk points. Secondly, computer room management personnel should be very clear about the versions of various operating systems, hard disk usage, and network device configurations related to servers, teacher computers, and student computers in the computer room, and conduct analysis and research. At the same time, timely records should be kept to lay a solid foundation for future maintenance of the computer room. Thirdly, specific risk prevention measures such as installing firewalls, installing antivirus software, and updating and upgrading firewall and antivirus software technology can be taken to strengthen the management of computer rooms in vocational colleges.

#### F. Enable Students to Participate in Computer Room Management

The effectiveness of student participation in computer room management has been significant over time, mainly manifested in the following aspects:

Firstly, in terms of computer room management, the participation of students has made computer room management more detailed. Students record computer equipment and surrounding hygiene conditions through the situation table submitted after each computer use, and make targeted improvements to the information analyzed in the situation table. This can make computer room management more standardized and detailed.

Secondly, in terms of improving students' management experience, participating in managing computer rooms can not only enhance students' business and social practice abilities, but also help them improve their oral expression skills, reduce future employment competition pressure, and provide more computer access conditions for students to improve their computer skills, thereby narrowing the learning gap between students.

Thirdly, in terms of balancing students' learning levels, for students from impoverished families, participating in managing computer rooms can significantly improve their computer skills, narrow the learning gap between students, and improve the level and effectiveness of higher education and teaching.

Finally, in improving the professional skills of computer teachers, student administrators need to receive guidance and assistance from teachers. This not only enhances effective communication and interaction between students and teachers, but also allows teachers more time to delve into professional knowledge, reform and innovate knowledge, and lay a solid foundation for future teaching work.

#### IV. CONCLUSION

The 'conclusions' are a key component of the paper. It should complement the 'abstract' and is normally used by experts to value the paper's engineering content. A conclusion is not merely a summary of the main topics covered or a re-statement of your research problem, but a synthesis of key points and, if applicable, where you recommend new areas for future research.

The construction of computer rooms in vocational colleges is facing a contradiction between increasing demand and a shortage of funds. The management of computer rooms itself faces many problems such as network failures, software and hardware failures, virus intrusion, etc. By improving the quality of administrators, establishing computer room archives, improving computer room management systems, emphasizing computer network security, and allowing students to participate in computer room management, effective management of computer rooms can be achieved. Effective management of computer rooms can improve the

quality of machine usage and extend the service life of computer rooms. It is one of the effective means to alleviate conflicts and help improve the teaching quality and efficiency of vocational colleges.

#### CONFLICT OF INTEREST

The author declares no conflict of interest.

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