

# Discussion on the management and maintenance of computer laboratory

Zhaolun Wen, Pengyu Zhou

Sichuan University of Media and Communications, Chengdu, Sichuan 611745, China

## Abstract

Computer laboratory has a large number of machines, and the use of software is very extensive, the planning of professional computer management and maintenance work, the use of users have a great impact. In addition, the computer laboratory is the main job of the school. It is also the daily work of the whole school, Computers are used frequently and rely heavily on computers, which is directly related to the normal teaching work of the whole school. However, in the actual investigation, it is found that there are many problems in the computer system due to improper operation, which have caused great interference to the teaching experiment. This paper studies and analyzes the management and maintenance of computer laboratory, and expounds in detail the problems encountered in daily management and the methods and measures.

## Keywords

Computer; Laboratory; Management and maintenance; Methods and measures.

## 1. Introduction

Computers have been widely used in our lives at present, Not only change our way of life, And even change the world, In the computer course at school, Computer teaching is also an important part of the overall quality of a school, In order to keep up with the pace of the information age, Meet the needs of computer education in colleges and universities, It is necessary to maintain and improve the overall environment of the school computer laboratory to meet the needs of modern teaching. Nowadays, the management technology of the computer laboratory is also updated day by day, which has a great change with the past. More high-tech technologies are used to improve the laboratory management, such as automation and scientific management level. With the expansion of the scale and the increase of the number of computer laboratories in schools, the frequency of computer use is getting higher and higher, and there are more and more faults and problems. Therefore, in order to ensure the smooth progress of teaching, it is necessary to strengthen the management and maintenance of computer laboratories.

## 2. The problems existing in the management and maintenance of computer laboratories at present

### 1. The management work is complex and the workload is heavy

Because the work of the laboratory is numerous and involves a wide range, and because there are more and more computer laboratories in schools, the number of computers is also increasing, and the workload of the staff is very large. Managers are responsible for the maintenance of hardware facilities, daily software installation management, helping to eliminate network failures, and taking anti-theft and fire prevention measures in laboratories, which not only require managers to have a relatively professional level, but also require personnel to be serious and responsible for these details [1].

### 2. High damage rate of computer software and hardware

The school's computer laboratory runs for a long time, Usually, high-intensity operation from early operation to evening can easily lead to damage to computer facilities, Coupled with the large number of superiors, not only the hardware facilities and software facilities are easy to talk, but also the long-term work and the undertaking environment lead to poor air quality in the computer laboratory and accumulate a large amount of dust attached to the computer motherboard and machine, which makes the circuit aging and damaged. In addition, due to the improper operation of students or other personnel, arbitrarily modifying computer settings to delete downloaded viruses of system files, or destroying computer software, computer viruses will invade, cause computer security problems, cause computer failures, and cause computer failures. Students' superiors and subordinates are disorganized, Computer software and hardware configuration is not uniform, Versions are not uniform, It brings some problems to teaching. Students use U disk at will or browse various websites without restriction, which threatens information security. Some managers have no strong sense of responsibility, fail to maintain and manage computer equipment in time, or teachers' own experience is insufficient, and they do not make full use of computer room resources, which affects teaching effect. Some students maliciously damage machines, use software to crack passwords, and are willing to delete system files and change hardware configuration at will. All these bring problems to the normal teaching of laboratories and the normal operation of computers [2].

### 3. Strengthen the management measures of computer laboratories

#### 1. Improve the relevant management system

In order to strengthen the management of computer laboratory, We must establish a set of scientific and reasonable rules and regulations to support the management of computer laboratories, Establish a set of scientific and reasonable rules and regulations to support the management of computer laboratories, In practical work, Students and teachers should abide by laboratory rules and regulations, use computers in a civilized way, and can't treat computers at will. Teachers are required to check computer equipment before class, and students are required to be responsible for their own computers. Once problems are found, they should report to teachers immediately, while students who destroy computers should be severely criticized and punished. In addition, in class, students are strictly forbidden to play games and download software unrelated to class at will, so as to ensure a good learning environment in computer laboratory, reduce the damage of computer equipment, reduce the probability of computer virus invasion and ensure the safety and reliability of equipment.

For example, for the temperature and humidity requirements of the computer laboratory, it is necessary to control the overall temperature at about 20 degrees. If the temperature is too high, the computer will generate high temperature and cannot dissipate heat, thus shortening the service life of the machine. Therefore, air conditioners can be installed in the laboratory to cool down, which can not only effectively control the temperature, but also control the humidity.

#### Correct on/off sequence

The computer will have a great current impact at the moment when it is powered off and just powered on, May cause the host to fail to start, Therefore, it is necessary to make a good regulation that the display should be turned on first when starting up. After turning on the host computer, when turning off the relevant host computer, turn off the monitor. Students are required to turn off the computer normally, which is carried out through windows system. Shutdown cannot be forced to press the power key. At the same time, if the computer crashes, soft start should be used first. At the end of hard start, there is really no way to restart the machine by pressing and holding the power switch. In addition, if you want to reboot after shutdown, you must wait for more than 10 seconds before you can operate. At the same time, the corresponding rules and regulations require that the equipment of the machine should not

be moved casually, do not plug and unplug various interface cards, and ask the teacher at the first time when the machine encounters problems [3].

## 2. Improve the quality of managers

To improve the management and maintenance of computer laboratories in colleges and universities, it is necessary to improve the professional quality of relevant managers and establish a more professional and high-level management team. For effective control and management of computers, more professional training can be provided for computer managers to implement. Training improves their professional skills, and requires relevant managers to constantly learn and update their knowledge reserves, and learn to use more advanced technologies and the latest software to apply to computer maintenance and upgrading to ensure the normal operation of equipment. Because there are many kinds of computer viruses, Governor incubation period, And the propagation speed is fast, Therefore, relevant staff need to install anti-virus software to regularly kill viruses, You can install a hard disk restore card to protect the hard disk data. In addition, students need ideological education to reduce malicious destruction, insist on using genuine software, do not use piracy, avoid all behaviors that may be infected with viruses, and require students not to open unknown mails and spam, and see the contents clearly when prompted by the computer.

It is necessary to encourage technicians to improve maintenance efficiency professionally, and computer laboratories need to order some books and newspapers about computer maintenance management methods. The college can also arrange some technicians to go out for training and study regularly, sum up experience by referring to and watching the maintenance management methods of other excellent technicians, and make good experiences according to their own actual situation. Schools can also invite more experts to maintain display equipment in school, encourage managers to actively publish papers on formal management, summarize relevant knowledge on software and hardware, and make monthly technical reports. The published papers and research results will be included in the final assessment, and certain encouragement will be given, and the assessment results will be linked with individual evaluation, excellent evaluation, post allowance, annual bonus, etc. [4].

## 3. Strengthen the post responsibility system

Clarifying the management responsibilities of staff in various departments can divide the management work of computer laboratories, It is stipulated that each employee has his own responsibilities and the person in charge of the corresponding part. Every staff member is required to effectively and meticulously manage the part he is responsible for, Establish the corresponding laboratory equipment management files, register the staff, and make statistics on all the equipment and related data of the computer laboratory to facilitate the follow-up maintenance or understanding of the status and tracking records in the use process, so as to facilitate the maintenance and management of the equipment [5].

## 4. Strengthen the computer laboratory environment

The environment of computer laboratory needs to be optimized, create a good environment, and let the equipment run in a safe and comfortable environment. It is necessary to do a good job in laboratory hygiene, and pay attention to cleaning and ventilation at ordinary times. Students are required to enter the computer laboratory, and they must wear shoe covers to clean the surroundings after class. At the same time, students can arrange to clean the computer mainframe, monitor and tables and chairs regularly. In addition to large-scale equipment such as host display, peripherals such as mouse, mouse pad and keyboard also need to be cleaned. For example, dust will fall on the keycap during the use of keyboard, which will affect the contact sensitivity. In addition, heat dissipation, temperature adjustment and humidity maintenance are carried out for the computer, so that the computer can run in the most comfortable environment and prevent high temperature, dull and humid environment from

running and causing faults. Moreover, we should pay attention to the safety of electricity consumption in computer laboratories and strengthen the management of electricity consumption. Do a good job of dredging wires to prevent fire caused by random connection of power supply and winding of wires. In order to avoid fire, fire alarm devices can be installed near the laboratory, and more fire extinguishers can be equipped to prevent effective treatment in case of fire. In addition, the anti-theft work of computer laboratories should be strengthened. Because the laboratories in schools are open and there are too many computer laboratories lost every year, it is possible to prevent equipment theft by installing safety locks or registering computer personnel, strengthen safety management behavior and reduce laboratory losses [6].

#### 5. Software configuration

Because there are many kinds of software installed now, the number of software installed in schools according to teaching requirements is also very large. Through investigation, it is found that in computer laboratories, most of them are free computer and teaching experiments, while a few are ordinary office software, and most students' work is completed by ordinary software. But there are some software that occupy a lot of computer resources and have very high requirements for computer configuration, such as maya, photoshop and other graphic processing software or some professional software, such as geographic information system and programming software. Lab administrators are required to concentrate on configuration, and resources cannot be distributed evenly. Nowadays, when configuring software, the computer laboratory does not consider different applications, but concentrates all the software together, so as to avoid making any changes. According to the analysis of data, there are many skills in configuring the software on the computer, which can try to tap the potential of the computer under the existing conditions [7].

#### 6. Hardware configuration

The hardware configuration of the computer laboratory is also the core of the whole laboratory, Only with good hardware facilities, To ensure that the computer can run efficiently and safely, Is the material basis of the whole laboratory, Many schools purchase the same model for the convenience of management and purchase, Computers from the same company, Even spending a lot of money to buy computers with higher configuration to meet the needs of different software, But after research, It is found that this allocation method can not save capital cost efficiently, It is also easy to waste resources, According to the school's exclusive curriculum, There may be waste when the hardware configuration requirements of computers are different and the highest configuration is used completely. Therefore, the computers in schools need to be reasonably selected according to the use requirements. Computers with different performances, such as curriculum application computers that only use some basic software, have lower requirements, so computers with lower configuration can be considered. When they need to occupy a lot of memory and process more graphics, they have higher requirements for hardware configuration, so computers with higher configuration can be considered. At present, the software installed in computer laboratory generally follows the 28 Law. Therefore, when purchasing computers, it is necessary to choose the corresponding configuration according to the requirements, so as to save money for the school on the basis of ensuring that students' professional courses meet the requirements [8].

#### 7. Laboratory equipment management

Make a good purchase plan, Organize the purchase of equipment, According to the teaching tasks and the needs of the project, the technical personnel of the computer laboratory can be equipped with the corresponding purchase schedule, list in detail the various models, quantities and prices of the required equipment, and hand them over to the school leaders and the asset department for review and modification. Finally, the reasonable equipment can be purchased and registered.

Implement computer laboratory equipment management to people, Implement to the specific person in charge, The responsible person shall ensure the normal operation of machinery and equipment, store faults and repair, etc. All the equipment in the computer laboratory shall be signed and registered by special personnel, The equipment needs to have corresponding model, barcode label, purchase date, price, etc. When the equipment and machine are lost or damaged, the responsible person should be held accountable and compensated according to relevant regulations.

Use database system to manage equipment, Simply relying on manual management, For a large number of mechanical equipment, it is not only inefficient, And it is more error-prone, Therefore, you can purchase or develop a device management system at present. At present, the equipment management system needs to include technical reference materials, form details, technical data, records of equipment common manufacturers, etc., while the equipment property management includes equipment classification, equipment entry, movement, idleness, scrapping, change, bar code, use management and inspection, storage location, running time, fault maintenance records, etc. [9].

#### **4. The maintenance measures of computer laboratory**

##### **1. Do a good job in computer hardware maintenance**

Computer administrators must fully master the hardware configuration and maintenance workflow of computers, And be able to use computers skillfully, When the computer equipment breaks down, Can think of countermeasures in time, Carry out maintenance in time, At the same time, the equipment must be inspected regularly. In order to ensure the running state of the equipment, the computer can be uploaded to the cloud through Internet information, and the working state can be indicated by data. The equipment with abnormal display can be checked in time to reduce the probability of serious accidents, and the computer hardware failure can be detected by using the detection card [10].

##### **2. Do a good job in computer software installation and maintenance**

When planning the software configuration of the computer, the staff need to set up the user documents reasonably, do a good job of backup, partition the hard disk at the same time, and store these important data files in partitions as much as possible. At present, computer laboratories are all used for course teaching, and different courses need to install their own software. In this process, the compatibility of software must be considered. If it is incompatible, there will be obstacles in teaching. If the software doesn't work properly, it will affect the progress of the classroom, so it must be adjusted according to the software. In order to speed up the operation of the computer, the disk of the computer can be cleaned regularly to make the speed of the computer faster [11].

##### **3. Use the Hard Disk Backup Restore Tool**

Some students or unprofessional staff may change the computer system configuration, Deleting some original system files causes the computer to fail to work normally. At this time, you can use your hard disk backup and restore tool to restore your computer, just like you can use ghost's hard disk to restore your computer, so that you can restore your computer through your computer. The invention relates to a PCI expansion card for protecting an operating system. When a computer is started, the computer can be restored to the original state by using a disk restoration card, thereby protecting the data of the hard disk [12].

##### **4. Do a good job in network maintenance**

In classroom teaching, teachers will use the Internet, so it is also necessary to do a good job in the maintenance of the Internet. Computer managers regularly check the network status,

manage the network system servers, and solve hidden dangers. LAN can be managed by LAN remote management software.

## 5. Concluding remarks

To sum up, we have learned that in order to ensure the operation and maintenance of computer laboratories, relevant managers need to constantly improve their own quality and professional level in their usual work. Because the daily management and maintenance of the computer laboratory are composed of teachers and students, it is necessary to formulate a set of scientific and feasible rules to standardize the behavior of employees, and at the same time, it is also possible to use more advanced technology and equipment to monitor the computer, so that the operation of the computer is more convenient. In order to adapt to the new situation and strengthen the computer management in the laboratory, the staff engaged in the management work must constantly study, explore and innovate better management and maintenance means to ensure the efficient use of computers.

## References

- [1] Tao Xingming, Ji Weichang, Zhang Jianying, et al. Discussion on the management and maintenance of computer laboratory in colleges and universities [J]. *Experimental Technology and Management*, 2007.
- [2] Yang Ping. Discussion on the management and maintenance of computer laboratories in colleges and universities [J]. *Network security technology and application*, 2011 (4): 3.
- [3] Jiang Fenghua. Discussion on the management and maintenance of computer laboratories in colleges and universities [J]. *Intelligence*, 2018 (23): 1.
- [4] Jia Dongdong. Discussion on the management and maintenance of computer laboratories in colleges and universities [J]. *SME Management and Technology*, 2016 (12): 2.
- Chen Haiying. Discussion on the management and maintenance of computer laboratory in colleges and universities [J]. *Information construction*.
- [6] Jin Lei. Discussion on the management and maintenance of public computer laboratories in colleges and universities [J]. *China Management Informatization*, 2015, 18 (19): 2.
- [7] Wang Yi. Discussion on the management and maintenance of computer laboratory [J]. *Modern Commerce and Industry*, 2010, 22 (22): 2.
- [8] Xu Maoshu, Gao Xia, Yuan Mingbo. Discussion on the management and maintenance of computer laboratories in colleges and universities [J]. 2021.
- [9] Wang Peng. Discussion on the management and maintenance of computer laboratories in colleges and universities [J]. *Wireless Internet Technology*, 2021.
- [10] Dong Bin. Discussion on the management and maintenance of computer laboratory [J]. *Heilongjiang Science and Technology Information*, 2015.
- [11] Yang Ping. (2011). Discussion on the management and maintenance of computer laboratories in colleges and universities. *Network security technology and application*, 000 (004), 28-30.
- [12] Dong Bin. (2015). Discussion on the management and maintenance of computer laboratory. *Heilongjiang Science and Technology Information* (25), 1.