

# Maintenance and Management of Computer Laboratory Equipment

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**Abstract:** As an important teaching device, computer laboratory equipment needs to be used and protected to the utmost. Enhancing utilization can not only maximize teaching effectiveness, but also make full use of resources. As they are consumable, maintenance and management are very important. After analyzing utilization and maintenance measures, the work explores scientific management measures to fully use equipment.

## 1 INTRODUCTION

With popularity of computers, computer-related teaching equipment has become a major one in teaching, making great progress in efficiency and effectiveness. Teaching departments are different in post-maintenance and management, leading to effectiveness problems. Therefore, it is very important to take routine maintenance and standardized management measures to ensure maximal utilization and a longer life span of those consumable devices. This work focuses on ways to achieve effective maintenance and rational management.

## 2 MAINTENANCE MEASURES

Computer laboratory equipment aims to improve teaching efficiency and achieve a scientific environment. To some extent, they are significant for teaching. However, due to maintenance oversight, their life span and efficiency are reduced, which calls for maintenance measures.

### 2.1 Necessity of Maintenance

Computer laboratory equipment is consumable devices, the main purpose of which is to guarantee normal teaching schedule. These devices are needed, especially in college teaching. The more frequently they are used, the more problems will occur. Thus they require maintenance for following reasons: Firstly, the higher the frequency is, the more problems will occur. They are usually used to the

utmost in teaching, which will cause damages to them. Therefore, they need targeted maintenance after frequent operation to extend life span.

Secondly, the operation is often inappropriate, thus it is likely to increase losses. Although equipment is running normally, students will inevitably make some mistakes in operation, resulting in damages. If problems are not found in time, equipment will run in a non-normalized way. If they are not effectively maintained in a period, permanent damages will occur. Therefore, effective maintenance is required to avoid permanent damages.

Thirdly, in terms of utilization and life span, effective maintenance is necessary. Expenditures of teaching resources on equipment are annual key funding projects. Moreover, equipment is very expensive. If effective measures can be taken to protect them, their life span will be extended. It is very important for conservation and utilization of resources and funds. Therefore, maintenance is necessary.

### 2.2 Maintenance Methods

Maintenance measures are explored by analyzing necessity. But during maintenance process, what are effective methods?

#### 2.2.1 Strengthening Maintenance Awareness

Maintenance awareness is the foundation of any systems and methods. Without maintenance awareness, it is unable to get qualified. The first step is to make clear frequency of use and characteristics. Laboratory equipment is the device frequently used, and they often have some problems. Maintenance

personnel should be aware of the fact that they are easy to wear and tear before post-tracking. Therefore, it is necessary to improve maintenance awareness from following directions:

Firstly, education activities should be held among students to teach them to cherish laboratory equipment. Students don't cherish and use them in accordance with instructions, so there is something wrong with equipment and they are even scrapped. It should be given priority to let students know how to cherish them and follow operation rules.

Secondly, it is important to strengthen maintenance awareness of maintainers. In fact, inspection and maintenance are repetitive though they are simple. Therefore, the sense of responsibility and patience are more important than high-tech. Maintenance personnel should realize that. During inspection, they should be careful to ensure there is no flaw. Even though problems are not serious, they should be coped with in time. Otherwise, they will cause more problems.

Therefore, it not only needs to guide students to follow operation rules, but also strengthen personnel's responsibility and awareness to deal with problems timely.

### 2.2.2 Establishing a Sound Maintenance System

Although there are maintenance personnel, maintenance system is not sound, resulting in delayed treatments and serious consequences. In other words, a sound system is the basis of normal maintenance work. However, how to establish a perfect system?

Firstly, statistics and classifications should be arranged to establish a sound system. For example, each computer should be arranged with one maintainer. If there is any problem, the maintainer will receive accountability, which is effective allocation of responsibility. Their enthusiasm and sense of responsibility will be mobilized to guarantee prompt maintenance.

Secondly, a written service manual is needed for mentioned reasons. Students don't cherish equipment and operate them in a wrong way, wearing and even causing damage to equipment after long-term accumulation. To reduce problems caused by incorrect operations, service manual should be written, so that students are able to understand it, and realize importance of maintenance.

Finally, laboratory instructors should take responsibility to maintain them in teaching. As a

science teaching tool, computer laboratory equipment includes such technical equipment as oscilloscopes and computers. These devices need certain technical operations. Misuse and machine fault will happen if technical principles are not understood. Laboratory instructors understand technical principles. Therefore, teachers should have such awareness, letting students operate equipment in accordance with procedures. Their sense of responsibility will affect students' operation methods. Instructors should take advantage of their abilities to maintain equipment.

### 2.2.3 Solving Existing Problems

Existing problems are faulty and some errors in operations, especially in using an oscilloscope. Therefore, maintainers should report and deal with problems to promptly resolve them and extend their life span.

## 3 MANAGEMENT MEASURES

How to maintain them has been inquired, but problems are not only about design and maintenance. It is also necessary to analyze management.

### 3.1 Rational Resources Management

Resource management is the most important management measure. But there are shortages on management measure. When schools are purchasing computer equipment, they should have an effective management and classification. For example, how many computers should be arranged in one laboratory? The number should be based on actual needs. Before buying them, schools should have a budget. Budget is a major project and the most important part in management. Therefore, when budging, they should know students number and listen to views of instructors to adopt a proper way to allocate equipment. After that, number and budget will be determined.

### 3.2 Use and Management

How to make use of these resources after allocation? Equipment is usually used by groups, because a subject requires discussion and cooperation of a group. With these characteristics, computers have to be distributed to maximize teaching effects. In use and management process, number and need of

students have to be taken into consideration. If equipment is enough, a small user group can be built to improve applying effect. Otherwise, students will be divided into several groups to use them according to the actual situation. In short, ultimate aim is to allow students to make better use of resources and achieve the best teaching result.

## 4 CONCLUSIONS

The work discussed importance and measures of maintenance from different aspects, such as maintenance awareness, maintenance system and targeted issues. We established sound maintenance awareness, reasonable maintenance system and summary of targeted issues. In addition, effective classification should be carried out during management process to make data clear, ensuring rich experience and clear system. In short, sustainable utilization and application of resources need both effective maintenance and a clear, thorough management system.

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