

Survey of Application of Modern Information Technology in College Lab Management

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Abstract. In the process of the informatization construction of universities, IT managers have meet many challenges. The rapid development of modern IT technology makes the complicated work such as industrial design, production process, financial statement cold chain logistics and storage management simple and feasible. The problem lies in how to make full use of modern IT to make assistant management to the heavy and complicated work of colleges' labs, which can realize the share of high quality lab resources in colleges, not only embodying the basic diathesis and operating ability of colleges' labs managers, but also demonstrating the integrated management level of the labs. Meanwhile, the application of modern IT in colleges' labs has significant operation meaning to the construction of an economical society.

Introduction

The rapid development of modern IT and the wide applications of a series of information projects such as in-formation website and information highway and so on, have exert great influence to technology, economy and people's work and lifestyles etc. Many complicated work such as industrial design, production process, financial statement cold chain logistics and storage management are made simple and feasible by the application of modern IT. The Internet is widely used in colleges. This has made the application of modern IT in lab management become a necessary trend.

The management of college's lab refers to use the modern IT to realize the computer management of the whole process of experiment teaching. It can not only relieve the work burden of lab managers, but also improves the work efficiency and service level.

Current Situations of College's Labs Management

Experiment Resources Are Wasted Seriously. Nowadays, most colleges have complete subjects and major arrangements. But they have no uniform plans. The second level department of each college only considers the equipment purchase issue from its own department about the lab's building. This will lead to the lack of lab expenditure of other subjects and majors, the separation of resource allocation and the repurchasing of partial instruments and equipment which will have great impact on the exertion of college's whole advantages. As it is reported, after a college started a new major, it spent more than 100,000yuan on the purchasing of experiment equipment. Because the experiment site couldn't arrange the installation of the equipment, the equipment has been stored in the warehouse for as long as 6 years with no one mentioning them. One situation was that there was no equipment for students' experiment class. The other one was that new equipment was left unused. As far as we know, this phenomenon exists in many colleges in different degrees. The equipment worthy several hundred thousand RMB or even several million RMB is only used for several times in a year when we look at the use records. Therefore, theses are grave wastes.

Lagging of Labs Management Systems. Although each college has strengthened the lab management in education and teaching management, but the action is not serious taken as the way the theory is regarded in the aspects of lab building plan, resource allocation, specification positioning

and experiment teaching reform etc. This leads to the situation where teachers and students don't pay much attention to experiment teaching, which will not ensure that students' theoretical knowledge is applied on practice, let alone the cultivation of their practice abilities and creativities. Besides, because of the traditional concept's influence of regarding the theory as the priority over practice, a part of colleges' labs are set up by courses and depend on staff rooms. This scattered establishment type of labs leads to the too small lab scale and the singleness of functions, which are not good for the formation of cross sciences' scientific experiment ability. This fails to meet the requirement of cultivating inter-disciplinary talents either and can lead to the establishment of similar labs in different departments. Some labs are established with the subjects of large scale as the main goals. They are a whole body if seen from the surface. But actually each course scrambles for the lab resources in different degree in order to strengthen its own experiment teaching strength and interests, which segments the originally limited resources. This is not good for the whole interests of labs and their long-term development. Some colleges don't set up professional management organizations for labs. Instead, they put the lab equipment and experiment teachings into different departments to be managed, which contributes to the disaccord about the lab management and is not accordant with the modern college's requirements of integrating resources, developing harmoniously and realizing the whole interests.

Experiment Expenditure Is Not Sufficient Seriously. As the economy in our country develops quickly, the GNP increases in a high rate per year. At the same time, the educational expenditure of schools' each aspect also increases correspondently. But the increases of many colleges' investment expenditures into lab are much less than the increases of other expenditures. If the effects of commodity price are not considered, in fact, many colleges' investments into lab expenditures don't increase and they even decrease.

The insufficient investment of capital has been the biggest bottle-neck confronted by the buildings of colleges' labs. Besides, although some colleges increase the input into labs, the teaching resource gained by each student doesn't increase greatly or even has the decrease trend due to the large scale enlargement of recruitment.

Closure of Labs. Different colleges vary in lab characteristics. If each college can realize the share of lab equipment in a certain territorial scope, this is accordant with not only economic rules but also the present country situation. But what can be seen according to our research is that most colleges' labs just keep themselves closed from the outside and are just open to their own colleges, departments, majors and courses. Even the different departments of the same college can't coordinate with each other and they are often prevaricated by saying that there are too many courses and the labs are difficult to be arranged for you. Imagine that how could we exert the whole advantages of experiment teaching if labs keep themselves closed and have no communications and opening to each other? How could the crossing and penetration of subjects be done with these closed labs? How could the management level be increased. These problems are waiting to be answered.

Incapable Lab Teams. With the further deepening of colleges' educational teaching reforms, each college is implementing the strategy of developing talents to make the school powerful and taking positive measures to enhance the teaching staff's qualities. However, the training to the experiment teaching staff and improvement of working conditions are not paid the due attention. This leads to the difficulty in stimulating the motivation of experiment staff and attracting excellent talents to devote themselves into experiment technology team. As time goes, many experiment persons are unwilling to be in the experiment posts and they transfer to another post or industry. What's more, persons with high titles and educational back-ground generally go to the front-line of teaching and scientific research. This makes the title structures and educational background relatively low, which affects the labs' abilities of attracting outstanding talents. Besides, the labs are overly segmented. Experiment persons are scattered into different departments and they lack the mutual communications. This doesn't benefit the increase of experiment level and the management under unified arrangements.

Applications of Modern IT In lab

In the society where modern IT develops quickly, to the problems existing in colleges' lab management aspect in our country, how to realize the efficiency, convenience, veracity and safety of the colleges' lab management? How to make innovations to the system of labs' management and provide high quality and efficient service for the experiment teaching and scientific and techno-logical activities? Making use of the application of modern IT and promoting the lab management greatly is a feasible and effective method.

Reforming the Management System and Optimizing the Resource Arrangement. In order to change the dependence of the lab teaching part in the teaching, confronted with the rapid development of higher education, it has become the common sense to use the united and associated building method etc to build large scale experiment center which has relatively centralized functions to the similar subjects or subjects having close connections. Changing the original labs which has too small experiment scale and single function into experiment centers by certain methods to service the teaching can not only enlarge the experiment scale and improve the labs' integrated using levels but also reduce the repeated collocations of experiment instruments, increase the equipment's utilization factors, save capitals and optimize the allocation of labs' re-sources. This can also facilitate the coordination under unified planning and unified management to instrument, equipment and stuff by making use of modern IT.

Perfecting Rules and Regulations, Ensuring the Work Order. The establishment of rules and regulations of colleges' labs shall be scientific and standard and it shall comply with the practical situation of each school. Otherwise, these rules and regulations actually have no practical effects. They can only be implemented successfully in daily work by being reasonable and feasible. No matter how perfect the rules and regulations are, if they are not strictly implemented, they equals to empty words. There-fore, the key of lab management and building is to pay much attention to each item of labs' rules and regulations inwardly and form the feasible supervision and guarantee system. School should strengthen the supervision and examination and reinforce the labs' planned management, technical management and economic management in the strict scientific attitude. In this way, labs' management can become scientific and standard gradually. To lab management' each item of rules and regulations and the system of post responsibility, concrete persons should be determined and the responsibilities should also be clearly allocated to guarantee the harmonious and orderly moving of the lab work.

Strengthening the Team Construction and Enhancing the Management Level. Without top-ranking experiment technical team, it's impossible for schools to have the top-ranking lab management level, cultivate the top-ranking talents and have the top-ranking experiment outcomes. Personal qualities, moral levels, devotion spirits, study pursuit attitudes and polite behaviors of experiment stuff are very influential to students. In order to improve the experiment teaching qualities and adapt themselves to the cultivation requirements of high quality talents, schools shall have an experiment technical team which has high quality, strong ability and certain research spirit as guarantees. Therefore, experiment technical stuff should read the operation books, magazines and literatures in daily work, pay attention to latest development of related scientific theories on the basis of grasping professional basic theories and skill, update and enrich their own knowledge system and apply the latest information and method, latest development and findings on practice.

Besides, as an experimental technician, one should have the concept of providing service to teaching, scientific research and students. One can only finish the experiment teaching task really by considering all other things from the aspect of teaching, putting the teaching as priority and creating a good experiment environment. Of course, colleges' leaders should regard the lab building as an important thing and solve problems of the lack of experiment staff and the unreasonable structures by taking measures such as improving the experiment staff working conditions and increasing the wages and welfares etc. they should also use methods such as scientific post arrangement, reasonable organization and standard examination etc to stimulate the work motivation of experiment staff, encourage experiment staff to attend in a advanced study and hold regular training of new theory and new skills to enhance their operation levels.

Extending the Openness, Realizing the Resource Share. Each college lab has certain advantages in talents and equipment. In order to make full use of advantage re-sources, labs should extent the openness to the society under the condition of having finished this department's teachings and scientific researches.

First, labs should be opened to teachers and students. The arranged subjects and majors set by each college are not isolated. They intermesh and interpenetrate. The openness of labs to the whole schools' teachers and students can increase their technological creativity abilities and then further drive the whole schools' experiment teachings work into a new stage and stimulate the enhance of the whole experiment teachings and scientific research levels.

Second, labs should be opened to all colleges in the area. Labs of each college all have their own features. The intercrossing of different colleges' labs with each other can not only benefit the academic and experience communications of all colleges' teachers, but also is in favor of forming powerful scientific research team and assuming more and larger scientific research projects.

Third, the labs should be opened to companies. Nowadays, many companies in the society have no ability of scientific research. If colleges and companies work together to have the developments and researches of some projects, on the one hand, companies can have the product re-search and development and scientific experiment abilities with less capital or no investment; on the other hand, colleges' labs can increase revenue through providing social services and stimulating scientific research work. This also practices the policies of cooperation of schools and companies and realizes the win-win outcome for the colleges and companies.

Applying the Information IT, Scientific and Efficient Management. In order to realize the above goals and make the lab management really modern, standard and scientific, the fundamental and effective method is to make information management. The information management of colleges' labs mainly includes the collection, process and storage of data documents. Various information documents mainly contain the ones of lab's planning and management, documents of experiment teaching aspect, documents of experiment equipment and documents of experiment technology and scientific research work etc. By collecting, gathering and processing these information documents, a set of standard experiment information management system can be formed. And then the documents can be easily searched and enquired on the Internet by making use of Internet technology. For example, the information management of fixed assets of lab equipment requires the experiment equipment be classified and given number according to requirements of national fixed assets serial number. They shall be given the school serial number as well as unification number. And many parameters such as the instrument's name, specification, type, factory, single price, performance technical indicator, accessory, lab it belongs to, the storage place, environment requirement and using condition shall be input into the computer for uniform management. It's very convenient for equipment managers to find various technical parameters and amend, perfect and enrich them. Teachers, students and other scientific researchers who want to use instruments can search the related information easily from the Internet. They can apply for the uses of them as long as the related procedures are finished

Conclusion

With the constant and fast development of the information establishment process of colleges' labs, the labs' information establishment faces good development chances. To the college labs which have large amount of equipment and do things in their own way respectively, when complex situations are faced, applying the modern information IT is the most effective method to make the lab management scientific, standard, modern, effective, convenient, exact and safe. As long as opportunities are seized, lab resource can be better exploited and utilized. This can provide services to society, industry and teaching scientific research better, thus increasing the lab management level.

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