Construction of Network Class Information Management System Based on B/S Architecture

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Abstract. How to strengthen and improve the construction of students' classes and improve the effectiveness of student management in the network era is an urgent and important task for colleges and universities. According to the existing problems in the construction of classes in colleges and universities, the construction and promotion of "network classes" based on B/S architecture combined with new information technology is a new idea and new approach to strengthen student management, which will have a wide and profound impact on the management of college students.

Introduction

As a grass-roots organization for carrying out educational and teaching activities in colleges and universities, classes are an important place for students to communicate and socialize, and a bridge for schools to contact students. The school's educational policy and various tasks are most directly and intensively reflected in the class, which is a grass-roots student organization.[1] Class management is an important basic work for every university and is also a traditional and complicated education and management work. How to quickly and effectively manage class information is an important issue that affects the quality of higher education..

Problems Existing in Traditional Class Information Management

For a long time, colleges and universities often use the form of manual management, arrange the class teacher and other student management personnel to make statistics on the comprehensive performance of students during the semester, and also need to record and adjust the changes in student registration information, family situation, student status changes, rewards and punishments information, etc. Faced with such complicated and changeable information, colleges and universities often need to spend a lot of manpower and material resources. This kind of manual class work has low efficiency and poor confidentiality, especially a large number of redundant files and data generated after long-term storage of data, which will bring great difficulties to find, update and maintain.

Entering the information age, the network, as a way and a tool, has its unique characteristics of high efficiency, timeliness and transcendence of time and space. It has expanded new space, provided new opportunities for class management and created convenient conditions for the improvement of students' quality. Using network information means to realize modern management can not only promote the development of the comprehensive management level of education and teaching in colleges and universities, but also enable different colleges and universities to communicate with each other and learn from each other for common improvement.[2] Especially in the current higher vocational colleges in the "school-enterprise cooperation, work-study combination" talent training mode, students practice outside school time is much, personnel are scattered, the traditional methods of class organization construction obviously cannot adapt to the new situation[3]. Therefore, constructing network classes, combining the advantages of network and traditional class management, promoting the construction of student information management

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system, and realizing the networking, automation and intelligence of class management and other student work are not only a theoretical problem of the intersection of media science and ideological and political education, but also a practical subject with the characteristics of the times and reality.[4]

Connotation of Network Class Information Management

Network class management refers to a series of class management across time and space (real-time or non-real-time) carried out on local area network or wide area network. It is mainly through a unified network platform and the use of advanced network technology to establish class and personal electronic files, class affairs publicity, class collective activities, class information interaction, virtual community, etc., to improve the quality and efficiency of class management and achieve the goal of class management. This kind of management activity revolves around the modern class management thought, the goal and the content development, is the traditional class management work extension and the supplement, is also the class management modernization development inevitable trend.

Network class management has many incomparable advantages over traditional classes, such as enrichment of educational resources, multimedia of educational content, cooperation of activities, autonomy of management, virtualization of organization, equality of subjects, concealment of identity and infinity of time and space. Online classes emphasize the interaction between educators and educatees, highlight the subjectivity of students, are conducive to the development of students' subjective consciousness, reflect the equality and democracy of student workers and students as class management participants, are more conducive to the implementation of the "people-oriented" scientific concept of development, stimulate the enthusiasm of students to participate in class management, and promote the development of class work.

The main purpose of creating online classes is to increase the openness, fairness and impartiality of class management and to enhance the cohesion and charisma of the class. To cultivate students' awareness of democracy, equality and the rule of law, and to establish a sense of collective responsibility and honor; Carry forward good class atmosphere and style of study, encourage class members to help each other, coexist harmoniously, and experience the team spirit of unity and cooperation in their growth and success. To cultivate students' abilities of self-education, self-management and self-service, so that the class can become the main position for students to develop in an all-round way. In addition, the creation of online classes is also conducive to in-depth understanding of students' aspirations, timely grasp of students' ideological trends, and effectively solve students' interest demands and other issues.

Construction of Network Class Information Management System

The network class information management system adopts B/S architecture in architecture selection, LAMP technology (i.e. linux+Apache+MySQL+PHP combination), which is fully open source, high performance, high stability and low cost[5], and asynchronous communication (Ajax) technology in application technology.

Selection of Architecture Mode. At present, the development modes applied to management systems can be summarized as C/S and B/S two modes. Short for C/S Client/Server architecture; B/S is short for Browser/Server architecture. Although the C/S architecture has many functions, it also has complicated installation and operation, difficult setup, large data redundancy, slow retrieval speed, especially expensive fees, which are not easy to transplant. Due to the unpredictability of the client's own environment, it may produce some unexpected operation results. Compared with C/S architecture, B/S architecture is built on WAN in terms of hardware environment. There is no need for a special network hardware environment and it has a stronger adaptability. Generally, it only needs an operating system and a browser. The security requirements are relatively weak, and the target is an unknown user group. On the difficulty of development, only the server-side program needs to be developed, and the client-side can realize the management as long as it has a browser. More mature program architecture; Software reuse is relatively good and information flow is

changeable. The system maintenance is convenient, fast and easy to upgrade. It has higher cross-platform performance and richer and more vivid expressions.

Therefore, considering the variety and complexity of class management work, the network class student management information system in colleges and universities should adopt the B/S network structure mode. Through the use of computer-aided management, the work efficiency can be improved, the work intensity of management personnel can be reduced, and the various needs of student management departments, student management personnel and students themselves can be met.

Selection of Network Operating System. Basically, a network operating system is a manager that manages the flow of connections, resources, and traffic. The network operating system can be server-side or client-side. Generally speaking, the network operating system refers to the server-side network operating system. The operating system described in this article also refers to the server-side network operating system. linux operating system is suitable for the network class management information system in colleges and universities. Because, compared with windows, linux operating system has the advantages of device independence, system openness, security and reliability, strong portability, rich network functions, good user interface, and supports multiple users and tasks. Apache can be selected as its corresponding web service software, and Apache is incomparable to IIS under windows in terms of stability, cross-platform and other characteristics.

Selection of Network Database. With linux, you can choose MySQL, an open source network database. Because MySQL is an open source relational database management system, its connectivity, speed and security are also very suitable for accessing databases on the Internet. Moreover, MySQL server works in a client/server or embedded system, supporting different back ends, multiple different client programs and libraries, management tools and a wide range of application program interfaces (APIs). Compared with other systems, the system runs faster and is convenient for expansion and docking with other databases. It can ensure the long-term application of the system and meet the demand of high traffic.

Selection of System Development Language. PHP is a kind of free software, which can run in most operating system environments including Windows, Linux, etc. It is often used on Linux platform in conjunction with Apache, a free Web service software, and MySQL, a free database, with extremely high cost performance. PHP is fast, open and extensible in executing web pages, supports a variety of mainstream and non-mainstream databases, provides object-oriented programming, has fast version update speed, rich functions, strong scalability, easy to learn and use, and is more convenient for subsequent maintenance and expansion, so its advantages are more obvious.

Use of XAjax. Ajax technology can be introduced into the network class information system to improve user experience. In fact, Ajax (asynchronous Javascript and XML) is a combination of various technologies. It uses XHTML and CSS to standardize presentation, DOM to realize dynamic display and interaction, XML and XSTL to exchange and process data, XMLHttpRequest object to read asynchronous data, JavaScript to bind and process all data. Specifically, it has the following advantages:

Based on open standards. AJAX technology is a technology based on public standards supported by all major browsers and platforms. This means that the technology is not afraid of technology blockade by technology providers.

Take usability and user experience as the king. AJAX technology allows a small amount of information to be requested from the server instead of the entire web page. It increases the update of page data but at the same time reduces the refresh and refresh waiting of the page, which solves the problem of torturing the Web application since the network was born. Google Maps based on AJAX technology is more successful than traditional MapQuest, which proves the success of products that provide better user experience.

Cross-browser and cross-platform compatibility. IE and Mozilla-based FIREFOX are the two browsers with the largest market share, and both support easy creation of AJAX-based WEB applications on browsers. Now it is possible to develop AJAX-based rich WEB applications running

on more advanced WEB browsers.

It can benefit conventional Web applications. AJAX technology is the facade of today's WEB applications-Web applications have gained more benefits than desktop applications. These benefits include low investment in the deployment of applications, convenient maintenance, shortened development time and no need for installation. AJAX technology can benefit not only WEB applications but also end users.

It can integrate well with Flex, Flash and other technologies. Flash and AJAX have their own advantages and disadvantages in different occasions, but they have a large number of opportunities to be integrated together, which has proved to be of many benefits.

Summary

The network class system adopts Xajax, which is applicable to PHP. It is an open source PHP class library. It can let you glue HTML, CSS, JavaScript and PHP, and easily develop powerful Ajax application software based on Web. The application software developed by Xajax can asynchronously call PHP functions and update contents on the server side without calling back the page.

Generally speaking, the network class information management system adopts a multi-level netlike model, and the B/S structure class network management information system designed by LAMP technology (i.e. the combination of linux+Apache+MySQL+PHP) has a reasonable structure design, and the software uses advanced development technology with strong universality and portability. The system adopts asynchronous communication (Ajax) technology, which increases the update efficiency of page data, reduces page refresh and refresh waiting, and improves user experience. The data diversion technology ensures the long-term stable and efficient operation of the system. This project has a certain expansion function. It has established a network-based class management system for college students based on class-based management units. It supplements and extends the traditional class management work. It has the characteristics of rich educational resources, multimedia content, collaborative activities, autonomous management, organization virtualization, equality of subjects, concealment of identity and infinity of time and space. The system has high performance, strong stability and low cost, and is helpful to improve the efficiency and quality of college student class management.

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