



Design and implementation of computer aided instruction system based on Web

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Abstract: Modern society is an information society, the computer slowly infiltrates into all aspects of life. Network computer-aided instruction has become the focus of the development of education industry, so this paper puts forward a relatively complete architecture and design scheme of network computer-aided instruction system. The web-based CAI system is a typical management information system based on B / S mode. The design of this scheme has a certain reference value for developing new teaching methods and means through the establishment of network-based CAI platform.

Keywords: CAI system information society

1. Introduction

In the field of education, the traditional teaching mainly emphasizes the teaching of knowledge, and regards the acceptance of knowledge as the main goal of teaching, thus neglecting the students' ability of independent learning, independent inquiry and independent research. Most of the students are in a passive state, which hinders the cultivation of students with innovative consciousness in the new era^[1]. "China's education modernization 2035" proposes to accelerate the education reform in the information age^[2]. In the 21st century, with the construction of intelligent campus and information technology, the traditional teaching method centered on teachers, teachers and classroom has been greatly challenged, followed by the revolutionary change brought by information technology. Computer aided teaching method based on Internet technology, such as distance teaching through network classroom, is becoming the mainstream. The construction of CAI system not only provides a better learning platform for students, breaks through the traditional teaching mode, cultivates students' autonomous learning ability, but also promotes the academic exchanges between teachers and promotes professional development.^[3]

2. Requirement analysis of Web assisted instruction system

In order to change the traditional teaching mode, it is necessary to build a web-based CAI system. First of all, it is necessary to analyze the needs of users for the functions of the CAI system. People's needs for CAI system are reflected in all aspects, and different objects have different needs for CAI system. Therefore, the objects of the system can be divided into administrator users, teacher users and student users, and the functional requirements of these three objects can be considered in the design.

2.1 Demand analysis of management users

Management users need to manage the users who enter the system, log in with password or mailbox, and store personal information in the database. Collect the course and spare time of teachers and users, manage the course arrangement, and make the curriculum schedule. Irregular maintenance management for the system to ensure the normal

operation of the system.

2.2 Analysis on the needs of teachers and users

Teachers and users need to manage courses, such as adding or deleting courses, notifying students to attend classes, and managing teaching progress. Release learning resources before class, let students preview in advance, and arrange homework and answer questions after class to help students better absorb knowledge and digest after class. Release online test, classroom Q & A, integrate accuracy and solve problems accurately.

2.3 Demand analysis of student users

Student users receive the specific arrangement and progress of the course in time, put forward their doubts in the Q & A area, receive the teacher's answers, test online, view the ranking and analysis. After class through the system to receive homework, completed again after hand in, received teacher ratings and suggestions.

3. Detailed design of Web assisted instruction system

3.1 Main functions of the system

The main function of CAI system is based on Internet and multimedia technology to provide teachers and students with complete network-based teaching related services. ^[4] In the early stage, we made a detailed demand analysis to understand the specific needs of using the system object. In order to make the system easy to operate and use efficiently, we designed the computer-aided teaching system, which mainly has the following functions.

3.1.1 Question answering function

In order to make up for the situation that students have problems in the specified class hours, but do not ask the teacher, the online question answering function is set up. In the question answering area, students can publish their own questions, and the teacher can receive the students' questions, and then answer their doubts. ^[5] Students can choose public Q & A or private chat with teachers to ensure the privacy of students.

3.1.2 Function of sharing information resources

Before class, teachers release the preview content, which can be composed of PPT, video, text, etc. to pave the way for students to enter the regular class, ask questions, let students ask questions, and better connect the course.

3.1.3 Job testing function

The use of homework and online testing function, test students' mastery of classroom knowledge, so as to facilitate teachers to adjust the progress of the course, in addition, from the performance can also let students realize the specific situation of stage learning, better to adjust themselves, know their weak subjects, and improve. ^[6]

3.2 The architecture of the system

The system adopts three-tier architecture: client browser / Web server / database server. ^[7] In this mode, the client is only responsible for providing the user interface. When data access or complex calculation is needed, the client sends a request to the application server, and the application server responds to the client's request to complete the corresponding data processing or issue SQL commands to the database server, and the database server completes the corresponding data operation, Finally, the application server returns the result to the client.

3.3 Database design of the system

All the data information of the system is stored in the database, and the database is also an important factor to determine whether the system can be developed successfully. ^[8] According to the main functions of CAI system, the reasonable database structure is selected. The main databases are as follows

3.3.1 Information resource library

Save the teacher's courseware, teaching video, knowledge point sorting, etc., according to different subjects for

management and storage, different knowledge point ID can retrieve the unique knowledge, in addition, through the problem, subject, chapter, keyword retrieval, fast and efficient solution to students' problems.

3.3.2 Online test library

In order to prevent students from passing answers around, we can select questions randomly in the test library and integrate them into one test paper. The online test library is mainly used to manage the test questions. Students have no authority, and teachers can add, delete, modify and check them, update the test questions in time, and get close to the trend of the test outline. ^[9]

3.3.3 User information base

The main purpose is to save the basic information of students and teachers. The student information includes student number, name, class, grade, course selection, etc. the student number is the only identification, and the teacher information includes student number, name, course offering, etc. The user information base is managed by the administrator.

3.4 Operation interface of the system

At first, the system is a login system. Users need to register their accounts first. After verification, the system accesses the user information database and detects whether they are legal users. After the legal users obtain their accounts, they log in. The background will switch to different interfaces according to their different identities. The specific interface is as follows. ^[7]

3.4.1 Student user interface

Through the interface, students can query the course arrangement, read the teaching focus, download and browse the courseware, ask questions to teachers, and conduct online tests.

3.4.2 User interface of Teachers

The user interface of teachers can inform the relevant course information, modify the courseware content, answer the questions raised by students, adjust the teaching progress, publish assignments and tests, obtain the ranking and answers, etc.

4. Technical realization of Web assisted instruction system

The CAI system I designed is mainly to complete the function of answering questions, sharing information resources, and homework testing. In the system, we can upload courseware, answer questions, and manage test questions. Therefore, the above functions can not be achieved without the support of the existing system. The details are as follows

4.1 Web Design

It can be implemented by web design tools such as fireworks, Adobe Dreamweaver, flash or JavaScript. [10] Web is a web page, that is, a file, which usually appears in HTML format (file extension is. HTML or. HTM). It is the most basic element of a website, and it is also a platform for carrying all kinds of website applications. Web pages are the most common in computers. The computer contains various websites, which are composed of web pages. It can be seen that the web page plays an important role in the computer.

4.2 B/S Architecture

The full name of B / S architecture is browser / server, which is browser / server structure. It is an improvement of C / S structure with the development of Internet technology. In this structure, the user interface is implemented by web browser, a few transaction logic is implemented in the browser, but the main transaction logic is implemented in the server. Browser client, web server and database constitute the so-called three-tier architecture. ^[4]

4.3 ASP Technology

ASP, namely active server pages, is a set of server script environment developed by Microsoft. ASP is a good tool to create dynamic web pages. It plays a role of programming language and can be used to write dynamic HTML code. Therefore, as long as the user browses the web site and requests an ASP page, the web server can process the corresponding ASP code, generate HTML code, and then pass it to the user browser and display the web page.^[4]

5. Epilogue

Web assisted instruction system in the information age, give full play to the advantages of the Internet, teachers and students closely linked, cultivate students' initiative to ask questions, good at thinking, after class consolidation enthusiasm, and gradually improve the students' ability to master knowledge and innovation, in addition to improving the quality and efficiency of teaching, change the traditional teaching method of boring, adopt In the future, the network aided teaching system will be more widely used.

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