Research on the Architecture and Function of Network Teaching Platform

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Abstract: The network teaching platform is based on the universal Internet and provides a comprehensive software system for distance learning based on two-way multimedia communication networks. Online teaching represents a development direction of higher education, and scientific and rational use of the Internet for network teaching is of great significance. The paper introduces in detail the architecture of an online teaching platform, which helps to better develop online teaching.

1. Introduction

In recent years, more and more colleges and universities have begun to pay attention to and use online teaching systems. In the process of network education, the effect of network education implementation depends to a large extent on whether the network education system constructed meets the needs of personalized learning to the maximum extent. The meaning of online teaching interaction is very wide, including not only the interaction between people, such as the interaction between teachers and students, students and students, but also the interaction and interaction between people and learning content and learning environment. The network teaching platform is based on the application of computer network technology and multimedia technology. According to different teaching modes and different educational objects, it provides flexible and open interactive teaching suitable for multi-faceted, multi-object and multi-network environments. Learning support platform. The network teaching platform takes "course teaching" as the core, supports the long-term rolling construction of the curriculum and the accumulation and sharing of teaching resources, supports the teaching process tracking statistics, and combines the teaching process with the evaluation display. It provides teachers with online preparation tools and teaching environment, as well as full teacher-student interaction function, which greatly expands the teaching space of the course.

2. Network teaching platform architecture

The network teaching platform is an open platform that supports communication between students, teachers, educational administrators and system administrators to realize online teaching. According to the idea of role design, it can be divided into students, teachers, administrators and network education resource library management system. A complete network teaching platform should consist of four systems: online teaching support system, online educational management system, online course development tools and online teaching resource management system. Using computer network to realize internal and remote teaching, creating a network-based learning environment, teachers and students jointly establish a breakthrough time, geographical restrictions, from teaching to learning-oriented teaching platform, exploring subject teaching and information Ways and patterns of organic integration of technology.

The learning support system is mainly for students. Students choose e-learning plans for each subject to learn, understand their learning notices, exercise assignments, and teachers' Q&A. Open an electronic bulletin board BBS, organize hot discussions, conduct online exchanges, guide students to think about relevant issues, and provide online testing or online exams to help students detect their learning effects in a timely manner. The column sets the course center, online self-test, learning resources, discussion and exchange, personal space, news announcements, and on-site messages.

The teaching support system is the main tool for implementing online teaching. Through the system, teachers can design syllabus, organize teaching content, provide teaching resources, produce learning courseware, and write coursework, enter test questions, and produce test papers. These courses are completed by the teacher during the lesson preparation process, while the learners can take the course or complete the homework and take the test in the classroom.

The teaching management system includes student management, teacher management, administrator management, course management, class management, college management, professional management, course start information management, and discussion area management. These features are some of the initial management of the system's operation. The learning resource management system is used to store teaching resources such as media materials, test questions, courseware, cases, documents, etc., including entry, maintenance, browsing, downloading, registration, preview, and log management. The interactive system is an important part of the teaching activities. Through interactive learning, the learning efficiency can be greatly improved. The interaction design of the network teaching platform includes: short messages in the station, news announcements, learning forums, E-mail, instant communication tools (such as QQ, MSN), microblogs, and so on.

3. Network-assisted teaching platform design

The network-assisted teaching platform must first provide the function of network-assisted teaching, so that the platform is aimed at the main users - students and teachers. In general, the following functions should be realized: teaching management: for example, teachers start online, student elective management and other management functions; student learning: provide electronic handouts, other resources, after-school review, teaching arrangements, etc.; teacher-student exchange: provide teachers and students Real-time or non-real-time communication, such as through mail boxes, message boards, course forums, chat rooms, etc.; job management: teachers can arrange assignments online, correct assignments, students can submit assignments online; provide resources: through FTP resource library and network navigation library Provide students with a wealth of useful learning resources.

If the network teaching system only realizes the functions of publishing lectures and online operations, it is still low-level. How to use the system to enable teachers to easily implement various teaching strategies is a qualitative improvement. For example, the use of resource systems to provide students with a large number of learning resources to achieve resource-based learning; through the network's interactive environment and curriculum forum modules to achieve cooperative learning strategies. System functions should support the implementation of various teaching strategies as much as possible. The network-assisted teaching platform is a reflection of the student-centered teaching model. Therefore, in the macro-planning and micro-implementation of the platform, students should be the center and give full play to the initiative and creativity of students. Network technology can bring great convenience to teaching, but if the system is designed to be very complicated, it will be counterproductive. Therefore, system functions should be simple and practical, so that students and teachers can familiarize themselves with and use the system in a short period of time. The network-assisted teaching platform is applied to students, teachers and administrators. Each type of personnel plays different roles in network-assisted teaching activities, and the requirements for the platform are different. In response to this feature, the network teaching platform is divided into three sub-platforms in the functional structure, namely: student learning platform, teacher teaching platform, and teaching management platform. These three sub-platforms are equipped with different functions for different service groups, but they are connected and closely coordinated, so that the network teaching covers the whole process of teaching, and interaction is realized through data sharing, completing different teaching tasks and realizing different teaching. aims.

The student learning platform is mainly used to cooperate with students to conduct online learning after class, and to present the learning information provided by the teacher to the students in a timely and complete manner. At the same time, the students fully feed back their online

learning conditions to the architects of the network-assisted teaching platform. Form a two-way interaction. The system also provides students with their own online learning statistics to help students master their own learning. After the system is authenticated by the system, the learning resource link of the selected course can be given in the navigator by querying the student elective information. Students can conduct online learning through the teaching resources in the linked page. At the same time, students can form a knowledge structure system with their own characteristics according to the learning situation, establish their own knowledge base system, and publish it as a staged learning achievement. The system should support multiple types of teaching materials such as text, images, videos, multimedia courseware, and more. Test system students can conduct online tests or submit assignments through the test system according to the requirements of the instructor after completing a stage of study. The system will automatically record information about different students in different course tests, such as test content, time, grades, and stage analysis reports. The Q&A discussion system mainly implements the two-way communication discussion between teachers and students. Real-time interaction and non-real-time interaction are realized by technical means, and support various interactive forms such as video, voice and text. At the same time, it provides teachers with data mining, statistics, analysis and management functions of the "question-answer" library. The student learning platform fully embodies the modern teaching philosophy of "independent" and "collaboration" of learners. Through network technology and rich teaching resources library, it provides a network environment for students to carry out research-based learning, collaborative learning and other new learning modes, enabling students to build a new knowledge structure system through existing resources, which is conducive to the cultivation of students' innovative ability. The improvement of comprehensive quality.

The teacher teaching platform mainly cooperates with teachers to complete online teaching and counseling, provides teachers with various functions required in teaching activities, organizes various teaching information and teaching resources, understands students' learning situation, solves problems for students, and provides teachers with information. Required teaching statistics and course maintenance features.

Starting system. This system is the basis for teachers to conduct network-assisted teaching. Only after the course is started, the system will automatically allocate cyberspace to the course, and through a series of management model instantiation process to achieve the management and monitoring of the entire teaching activities and curriculum resources. After the teaching resource system teachers log in to the system, they can freely organize the teaching resources and upload relevant teaching resources of a certain course to the server to provide support for classroom teaching and students' after-school learning. The system should support multiple types of teaching resource uploads (such as text-based resources, file-based resources), and provide a variety of upload methods (such as online editing, HTTP, FTP, etc.). The question bank system teacher implements the functions of a course test or job library, including adding, modifying, and deleting operations. Support multiple choice questions such as multiple-choice questions, multiple-choice questions, and quiz questions. It also supports real-time online testing and non-real-time job correction and commenting functions. The teaching log system records the student's activity information on the learning platform and the teacher's teaching platform, and supports the query statistics function. The log system can clearly reflect the student's learning situation and the teacher's network-assisted teaching, and provide a basis for the formulation of the teaching strategy and the analysis and evaluation of the teaching process. The teacher teaching platform is conducive to the teacher's role of "leading". The role of the teacher is transformed from the communicator of knowledge, the indoctrinator, the absolute authority to the leader of the teaching process, the provider of learning resources and the object of communication and discussion. The main goal of the teacher is to help students form their own perspectives and knowledge structure system by providing students with learning materials, communicating with students, and analyzing and summarizing the data generated by the learning process.

4. Conclusion

The network teaching platform is the most important supporting environment for network teaching and learning. Its design concept and function quality will directly affect the quality of network teaching and learning. The advancement of computer technology and the change of learning concepts are the core factors driving the continuous development of the network teaching platform. Therefore, the design and development personnel of the network teaching platform should always pay attention to the trends and progress in these two aspects, and the results of technological progress and learning concepts. Timely application to the platform, constantly promote the evolution of teaching platform design concepts, architecture, functions and many other aspects.

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