Research on Innovation of Design Education Based on Artificial Intelligence Technology

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Abstract. The network teaching assistance system uses the form of dialogue to discuss the teaching content with students, the course schedule arrangement, the way and technology of teaching and training, which can effectively improve the teaching quality, shorten the teaching time and increase the teaching efficiency to achieve the established optimization of teaching purposes. In this paper, a forum system for experimental teaching is proposed, which aims to establish a public communication platform to serve the experimental teaching process, and to apply it to the exchange and study between the experimental instructors and students. Through text multimedia technology, the quality of experimental teaching is improved, and students’ practical ability and innovative thinking are cultivated. The experimental teaching forum uses B/S structure to design the interactive platform of information exchange, and presents the information to the user through the browser. The transaction logic is processed by the server side, and the front-end represents the exchange of information.

1. AI-based education system

Facing the rapid development of the social computer with the popularization of information technology, the traditional education forms have been changed through information technology, and the generation of the network assisted teaching system has new requirements on the quality of learners. In the present stage of experimental teaching, network assisted teaching can greatly improve the quality of teaching, at the same time to induce students to study independently to explore their own potential and cultivate practical and realistic scientific literacy. Applying the computer aided system in the field of experimental teaching to solve the problems of the existing education reform, at the same time to assist all schools to carry out quality education.

Using computer assisted experimental teaching system, students can learn from teachers can also use the knowledge base and expert system to assist their own learning, through the physical experiment courseware, CD means of learning can also carry out online learning and other means to broaden the way of learning. Now commonly used computer - assisted experimental teaching mainly has three forms.[1-4]

The first type is consultative learning.

The second way is the interactive type.
The third way is the review exercise type.

2. Technical route
Experimental teaching BBS system mainly corresponding computer assisted teaching system in teaching content, the researches on the teaching communication unit values, interactive system is mainly for the use of experimental teachers and students, the goal is to build a set of public communication platform for the use of the experimental teaching process, help the experiment teaching quality improvement, to promote students' autonomous learning and active thinking, reduce teachers' teaching the intensity of labor.

According to the purpose and requirements of the above system construction, the system mainly focuses on experimental information disclosure, because the characteristics of interactive communication in the direction of the system construction, referring to the browser, server mode, is the B/S structure planning. This structure uses the browser to present information to the user, mainly through the server (server) to deal with the transaction logic, the front (browser) also deals with a small amount of physical logic. The advantage of this architecture lies in its high timeliness, which is not restricted by the operating system environment. It can generate a unified platform of experimental teaching information disclosure, so that the information can be shared uniformly.

2.1. System development platform - ASP.NET
When applying the BS architecture system, considering that the server of the experimental teaching laboratory will use Windows system for operation, the experimental teaching tire system uses ASP.NET developed by Microsoft formula to develop the system platform. ASP.NET Web application is a unified Web development model, in this technology using integrated language retrieval integration, dynamic script generation, message processing excuse and other diversified advanced technology integration, the technology is strong adaptability and high performance is one of the core R & D of Microsoft, ASP.NET, Windows system and IIS has excellent compatibility.

2.2. The preceding script framework - jQuery
In the development of BS architecture system, it is difficult to write the foreground page script language. The previous script framework used in the system is jQuery language, which is derived from JavaScript and is another excellent JavaScript framework after Prototype. It is compatible with CSS3 style rules and supports various browsers such as IE6.0+, FF1.5+, Safari2.0+ and Opera90+.

2.3. Data interaction format - JSON
The abbreviation of JavaScript Object Notation is JSON, which mainly uses a lightweight form of JavaScript Object symbol data substitution. JSONS is a subset of JavaScript. Considering the development habits of users in the development environment, JSON fully draws on the coding method of C language.

3. System design

3.1. System analysis
The overall use case diagram of the system is shown in Figure 1, from which it can be concluded that the use case roles of the system include administrator, teacher and student. The user role does
not represent the actual user just as a reference to the base user. The user role has the login capability because all three use case roles are generated from this user role, so this role has the corresponding performance of the parent role. The role content of the teacher is related to the information of the experimental course. The main role content of the teacher includes publishing information, uploading courseware, course information and online puzzle-solving. The main content of the student’s role is related to the acquisition of experimental courses, including browsing learning information, downloading courseware, online questioning and learning; The content of administrator role is to manage the information of system users and review the relevant problems.[5-7]

Figure 1. System use case diagram

The role of administrators in the system is shown in Figure 2. Administrators are indispensable in the system, which mainly includes two parts: managing users and auditing related problems.

Figure 2. Administrator use case diagram

The role system of teachers is shown in Figure 3, which includes four parts: online puzzle-solving, information publishing, courseware uploading, and course information management.

Figure 3. Teacher use case diagram
Figure 4 shows information. Students can conduct information search on learning contents, and teachers can sort out and edit the contents retrieved by students. For students’ difficulties in learning, students can ask teachers questions online, and teachers can answer questions. Students can download the courseware related to the experiment by verifying their identity information.[8-10]

![Figure 4](image1.png)

**Figure 4.** Student use case diagram

### 3.2. System framework

The system is designed using the classic three-tier structure system, which is divided into the business logic layer and the access data layer according to the level. The specific content is shown in Figure 5.

![Figure 5](image2.png)

**Figure 5.** System frame diagram

### 4. Conclusion

In this paper, with the support of artificial intelligence technology to design applications in the experimental teaching process of interactive system, the system purpose is to implement the teaching problem between teachers and students to interact, including user registration, course information, online questions, online consultation and download courseware, the user, the problems, and other functions. In experiment teaching, the students according to the experiment teaching problems met in learning, to ask the teacher questions by this system, teachers shall be carried out in accordance with the need to solve the problem answer, ask questions of students can communicate with other students in the experiment with the same Shared browsing information,
the common problems in the teaching experience and integration, and improve teaching quality in learning and teachers have reference significance to improve the level of teachers.

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