Research on Computer Assisted English Teaching in Foreign Language Teaching in Colleges

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Abstract. The continuous development of network technology in the information age has provided hardware guarantees for networked teaching, and the deepening of computer-assisted teaching research has promoted the development of networked computer-assisted teaching. With the popularization and application of informatization in colleges and universities, the use of modern information technology to change the traditional teaching mode has become the focus of attention. The C++ network-assisted teaching system uses computers and networks as the main means to develop network-based teaching and learning auxiliary teaching methods. This system is a mixed mode of network teaching and traditional teaching, which can enhance the communication between teachers and students, and can also play the role of the student-based teaching mode in network teaching.

Keywords: computer-assisted teaching, online learning, learning system

1. Introduction
The so-called computer-assisted teaching is actually in teaching. Teachers choose and use modern teaching media scientifically and rationally according to the teaching goals and object characteristics, actively participate in the teaching process, and apply various diversified multimedia information to students to form the overall structure of the teaching process. In order to achieve the most optimized teaching effect. The computer displays multimedia information elements such as language, sound and images based on the computer screen, and cooperates with the corresponding sound to complete the study through the human-computer interaction between the student and the computer. Based on this, the design of a computer-based college English assisted learning system can not only mobilize students’ interest and enthusiasm, but also shorten the entire cognitive process, thereby realizing the optimization and improvement of the teaching process, and significantly improving teaching efficiency and quality [1].

The thesis first conducts a systematic research on C++, and then elaborates the theoretical basis for the design of college English teaching system. According to the needs of college English teaching and the characteristics of college students’ learning English, and the requirements of innovative talents for college English teaching, the research is conducted after systematic analysis. The framework and function diagram of the network college English teaching system are formulated. Finally, the advantages of C++ modeling language for modeling college English teaching system are discussed, and the modeling of the system is realized.
2. The concept of intelligent computer-assisted teaching system

Intelligent computer-assisted teaching is an intelligent teaching system, which uses cognition as the theoretical basis to apply artificial intelligence technology to the teaching system. The intelligent computer-assisted teaching system separates the teaching content and the teaching strategy. According to the information provided by the student's cognitive model, through the search and reasoning of the intelligent system, it dynamically generates the content and strategy suitable for individualized teaching; judges the student's learning through the intelligent diagnosis mechanism Level, analyze the reasons for students’ errors, and at the same time make suggestions for changes to students, as well as suggestions for further learning content; through statistics on the error distribution of all students, the intelligent diagnosis mechanism will provide teachers with teaching priorities, methods, and testing priorities. Suggestions on question types; provide teachers with friendly teaching content and test content maintenance interfaces, and adjust teaching strategies without changing the software structure; provide teaching supervisors through intelligent analysis of student cognitive models, teaching content, and test results Reference opinions on the evaluation of teaching performance of teachers. It can be said that an ideal and perfect intelligent computer-assisted teaching system is an autonomous and excellent "teacher". However, in terms of the current level of science and technology, it is obvious that an intelligent computer-assisted teaching system with all the above functions cannot be realized in a short period of time [2]. It is generally believed that only various questions and exercises can be automatically generated according to the students' learning level and learning situation. A teaching system that selects and adjusts the content and progress of learning, has the ability to explain and consult the teaching content, evaluates the learning behavior of students, and evaluates the teaching behavior of teachers can be called intelligent computer-assisted teaching systems. System.

3. Analysis and design of modeling system for online college English teaching system based on C++

In software engineering, the whole process of a software product from forming a concept, through development, use, and maintenance until finally decommissioning is called the software life cycle, which includes six stages of three parts: software definition (including planning and system/requirements) Analysis), software development (including software design, coding and software testing), use and maintenance. System analysis is an important stage of software engineering and is the basis for all development. In the system analysis stage, through the comprehensive study of the system, an accurate understanding of the system requirements and the internal operating mechanism of the system helps to accurately grasp the requirements of the system, thereby correctly determining the specific content of software development. Through system analysis, we must complete the work of determining the content of the system requirements, determining all the elements involved, and establishing corresponding models for the current problems that need to be solved, so as to fully understand the needs of users for the system.

College English teaching should help students master good language learning methods. Teachers have the responsibility to consciously cultivate students' self-learning ability in daily teaching. Students should become true active learners; it is necessary to ensure the continuous line of college English learning so that students can stay in the university. During the study period, English proficiency improves steadily. It is necessary to cultivate the ability of students to communicate information in English, not only to understand English, but also to use English for oral or written expression, putting listening, speaking, writing, and translation at the same level. In accordance with the requirements of the new syllabus, college English textbooks have strengthened the cultivation of students' listening, speaking and writing abilities. In the teaching process, modern teaching based on computer multimedia is based on the characteristics of teaching goals and teaching objects, through teaching design, rational selection and use of modern teaching media, and organic integration with traditional teaching methods, and jointly participate in the whole teaching process [3]. A variety of media information acts on students to form a reasonable teaching process structure to achieve the most optimized teaching effect. Language, sound, text, pictures, graphics, etc. and animation are organically integrated, learner-centered, and give
full play to learning. The enthusiasm and initiative of the learner can take into account the individual differences of learners, and exercise the learners' independent self-study ability, better play the guiding role of teachers, and achieve personalized education of teaching students in accordance with their aptitude. At the same time, the multiple convenient jumps and connections of hypermedia and hypertext, as well as the networked knowledge structure, make multimedia foreign language learning more suitable for people's divergent thinking characteristics. In addition, multimedia stimuli can greatly improve the efficiency and interest of foreign language learning, and better realize the teaching principles of entertaining and entertaining.

Figure 1. The model structure diagram of the online college English teaching system

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entertaining and entertaining. In summary, the model structure diagram of this online college English
teaching system is shown in 1:

3.1. C/S mode
The C/S mode and the B/S mode are the mainstream technologies of the current development mode
technical architecture. The C/S mode is shown in Figure 2. The C/S architecture is realized by leveraging
the advantages of the hardware environment and reasonably assigning tasks based on the Client side and
the Server side, thereby greatly reducing system communication costs. C/S architecture database
application mainly includes two parts: client application program and database server program.

![Figure 2. C/S model structure](image)

3.2. The overall structure design of the system
In the process of English learning, vocabulary learning is very important. The mastery of vocabulary is
a key part of English learning. Its learning needs to be matched with the environment of the application.
Therefore, the computer-based English assisted learning system provides students with a learning carrier.
Realize learning with thesaurus and library. The overall structure design of the system is shown in Figure
3.
3.2.1. Thesaurus game learning. Strictly follow the order of professional difficulty level from low to high, and allocate time based on vocabulary characteristics, types, and difficulty. The reason for starting from the lower difficulty is that the frequency of the wrong vocabulary is relatively high. The system will reasonably configure the learning cycle according to the memory. Students can learn based on the learning cycle of the game software, and the system will record the student's learning status in detail, and give certain effective suggestions, and then generate a comprehensive operation log [4].

3.2.2. Library learning. This module starts from the first unit of the textbook by default. Students plan the learning sequence according to the difficulty of the article. The system can automatically extract the professional vocabulary in the article from the question bank and give a more complete and diversified explanation. The article learning time also has a certain amount of time. Restrictions must be carried out in strict accordance with the established order. The lexicon game learning and the library learning can be carried out at the same time. When learning articles according to the unit, the game scenes are used for article vocabulary preview and review.

3.3. Question bank design
The computer-based college English assisted learning system question bank is actually composed of a large number of questions with necessary parameters. The questions are selected according to the test objectives. In addition to the content contained in each question, there will be a number representing the attribute of the question. These questions are stored in the question bank based on a certain structure, and students can choose appropriate questions for specific attributes. Moreover, the question bank design should fully consider the quality, quantity, question type and other related elements, and also need to clearly understand the convenience of intelligent reading. Therefore, the question type is limited to multiple choice, true and false, and fill-in-the-blank questions, while translation and writing require manual participation. The item design mainly includes the attribute value setting, and the metric can be directly applied to the system marking link. The question bank has a certain degree of dynamics and needs to be changed in real time according to the actual situation. Questions that do not have appraisal significance should be deleted according to the learning characteristics of students. Therefore, experts should also be organized to make professional propositions. The specific process of question bank design is shown in Figure 4. When composing papers, it should be ensured that it is reasonable and random. In the examination system, the key lies in the effective control based on the attributes of the test questions and external rules. The so-called randomness can be automatically combined randomly according to given indicators to form test papers.
3.4. Function analysis

(1) Through a friendly learning environment, learners can browse the content of relevant courses at will, select the chapters they want to learn through the navigation bar, and know where they are at any time on the page they are browsing, and they will not get lost. Learners can ask questions about difficult questions in the course, and the system will respond to them for individual guidance. (2) After learning, students can practice on related chapters to detect the effect of learning. Practitioners can randomly select questions. After answering the questions within a limited time, the system will automatically score, and immediately give the test results and error analysis, so that students can dynamically understand their learning situation. (3) Teachers can maintain the system, including the maintenance of learning content, the design of sample questions, the entry, modification, and deletion of test questions and
answers, the query of question bank information, statistics, analysis, and system expansion. (4) The system can automatically draw questions and group papers according to intelligent algorithms, and form a test paper with a low repetition rate and standard and answers and scoring standards. You can also manually compose, modify, and adjust test papers as needed to improve the quality of test papers. Figure 5 shows the system function diagram.

4. Online college English teaching system process and role setting

4.1. Determination of the role

Roles are people or things that interact with the system. The so-called "interaction with the system" refers to the role of the character sending messages to the system, receiving messages from the system, or exchanging information in the system. Through the analysis of the functional requirements of the college English teaching system, it can be determined that there are three participants in the system: Student, Teacher, and Administrator [5].

A. Student description: Students are concerned about learning-related examples. Students can log in, maintain personal information, check their learning history, view assigned homework, latest announcements, online classmates list, introduction to teachers, download files, conduct online learning, online consultation, submit homework, and check grades.

B. Teacher description: The instructor logs in, maintains personal information, obtains student information, publishes announcement messages, assigns homework, manages files, courseware production, homework download, corrects homework, manages difficult problems, online list, and checks student learning history.

C. Administrator description: System administrators can register and maintain personal information, start and schedule management, maintain student information, maintain teacher information, conduct educational administration, teaching knowledge management, and meta-repository management. Use the Use Case View of Rational Rose to create Actors as shown in Figure 6.

![Figure 6. Create role in Use Case View](image-url)
4.2. Create Use Case

The use case represents a complete function. A use case in C++ is a collection of action steps. An action is an execution of the system (the ability to output a result value to a certain role). Communicating with characters, performing calculations, or working in the system can all be called actions. The use case should support multiple possible actions. Each executable situation in the system is an action, and each action is realized by many specific steps. The content of the online platform covers all the content required by the "College English Syllabus". Students perform online reading, practice, and self-test of vocabulary, listening and grammar according to the teacher's requirements [6]. The test uses chapter selection and random questions from various A set of exercises is extracted from the type question bank for students to conduct self-test. The objective questions are corrected by the machine, and the subjective questions give reference answers. If you make a mistake, the system will give feedback immediately and give the reasons. The student's problem-making situation is automatically recorded in the database for teachers to inquire.

4.3. Create role use case diagram

After identifying the participants and use cases, establish a use case diagram to describe the relationship between participants and use cases. The use case model is the use case view of the system. The use case view plays a very important role in the modeling process and affects the construction of other views in the system and the realization of solutions, because it is the basic function of the system that customers and developers negotiate and discuss repeatedly [7]. Developers can use the use case view to build a functional view of a new system, and can also modify or expand the existing use case view to generate a new version, that is, add new functions to the existing view (that is, in the view Add new roles and use cases). Use the Use Case View of Rational Rose to create a use case as shown in Figure 7. The use case diagram of the entire system is shown in Figure 8.

![Figure 7. Create a use case in Use Case View](image-url)
Figure 8. Use case diagram of the entire system

The collaboration diagram is used to describe the interaction and link relationships between objects that cooperate with each other. Although both sequence diagrams and cooperation diagrams are used to describe the interactive relationship between objects, the emphasis is different. Sequence diagram focuses on reflecting the time sequence of interaction, while the cooperation diagram focuses on the static link relationship between the interactive objects. The function of the collaboration diagram is to describe the interaction between system elements and the relationship between them in time and space order [8]. In Rational Rose, the student operation collaboration diagram is shown in Figure 9:

Figure 9. Student operation collaboration diagram
In Rational Rose, the student query collaboration diagram is shown in Figure 10:

![Student query collaboration diagram](image)

**Figure 10.** Student query collaboration diagram

5. **Computer-based college English supplementary learning**

The practice of the learning system is based on the performance analysis of the application of the system in the examination. In the teaching environment, it generates test papers with higher pertinence and feasibility, so as to provide teachers with certain test questions and test paper analysis functions. After the exam is over, the system will give a score based on the answers to the question bank to review the results of the exam. The English test is mainly to assess student performance and teachers' teaching effectiveness, so students should take the test seriously. After counting the answer sheets, it can truly reflect the actual situation of the student's learning process and provide a reference for subsequent learning. Therefore, this system is worth promoting and applying in English teaching.

6. **Conclusion**

Based on the in-depth analysis of the current teaching status of Web development technology courses in the computer major of College, relying on the C++ network-assisted teaching system, a computer-assisted teaching platform has been built, and auxiliary teaching practices have been carried out. The implementation effects have been summarized as C++ network the application of the auxiliary teaching system in the teaching of College has accumulated experience. Based on the C++ network-assisted teaching system, the hybrid teaching method integrates various teaching resources, guides students' learning from multiple angles, and conforms to the requirements and needs of the development of the times, and should be promoted and applied.

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