A Web-Based Auxiliary Teaching System for College English

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In order to optimize the application quality of the English auxiliary teaching system, shorten the system response time and CPU utilization, design a Web-based college English auxiliary teaching system, and test its application effect. Using the B/S mode in the Web, install the developed auxiliary teaching system on the server of the control center. The B/S function modules in the system software include the presentation layer, application service layer, and resource layer. Based on this, design the user management module and college English auxiliary teaching functions and allocate bandwidth to the platform resource transmission rate to maximize network utility, reduce platform data transmission failures, and optimize the quality of English auxiliary teaching. The experimental results demonstrate that the system based on the B/S multilayer structure passed all of its tests, showing that it is relatively robust and capable of meeting the needs of college English teaching aids for students and teachers while also achieving the desired outcomes. The teaching information communication delay and response time of the designed system are shorter, and the central processing unit (CPU) utilization rate is also lower.

1. Introduction

The application demand for campus networks is increasing as the depth of campus network installation deepens. For campus network designers, maximizing the benefits of network resources by efficiently using the platform of the campus network and rich hardware resources to carry out network-assisted teaching has become a hot topic [1]. At present, the hardware construction of the campus network is becoming more and more perfect; the framework of the network is also clearer, and the application on it is lacking. Take college English teaching as an example. Although the campus network has provided students with some multimedia teaching software and resources, students are only listening and watching, cannot give full play to the subjective initiative of teachers and students, and cannot reflect the individual needs of teachers and students [2–4]. Experience has shown that college English is a practical course, and students’ classroom learning alone cannot meet the teaching needs. Therefore, the development of an appropriate auxiliary teaching system not only can liberate teachers but also is necessary to cultivate students’ self-study and enrich the teaching resources of the campus network [5–7].

College English teaching has obvious characteristics.

Practicality: The English course’s usefulness is self-evident. The author has taught college English and has learned that English is not taught. The purpose of this statement is to underline the necessity of students learning. If students do not study hard, no matter how good teachers are, they will not be able to instil the language in their heads. Our understanding of English grammar, sentence patterns, and vocabulary is far from enough. If we do not try to use them, it will be the same as if we did not learn them [8]. This statement may be a little extreme, but it highlights the characteristics of language learning, that is, a strong practical. Whether the opportunity and condition of practice can be created or not determines the quality of language teaching. Interactivity: due to the practicality of English learning, it is difficult to achieve practicality without a lot of interactive training [9]. Whether from the perspective of teaching links or students’ autonomous learning, there needs to be a large number of interactive processes between teachers and students. Without this process, the English acquired by the students will be mute English and Chinglish. Language learning is a comprehensive skill acquisition process, listening, speaking, reading, writing, translation, and many other aspects need to interact to be well mastered and make it their own skills [10, 11]. Environmental factors
(authenticity of language use and richness of language materials). The interaction of English needs a good language environment, and the shaping of the language environment in the Chinese campus needs to be built in many ways.

In the current design of English-assisted teaching system, the system based on-campus network can effectively make up for the shortage of traditional English-assisted teaching methods and ensure students study English-assisted teaching knowledge independently under the campus network, which can not only realize modern English-assisted teaching in higher vocational education but also promote students’ autonomy in English learning and play a positive role. Reference [12] proposes a system of using virtual reality technology to achieve English distance teaching and uses multimedia tools to assist English teaching to improve the teaching effect. Use 3D scanners to build a three-dimensional teaching mode to assist the advancement of the teaching curriculum system. The three-dimensional visual display device displays the virtual teaching three-dimensional scene. The interaction of the teaching system can be improved through the operation lever, and the English teaching curriculum system and teaching instructions can be sent remotely in the form of network control, so as to improve the teaching level and ability of teachers. The teacher’s responsibility is to understand the students’ learning situation, obtain the feedback information of English teaching, and timely adjust the teaching direction and objectives according to the students’ learning progress and characteristics. The method of building virtual scenes and creating VRML language programs promotes the simulation efficiency of remote English teaching and realizes English interactive teaching. Reference [3] researched and implemented an interactive lightweight augmented reality teaching system for numerical optimization teaching. The system uses the ArUco algorithm for multitarget tracking and recognition, realizes the simulation and visualization of the numerical optimization process based on JavaScript technology, and designs and develops a prototype augmented reality system.

The best design of an English-assisted assisted teaching system in higher vocational colleges not only can achieve the sharing of learning programs but also can provide conditions for individualized learning of higher vocational students, especially with the popularization of the campus network. Therefore, this paper designs a Web-based college English-assisted teaching system and tests its application effect. Using the B/S mode in the Web, we optimize the English teaching assistant platform. Teachers install the teaching assistant system on the server of the control center and manage and maintain the server through a PC terminal. The control center connects to the campus network center through a switch. The B/S function module in the system software includes the presentation layer, application service layer, and resource layer. Based on this, user management module and college English teaching assistant function are designed, and bandwidth allocation of platform resources is carried out to maximize network utility, reduce platform data transmission failure, and optimize English teaching assistant quality. The results reveal that there are some differences between the experimental and comparative classes and that the differences are statistically significant, indicating that the planned method is effective in helping students improve their English skills. The system based on the B/S multilayer structure passed all of its tests, and the system’s teaching data and communication delay and response time are both faster than those of the literature design.

2. Web-Based College English-Assisted Teaching System

English instruction in higher technical colleges is currently primarily focused on traditional teaching methods. Students passively assimilate English learning content after teachers discuss crucial English knowledge elements. This teaching style does not encourage students to actively learn English. Simultaneously, with the rapid expansion of the Internet, the current campus network has also expanded to varied degrees, allowing higher vocational institutions to strengthen their English distance-assisted teaching system. The English remote teaching system maximizes the level of sharing of teaching resources, allowing vocational students to learn at their own pace. At the same time, we can use the campus network to help students and teachers realize interaction, effectively break through the time and space constraints of the traditional English-assisted teaching method, and build a new English-assisted teaching model in higher vocational colleges [13, 14]. It can provide a better environment for English education in higher vocational colleges based on the campus network, allowing students to connect with the teaching system through the campus network, and provide a more autonomous network environment for colleges to make use of the teaching resources of English teaching system. In the design and development of higher vocational English-assisted teaching system, we can, on the basis of adhering to the accuracy of English assisted teaching content in higher vocational education, gather modern network technology means and optimize and design the system so that users can browse the teaching system by campus network, so as to ensure that the designed system can meet the common requirements of users at different levels and ensure that the designed system can play its application benefits [15]. Design the English teaching assistant system based on-campus network to ensure that all kinds of teaching resources can be organized well and that every computer in the campus network can be connected to the Internet and share the English teaching assistant resources in the local area network to ensure that the designed teaching system meets the needs of users.

2.1. Web Mode

2.1.1. System Structure. Choosing B/S mode as the structure of the system browser and server, reducing transaction logic according to the web browser, and improving the ability to handle complex processes can effectively reduce costs. This is due to the B/S model’s low cost, ease of operation, ease of
maintenance, simplicity of development, strong distribution, zero client maintenance, and strong scalability, which can significantly improve the automatic management level of teaching content in the English distance teaching system. By incorporating the B/S mode into the system architectural design, English remote teaching can be realized from both a hardware and software standpoint. The user interface is implemented in this architecture on the World Wide Web (WWW), along with a limited bit of transaction logic. The major money transfer logic is finalized on the server, and the time for preventive monitoring is greatly reduced by establishing a three-layer network structure, which can dramatically reduce the load on the computer while also shortening the time for system maintenance and upgrading, lowering the overall cost. In terms of database development, we use one-time development to enable different personnel from different places to access and operate the public database in different ways (e.g., local area network (LAN), WAN, Internet/Intranet, etc.). It preserves the data platform and regulates access permissions well, and the server database is also quite secure.

2.1.2. Operating System. The server operating system platform can be Windows NT/2000 or Linux. Client systems can choose popular Windows/98/2000/XP and so on.

2.1.3. Client Software. We use a series of excellent Microsoft software for client development.

2.1.4. Database System. The system uses MySQL software as the system teaching resources processing and management software. If the campus network has better database software, it can also be moved.

2.1.5. The Interface between Web and Database. We use multiple databases to support PHP dynamic web scripting language.

The system can give users learning programs based on the B/S multilevel structure, and the system can save the user’s learning programs so that users can get tailored information. Users’ learning logs are rarely or never recorded in traditional college English-assisted instruction systems; therefore, users cannot access tailored information. Direct on-demand learning content in courseware refers to the entire process of playing learning content; without individualized engagement, the system is unable to follow the user’s watching experience and make instructive suggestions. However, in a multilevel structure based on B/S, users and systems interact often, and users can directly use the system to produce interactive information transmission, which has a significant impact on user experience. Figure 1 depicts the platform of the college English teaching aid system, which is built on the B/S multilayer structure.

The important feature of college English auxiliary teaching is the interactivity and personalization of college English auxiliary teaching. The college English auxiliary teaching system based on B/S multilayer structure sets the user information receiving mode according to the user’s learning status to ensure the personalization of the college English auxiliary teaching process.

2.2. Network Architecture Design. Client and server architectures, also known as B/S (browser/server) architectures, are terminal-based, three-tier systems that manage hosts and database servers. In the management system of English online assistant teaching, the client is mainly a terminal device, and the server includes the host computer and database server. Composition of control center software: we use micorot iis5 SQL Server 2008 and SQL Server 2008 to develop structured database. The control center’s computer-aided instruction (CAI) system is installed on the server, which is operated and maintained using a personal computer (PC) terminal. A switch connects the control center to the campus network center. The client computer installs communication software and device management software, while the server installs system software and English-assisted instruction management software. The core of the network architecture is the system hardware system, including the network terminal equipment and communication lines. Figure 2 shows the technical framework of the management system of English online CAI.

2.3. Hardware Structure Design. The three parties interact in the classroom, while there are only two aspects of extracurricular interaction: students and the system. The physical topology of the college English-assisted teaching system based on B/S multilayer structure is shown in Figure 3.

The system topological structure is always running through the cultivation of students’ autonomous learning ability in the network environment during the design process and makes full use of the existing college English auxiliary teaching mode to construct a college English auxiliary teaching mode based on the B/S multilayer structure. Teachers do not need to consider the specifics of the system. Design details can focus more on the integration of college English supplementary teaching content and resources and focus on analyzing students’ autonomous learning ability.

2.3.1. Storage. The procedure necessitates the storing of mass memory information when students add to the relevant knowledge points, which are kept in personalized notes. Memory in a B/S multilayer structure may save binary data, and memory bars are a physical manifestation of a memory function circuit in an integrated circuit. Memory is a storage unit on the motherboard that can be used to store programs currently executing for the temporary storage of programs and data. External memory is usually magnetic media that can hold information for long periods of time, whereas memory is a storage unit on the motherboard that can store programs currently executing for the temporary storage of programs and data.

The memory chip is shown in Figure 4.
Figure 1: College English-assisted teaching system platform based on B/S multilayer structure.

Figure 2: Technical architecture of English online auxiliary teaching management system.

Figure 3: Topology of college English-assisted instruction system based on B/S multilayer structure.
The storage strategy management model is constructed by combining a large number of storage units with an address decoding and read-write control circuit to form a storage chip. A storage unit is formed by the memory chip, the control chip, and the power module electronic circuit board.

2.3.2. **Router.** A router is a key device for connecting the Internet and each LAN. It sets up a route according to the channel situation, ensures the best data transmission path, and sends signals in sequence. Router, also known as a gateway device, is mainly used to connect a number of logical networks. When data are transferred from one subnet to another, the function of the router is completed. Therefore, the router has the function of choosing the IP path, the router occupies an important position in the network, and it is the bridge of the system connecting the network.

2.3.3. **Multilayer Wiring Integrated Circuit.** With the support of a B/S multilayer structure, multilayer integrated circuits are formed on insulated substrates. By setting the shielding layer, the electrical performance of circuits can be improved. In order to reduce the impedance of the power supply line, the characteristic impedance can be set on the integrated circuit, and the conductor width can be increased to reduce the characteristic impedance. Multilayer wiring is adopted to increase the independent ground layer to avoid noise flowing into other layers and reduce the influence of high-frequency current on sensitive resistance.

The section view of the multilayer integrated circuit board is shown in Figure 5.

In the process of circuit board design, a special ground layer is used to connect the signal line evenly to the ground. The signal line can remain relatively stable and reduce the waveform distortion caused by reflection.

2.4. **Main Databases to Realize System Functions.** There are many databases used in the system. The knowledge point structure and several important tables are listed here. An example of knowledge point classification data is shown in Table 1.

Each level of knowledge points corresponds to a table, so as to classify the knowledge points. User information is shown in Table 2.

2.5. **Software Function Design.** The C/S structure has many advantages, such as strong interaction, safe access, fast response, and convenience for a great deal of data processing. However, there are some problems in this structure, such as inflexible program development, poor compatibility, high development cost, and difficult maintenance and management. The B/S structure is composed of a data server, Web server, and client and has the advantages of strong distribution, easy maintenance, good scalability, and simple development and sharing. Based on this, a three-tier B/S system function module is adopted to design a college English teaching assistant system.

2.5.1. **Presentation Layer.** Provide a personalized interface; users access the system navigation page through identity authentication and then go to various functional modules from the home page; and each user's navigation page is unique.

2.5.2. **Application Service Layer.** It is used to provide English teaching content and improve the English distance teaching system, so as to construct the core learning module. Teachers can analyze the teaching system and teaching content through the core modules of the service office and arrange interactive English homework according to the students’
learning progress. Students can use the learning modules to expand the content of English learning and realize the test of their own English proficiency, which is conducive to improving their enthusiasm for learning. At the same time, in the application service layer, different types of English learning resource courseware can be formulated according to the students’ learning characteristics to complete the remote English resource sharing.

2.5.3. Resource Layer. Data are stored in the resource layer. It contains information on the user, the log, the university English supplemental teaching materials database, the study process, and the study outcome, among other things.

The college English-supported teaching system, which is based on the B/S multitier structure, clearly plans the responsibilities of each structure through the three-tier structure, which is conducive to the system’s expansion. If you need to add additional business functions, all you have to do is enhance the application services layer of the functional modules, which will make business development much easier.

As a novel form of network teaching, an English teaching assistant system based on Web technology must handle information, people, and resources within the system. Figure 7 depicts the instructor management function.

Teacher information management analysis: the system should manage teachers’ personal information, curriculum resources, and teaching information, according to this

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**Table 1: Example of knowledge point classification data.**

| Primary knowledge points | Secondary knowledge points | Three-level knowledge points | Level IV knowledge points |
|--------------------------|---------------------------|-----------------------------|--------------------------|
| Independent structure of nonfinite verbs | Parenthesis | Absolute infinitive | The logical subject of word segmentation |
| Parenthesis | Absolute participle | Principal subordinate parenthesis |
| Direct call exclamation | Clause parenthesis | Phrase parenthesis |
| Secondary knowledge Points | | | |
| Independent structure of nonfinite verbs | Parenthesis | | |

**Table 2: User information.**

| Listing | Type | Describe |
|---------|------|----------|
| Authority | Int | Different values represent users with different identities |
| ID | Int | |
| User ID | Varchar | The serial number of the user in the system, incrementing the user name, is unique in the system |
| Password | Varchar | |

**Figure 6: Functional modules of B/S three-tier system.**
information for teachers, and submit the scheduled schedule to the system administrator to apply for classes, after the completion of the relevant calendar upload to the teaching interface; the specific process is shown in Figure 8.

2.5.4. Analysis of Teaching Course Management. This management primarily carries out the information management operation in accordance with the course proposed by the teacher or the school, by arranging the course teaching content and time; providing operations such as adding, deleting, and revising; setting up contents such as a list of different courses, homework, and the interface for answering and discussing; providing the basic teaching materials in accordance with the course information; and establishing an interactive environment. Teachers can also give students homework and video reviews to review. Figure 9 depicts the primary flow.

Electronic whiteboard management: its main function is to provide system users with the form of community Web browsing capabilities and can discuss a variety of teaching issues or put forward their own questions and other users to explore. In the whiteboard area, students can ask their own questions and discuss others’ questions, and the teacher will answer different questions, as shown in Figure 7.

2.5.5. User Management Module. The user management module is used for the unified management of the current user, which can modify and update the information. After logging in, the user management object is transferred to the add user interface, input the user information, submit it to the user list, and successfully return the information. The user addition sequence is shown in Figure 10.

Enter the user number, name, and address information after the administrator launches the new interface. Submit and save after approval, and the saved user list will appear in the interface.

2.5.6. Design of Intelligent Network-Assisted English Teaching Function in Colleges and Universities

Knowledge Point System Modeling Tools. The curriculum knowledge points are organized in a way that integrates the English-assisted teaching system, sorts out the English-assisted teaching resources, and guides students to carry out personalized learning while also assisting teachers in realizing the push of resources and completing the personalized correction of students. Teachers can use the knowledge point system modeling tool to match and push the knowledge points in the curriculum resources and item bank resources, forming a set of English teaching assistance resources that are closely related to the knowledge points, in order to realize the filtering and reconstruction of knowledge points, by setting up the curriculum knowledge points.

Teacher Intelligence Terminal System. To provide statistical analysis tools for classroom engagement, teachers’ intelligent terminal system is applied to mobile terminals such as mainframe, tablet, and mobile phone. Teachers can choose current resources from the system’s “curriculum resources” and push the optional targets while making the video resources, and materials. Knowledge point system modeling tools are required for the editing and processing of English teaching aids in colleges and universities in order to accurately push English teaching aids. The student wisdom terminal system provides an interactive tool in the classroom, namely, it satisfies the interaction between the teacher and the students.

Intelligent Classroom Interaction System. In the process of designing the intelligent classroom interaction system, we should focus on data analysis, timely analysis of classroom
data, and the most commonly used functions in college English teaching.

2.6. Optimization of the Communication Function of College English Auxiliary Teaching System. In order to better improve the performance of the network-based college English auxiliary teaching platform, allocate the bandwidth of the platform resource transmission rate, maximize the network utility, reduce the platform data transmission failure, and optimize the quality of English auxiliary teaching [16].

First, consider the resource transfer priority queue problem. Set \( s \), is used to represent the network’s local user group. The users in the local user group are used to represent network user  \( s \), that is, the registered users of the platform; set \( s \), is used as the \( n \) proxy user group of the network. Set \( s \), are orthogonal relations, and \( s \). With regard to network terminals, transmission priority is determined as follows. If a resource receiving service is set to \( m \in M = \{1, 2, \ldots, m\} \) and the number of decision factors of service \( m \) is \( N \), the decision factor vector is as follows:

\[
S = [R^1_n(m), R^2_n(m), \ldots, R^N_n(m)].
\]  

(1)

The comparison of priority decision factors is described in Table 3.

Compare the priority decision factors in Table 1 to form a \( N \times N \) matrix:

\[
A = \begin{bmatrix}
A_{m,11} & A_{m,12} & \cdots & A_{m,1N} \\
A_{m,21} & A_{m,22} & \cdots & A_{m,2N} \\
\vdots & \vdots & \ddots & \vdots \\
A_{m,N1} & A_{m,N2} & \cdots & A_{m,NN}
\end{bmatrix}.
\]  

(2)

The weighted vector of each decision factor is the eigenvector corresponding to the highest eigenvalue of the matrix, so as to obtain the weighted value of each decision factor. Decision factors include throughput, transmission rate, reliability, security, and cost. Each decision factor is compared according to the service quality criticality of the business, and finally, the weighted value of the platform service quality decision factor is obtained. The weight of data transmission is evaluated first in all factor weight calculations to establish the transmission priority of care received by various resources.

The platform terminal can transmit service requests and user data to the network bandwidth centralized control unit, including request service registration, terminal status, and bandwidth requirements. The bandwidth centralized control unit allocates appropriate bandwidth to the user according to the user’s resource reception rate requirements and available network bandwidth resources.

Matrix \( A \) has two convergence conditions. The first convergence condition is as follows:

\[
\sum_{m=1}^{M} (\kappa_{ns}(m)/\eta(m)) \leq W,
\]

\[
\eta(m) = \frac{\kappa_{ns}}{\ln(0.2/\eta(m))},
\]

where the capacity of network \( n \in N \) shall meet the inequality condition, \( \eta(m) \) reflects the received signal-to-noise ratio of the network Wi-Fi access point’s English assets, and \( \eta(m) \) is the object bit error rate of the network wireless access point.

The second convergence condition is as follows:

\[
\kappa_{ns}(m) \leq \sum_{n=1}^{N} \eta(m)/\eta(m+1) \leq 1,
\]

\( \forall m \in M \).

3. Application of College English-Assisted Teaching System

The black-box test is mainly used in the college English teaching assistant system based on the B/S multilayer structure. The black-box test is mainly used for the designed system and the traditional system.

The research object is an undergraduate college in a certain area, which has good conditions for self-study, can meet the needs of students on network teaching, and complete self-study and collaborative learning. Because the students’ English foundation is not the same, they have
received the training of English learning methods in network classrooms. We choose class A and class B of a professional physics as the control experimental class. Class B is the experimental class and class A is the control class. The experiment period was three months. The random sampling survey showed that none of the students had been exposed to English test questions, thus ensuring the reliability of the pre-test paper. Because CET-4 is a kind of national examination, it is very confidential, so it can ensure the reliability of post-test questions, thus ensuring the reliability of the pre-test paper.

As can be seen from Table 4, the average of the two classes is basically equal; the average difference is 0.25, which proves that before the experiment; and the English proficiency of the physics class is not different from that of the comparison class. Among them, \(P\) is the actual standard probability of English proficiency, and the \(P\)-value is normally 0.781. The lower the \(P\)-value, the stronger the significance of the test result. The standard probability of English proficiency before the test was 0.831, which was higher than the standard probability of 0.05. This demonstrates that there is no difference in the experimental and comparison classes’ English competency, implying that the two teaching classes’ English proficiency is homogeneous.

Table 5 is the comparison of the two classes’ English proficiency after using the method of this paper to conduct mixed English teaching. From Table 2, we can see that the mean difference between the two classes is very large, which shows that the experimental class and the comparative class have made great changes after three months of auxiliary teaching experiments, and the results of the experimental class are significantly higher than the comparative class. \(P\)-value is 0.003, lower than the standard probability of 0.778. Therefore, the Web college English-assisted teaching system is conducive to improving students’ English language levels.

By analyzing the data in Figure 11, it can be seen that the system response time of college English-assisted teaching system based on Web technology is the lowest when accessing teaching materials, while the system response time of English remote multimedia teaching system and interactive numerical optimization augmented reality teaching system based on virtual reality is up to 1.3–1.5 s. It is too different from the college English auxiliary teaching system based on Web technology. Therefore, the teaching system of college English auxiliary teaching system based on Web technology is better than the English remote multimedia teaching system based on virtual reality and the interactive numerical optimization augmented reality teaching system and realizes the system design according to the analysis results to make the system functions more perfect, Thus, the system response time is reduced.

A total of ten sets of teaching data were used for the system transmission test. According to Figure 12, in the process of teaching communication, the communication delay time of the virtual reality-based English remote multimedia teaching system and the interactive numerical optimization augmented reality teaching system is higher than that of the Web-based technology which is called college English auxiliary teaching system. This is because in the process of designing the system architecture, the B/S multilayer structure is selected for the college English-assisted teaching system based on Web technology, and the user’s characteristic information is analyzed through the application layer, so as to analyze the user’s demand content. Different characteristics of students and different English services are provided, which effectively shortens the communication delay time, provides a detailed information basis for the English assisted teaching system, and makes the system design more comprehensive.

Select 500 concurrent users and use Web-based college English-assisted instruction system, virtual-reality-based English remote multimedia instruction system, and interactive numerical optimization augmented reality instruction system to compare and test the CPU utilization of the system. As shown in Figure 13, with the increase of the number of concurrent users, the CPU utilization of Web-based college English-assisted instruction system is better than that of virtual-reality-based English remote multimedia instruction system and interactive numerical optimization augmented reality instruction system. Because the Web-based college English-assisted instruction system has effectively analyzed the main reasons for the users’ needs and system functions, identified the main factors for system function design, avoided the problem of low system limitations, and significantly improved the system’s expansibility and CPU utilization.
Table 4: Sample measurement of English proficiency in experimental class and comparative class (pre-test).

| Class                | Number of people | Standard deviation | Mean value | Freedom | $p$  |
|----------------------|------------------|--------------------|------------|---------|------|
| Experimental class   | 400              | 12.12              | 94.11      | 80      | 0.831|
| Comparison class     | 400              | 10.88              | 62.78      |         |      |

Table 5: Sample measurement of English level in experimental class and comparative class (post-test).

| Class                | Number of people | Standard deviation | Mean value | Freedom | $p$  |
|----------------------|------------------|--------------------|------------|---------|------|
| Experimental class   | 400              | 40.23              | 398.12     | 70      | 0.003|
| Comparison class     | 400              | 44.50+             | 445.55     |         |      |

Table 6: System test results.

| Serial number | Function point              | Reference [12] system | Reference [3] system | Proposed system |
|---------------|----------------------------|-----------------------|----------------------|-----------------|
| 1             | Page setup                 | Fail                  | Fail                 | Adopt           |
| 2             | Students add message info  | Adopt                 | Adopt                | Adopt           |
| 3             | Student online registration| Fail                  | Adopt                | Adopt           |
| 4             | Student learning survey    | Fail                  | Fail                 | Adopt           |
| 5             | Browse course videos       | Adopt                 | Adopt                | Adopt           |
| 6             | Browse online help         | Fail                  | Fail                 | Adopt           |
| 7             | System background settings | Adopt                 | Fail                 | Adopt           |
| 8             | Manage message information | Fail                  | Adopt                | Adopt           |
| 9             | Manage enrollment information | Fail                  | Adopt                | Adopt           |
| 10            | Manage teaching evaluation information | Fail | Adopt | Adopt |

Figure 11: System response time test.
Conclusion

This study adopts the B/S model in the Web to design a college English teaching assistant system. Memory, router, and multilayer wire integrated circuit design system hardware are all used. Presentation layer, application service layer, and resource layer are all part of the B/S function module in the system software. Based on this, the user management module and college English teaching assistant function are designed, and the bandwidth of the platform resources is allocated to achieve an efficient English teaching assistant system. Experimental results show that the designed system is helpful to improve students’ English proficiency. The test results are all passed. The teaching information communication delay and response time are short. The CPU utilization is low. The teaching information communication delay and response time of the designed system are shorter, and the CPU utilization rate is also lower. In the future, with the deepening of campus network construction, the application demand of campus networks is higher and higher.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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