The Construction of Online Assistant Teaching Mode of Computer English Course Based on Web Technology

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Abstract. With the further development of Internet technology, computers play an increasingly important role in people's lives. In order to ensure the further improvement of science and technology, computer English came into being. However, due to its complicated procedures and obscure language, it is difficult to implement computer English teaching. Therefore, this paper takes computer as the development hardware, combines Web technology and multimedia technology to innovate the original teaching mode, and constructs the online auxiliary teaching mode of computer English course. The mode is developed with Windows 10.0 as the operating system, B/S architecture as the development framework of the platform, and C# as the programming language. With the layered advantages of MVC, the system functions of the teaching platform are refined, so as to improve the operating efficiency of the platform and ensure the training quality of computer talents.

Keywords: Computer English · Online assistant teaching mode · Web technology · ASP.NET · AHP analytic hierarchy process

1 Introduction

With the rapid development of science and technology, computers have gradually become indispensable office supplies in people's lives. As the basic language for developing computers, computer English is becoming more and more important in today's society [1]. Computer English course in colleges and universities is an important driving force to promote national development and the foundation for the development of digital economy. We should keep up with the development pace of the times, update the teaching mode in time and enrich the teaching content. At present, the main problem that hinders the development of computer English course is the outdated teaching mode. Traditional classroom teaching can no longer meet students' learning needs, and a single teaching method can't test students' learning achievements, which leads to students' different academic achievements and poor teaching effectiveness [2]. Based on this, this paper constructs an online auxiliary teaching mode of computer English course with the help of web technology. The establishment of this mode is an innovation of the traditional teaching mode. By using the advantages of digital electronic technology, video, audio, courseware and exercises are all included in the teaching system, forming an integrated teaching environment and promoting students' comprehensive development.

2 Key Technologies

2.1 Web Technology

Web is a large-scale distributed system running on the Internet. Every time users exchange data information, the client and the server need to cooperate with each other. Web technology is a general term for all technologies that support Web operation. The five elements of Web technology are HTML, HTTP, URL, Web browser and Web server. Among them, HTML defines the presentation format of hypertext documents; HTTP solves the communication problem between the client browser and the server. URL solves the problems of document naming and addressing recognition, which are collectively called the three major construction technologies of Web [3].

2.2 ASP.NET

ASP.NET is a Web development platform, which provides an overall programming framework for the subsequent development of the platform, is the infrastructure used for development, and also provides various required services for web programs. ASP.NET works by relying on HTTP protocol, and uses HTTP command to set up two-way communication between browser and server. ASP.Net can also realize caching, update the performance of some applications, and then cache the pages frequently used by users and store them in temporary locations, so that these pages can be retrieved faster and fed back to users better.

2.3 Development Environment

According to the introduction of the above related technical contents, the configuration and deployment of the development environment of online auxiliary teaching mode of computer English course under Web technology are completed. In order to improve the system function of the mode, the construction of this platform will use web and other related technologies. The bottom development tool is Visual Studio 2019, the operating system is based on Windows 10.0, B/S architecture is used as the development framework of the platform, and C# is used as the programming language. With the layered advantage of MVC, all parts of the content are layered and deployed. SQL server 2019 is selected as the data storage tool, and IIS 10.0 version is selected as the web server to improve the operational capability of the server [4]. Through the description of the above key technologies, the overall framework of online-assisted teaching mode is roughly planned, and the feasibility of establishing online-assisted teaching mode of computer English course under Web technology is clarified.

3 Function Realization

3.1 Online Learning Module

The system divides the online teaching module into two parts: online preview and online learning, so as to achieve the whole process and all-round surrounding teaching and improve the teaching effect. After the user selects a role to log in, the corresponding

functions of the platform can be used. The login function implementation code is shown below.

```
<!doctype html>
<html lang="en">
    <head>
        <meta charset="UTF-8">
        <title>User Registration Page</title>
    </head>
    <body>
        <form action=" signup. php" method="post">
            <p> user name :<input type= "text" name="name" > </p>
            <p>password: <input type="text" name="password"></p>
            <p><input type-="submit" name="submit" value=" enroll"></p>
        </form>
    <body>
</html>
```

In the preview module, student users can preview independently according to the materials uploaded by teachers. In the process of preview, if you encounter difficult problems, you can use the brush function at the bottom of the course to mark them. After the preview, such questions will be fed back to teachers in a unified way, so that teachers can carry out targeted teaching activities in offline teaching [5]. In view of the poor vocabulary foundation of student users, the system has set up a specialized thesaurus for users to use. In this thesaurus, student users can not only look up the technical terms or parts of speech of computer English, but also choose their own learning modes, such as entry mode, challenge mode and shorthand mode. Students can get corresponding credits after completing their study tasks. The system will extract the user's thesaurus usage time and thesaurus learning mode for a period of time, and generate chart 1 to get the user's browsing preference, so as to recommend the appropriate mode for the next use [6] (Table 1).

In the learning module, it can be divided into two types: word class and grammar class. In the word class, the system adopts classification analysis and associative memory method for teaching, that is, summarizing computer English technical terms in the form of pictures or induction to deepen students' memory. In the process of learning, if you encounter an uncommon word meaning, you can collect it. After collection, the

Table 1. Records of users' use of thesaurus in a period of time

No.	Use date	Use mode	Frequency of use	Duration of use
1	9.2–9.28	Shorthand mode	39	35.2 min
2	10.11–11.14	Breakthrough mode	46	27.6 min
3	12.17–12.29	Challenge mode	27	33.9 min

Table 2. Comprehensive Evaluation Results of Practice

Target Layer	Measures Layer	Weighted Value	Score of this item	Score
Practical effect evaluation	Activity participation duration	A1 = 0.232	89	11.447
	Activity job completion degree	A2 = 0.227	85	11.342
	Activity skill innovation	A3 = 0.187	75	4.974
	Activity summative valuation	A4 = 0.462	77	21.961
	…	…		

word meaning will be automatically included in your personal dictionary for subsequent review [7]. Click the grammar course module, and the student users need to choose video teaching or exercise teaching first. After the selection, the system will automatically recommend the corresponding courses for users. Such as video lessons "Computer Basic English" and "Computer Professional English"; Exercise class "Interpretation of Programming Language", "Appreciation of Excellent Foreign Literature of Computer Major" [8].

3.2 Online Practice Module

In order to implement the educational concept of "teaching, learning and doing", this paper specially sets up practical modules to consolidate students' learning achievements. Teacher users will publish practical activities on the activity center page from time to time, and student users can participate according to their personal preferences. The participation form of practical activities is mainly group cooperation [9]. Under the data analysis module, the system will also use AHP algorithm model to evaluate the practice results of student users, as shown in Table 2. The formula for calculating the weight value of the practice results is shown in Formula 1, where λmax represents the weight value, C represents the hierarchy, and P ranks the weight vector [10].

$$\lambda_{\max} = \sum_{i=1}^{n} \frac{(CP)_r}{nP_i} \tag{1}$$

4 Conclusion

With the further development of electronic technology, the requirements of society for computer professionals are becoming more and more stringent. The main teaching task of colleges and universities is to provide needed talents for social development. Therefore,

our school actively responds to the call of society and innovates the teaching mode of computer English course. The online auxiliary teaching mode of computer English course created in this paper has improved the learning environment of computer English course to some extent. By combining all kinds of emerging information with traditional teaching content, it can better mobilize students' learning interest and promote the further development of students' professional ability.

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