



# The Establishment and Application of College English Online Teaching Mode under Web Technology

Amugulang Amugulang

College of Foreign LanguagesHulunbuir University, Hulunbuir, Inner Mongolia, China  
amgl@hlbec.edu.cn

## ABSTRACT

In the context of the rapid development of the Internet, the classroom mode of university teaching should also be changed in accordance with the background of the times, and it should not be limited to the teaching mode of offline classrooms. The traditional teaching model is no longer suitable for the requirements of the current era, and it should complement the online education model. Currently at a critical juncture of epidemic prevention and control, in order to improve the teaching mode and respond to the education department's requirement of "suspending classes without teaching", various colleges and universities have adopted online teaching methods to teach, and online education is novel. The teaching mode and method of the college are more and more valued by colleges and universities, as a supplement and expansion of traditional offline education. Therefore, combined with the actual situation and the current situation of college English teaching and the existing problems, the establishment and application of the online teaching mode of college English based on web technology is proposed. The design and development of the college English online education platform is based on web technology and adopts B/S mode in the front page with Vue.js as the framework and HTML+CSS+Javascript language as the framework and Thinkphp as the framework. Basic background ribbon development. The development of this platform has effectively guaranteed the promotion and development of the online teaching mode, and also made a new attempt for the online education mode of colleges and universities.

**Keywords:** Web; PHP; online teaching; teaching mode

## 1. INTRODUCTION

Under the rapid development of my country's economy, computer network technology has shown a rapid and mature development trend, especially the rapid progress of multimedia technology informatization, which has enabled the rapid development and gradual improvement of the domestic online education market. [1] The convenience of the Internet has played a good leading role in the diversified development of teaching activities. The traditional education model gradually exposed defects such as single curriculum form and immutable teaching model. Therefore, colleges and universities must innovate the university teaching model. [7] Combining the need for the transformation of the traditional teaching mode and the current requirements for the prevention and control of the new crown epidemic, various higher education institutions realized that the teaching mode should not only be offline teaching, so they began to formulate and improve the

online teaching mode and related teaching management system, so as to improve the teaching level of teachers and the achievement of students.

In today's society, English has become an important link for us to obtain information and knowledge. College students, as a group of people who receive higher education, should understand and transform the world with a broader perspective. [2] Various colleges and universities are more aware of the importance of college English to students, and increase the proportion of college English courses. However, the results and effects of college English teaching in our country are not optimistic. There are problems such as low teaching results and low interest in English learning among students. Therefore, with the development of network technology and the emergence of some emerging information technologies, more and more colleges and universities are discussing and practicing the research on the online teaching mode and teaching management method of college English courses, and actively

innovating teaching concepts and teaching modes. [8] found that for the problems of lack of flexibility, lack of diversification and less interaction in the traditional classroom teaching of college English, in fact, this online teaching mode can drive students' initiative in learning more, making it easier for students to learn. They found interest in English learning in class, thereby improving the existing teaching difficulties and the generally unsatisfactory situation of students' English performance. This paper believes that teachers in various colleges and universities make use of online teaching platforms to make college English teaching truly become a learning activity that can be carried out anytime and anywhere, so that students' learning is no longer limited by time and space, and stimulate students' learning. Strong thirst for knowledge in English. At the same time, through the data analysis function of the online teaching platform, teachers can immediately understand the students' video viewing rate, data reading rate, assignment submission rate, self-assessment pass rate and other data. In addition, because of the novel form of online teaching, students can easily watch the course repeatedly and understand the course content. At the same time, they can also more easily share their learning experience and experience of college English on the message board with their classmates and teachers, which is more conducive to mobilize the enthusiasm of students to learn English, to make students more conscious and active in the study of college English. [9] However, English is a language tool, and face-to-face communication between teachers and students can better reflect the communication of language. Therefore,

online teaching cannot replace traditional offline teaching, but can only be used as an auxiliary mean to improve teaching and promote the innovation of teaching mode.

## 2. TECHNOLOGY INTRODUCTION

### 2.1. Web Technology

The original meaning of web is spider web, which is a typical distributed application structure from the meaning of internet technology. The so-called distributed application refers to the form of work in which programs are distributed on different computers and complete the same task through the Internet. All information interaction in a web application is included in two parts: server and client. Therefore, web development is divided into two main types of technologies: client-side and server-side. As shown in Figure 1, the browser (client) makes a request to the server, the server receives the request to access MySQL, obtains the data and returns it to the client. Like the web client technology, both of them are a process of static to dynamic change, and the development technology of the web server is also gradually developed from static to dynamic. [10] There are two types of network resources: web static resources and web dynamic resources. Static resources refer to the content of the page that is accessed at any time, and dynamic resources are dynamically generated by programs, and the content will change at different access times .

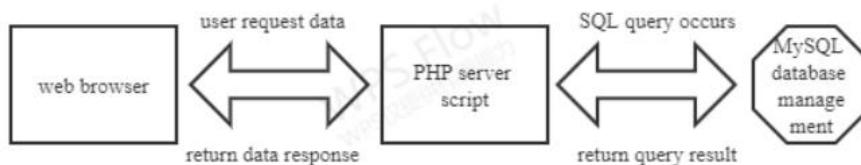


Figure 1 Database-based web system

This design pattern adopts B/S to be Browser/Server, that is, browser/server. All functions are finally presented in the browser. It has less requirements for the client and is easy to develop. As shown in Figure 2, the client and the server interact through the HTTP protocol, which is a network structure pattern that emerged after the rise of web technology. It relies on URL (Uniform

Resource Locator) to locate resources and obtain responses. The content of the response is the HTML page. The client only needs to install a browser (Browser), the server only needs to install the database, and the browser can interact with the database through the Web Server.



Figure 2 B/S mode architecture diagram

The design of this platform is divided into two sections: the design of front-end pages and the realization of back-end functions. The front-end framework adopts Vue.js, which is a front-end framework based on the "HTML, CSS, Javascript" language, a set of progressive frameworks for building user interfaces. The difference from other weighted front-end frameworks is that the Vue.js framework adopts a bottom-up incremental development design. As shown in Figure 3: The core library of Vue.js is only on

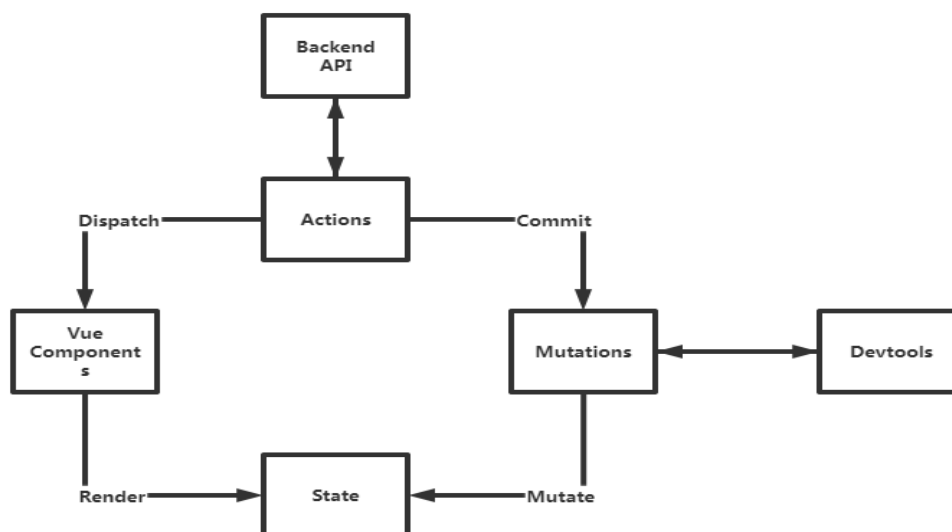


Figure 3 vue.js framework diagram

The back-end framework uses ThinkPHP, which is an object-oriented PHP development framework with fast, convenient, simple and compatible features. The design pattern using MVC (M-Model, V-View, C-Controller) not only integrates Struts Idea, Taglib tag library, ORM mapping in RoR application framework, and also draws on ActiveRecord mode to encapsulate common database operations. It is to solve the problem of mismatch between object-oriented and relational databases. ThinkPHP supports a variety of server environments such as windows, Unix, Linux, supports a variety of databases including MySQL, PostgreSQL, etc. and opens the PDO extension.

The back-end design uses the PHP language, which is a hypertext preprocessor, that is, an embedded server-side script description language. The most obvious feature is its database integration layer, and it is easy to

the view layer, and it is easy to learn and integrate with existing projects or other libraries. Vue.js implements responsive data binding and composite view components through a simple API (Application Program Interface) application program interface as much as possible. But it is not a full-fledged framework on its own, so when used with support libraries and other related tools, Vue.js can also promote more complex single-page applications. [4]

use PHP to complete a web page containing a database. In the HTML file, the PHP program script absorbs the advantages of multiple languages including C language, Java and Perl at the same time to dig out the grammar with its own characteristics. It can use special PHP tags for reference. This is to allow web development People don't have to rely entirely on HTML to write web pages. Its biggest feature is its fast execution efficiency and high code running rate.

Sql is a structured query language. It is a set of command operations specially established for database writing. It is very simple and easy to write. When using it, the user only needs to enter "what to do" and does not need to enter "how to do it"., you can easily operate, its advantages are convenient, fast and efficient. As shown in Table 1, the design example of the student information table used in this design:

Table 1 Student table design

property name	type of data	can be empty	meaning
Sno	Char(7)	no	Student ID (unique)
Sname	VarChar(20)	no	student name
Ssex	Char(2)	no	gender
clno	Char(5)	no	student's class

## 2.2. Development Environment

Install and deploy the relevant development environment according to the usage requirements of the above-mentioned related technologies. The hardware development environment must be completed with the window operating system. The front-end design selects Javascript and HTML as the design and development language according to the requirements, so run the front-end code and access it in the browser to install node.js. Download and install the front-end development editor vsCode (full name Visual Studio Code) that matches Vue.js. The server uses the Apache 2.4.2 version to install and start. In addition, after the installation is complete, you need to configure the file httpd.conf for Apache to support PHP, and enter the URL www.localhost.com in the address bar of the browser you are visiting. If the monitor displays "It works", the installation is complete. The ThinkPHP framework is used for the design backend, so it is necessary to download and decompress the file compression package of ThinkPHP. It does not need to be installed and only needs to be placed in the project directory under development. The PHP debugging environment uses the phpStudy program integration package, which can be used without configuration. Back-end development language PHP 5.5.0, install and configure PHP related files. To install MySQL 5.7 on the Windows operating system, you need to set the database password during the installation process. If the installation is successful, you need to restart the database. Based on the installation of the above programs and the configuration of files, the overall development environment is established, which ensures the technical feasibility of the online teaching platform.

## 3. DEMAND ANALYSIS

According to the current situation of college English teaching, it is necessary to change the mode and the requirements of the social environment, higher education institutions must increase the online teaching mode for teaching. [5] In view of the teaching mode and management of online college English courses, on the one hand, it is necessary for students to watch video lessons online, download and submit homework, read learning materials, easily ask questions of teachers, and communicate and interact with classmates, so as to create a better environment for students. Create an open, interactive and exploratory learning environment, allowing students to speak freely with their classmates and teachers in a relaxed state. It has always maintained an optimistic and positive attitude to learn English and improve academic performance. On the other hand, it is convenient for teachers to upload teaching videos, share learning materials, upload and correct homework, monitor students' learning status, view and reply to students' messages, and adjust teaching plans in a timely

manner according to the situation, thereby improving teachers' office efficiency. The online teaching mode of college English is not only an application that can be created through simple training of teachers and the development of an online education platform, but also requires the cooperation of students and the improvement of self-control. [6] The online teaching mode of colleges must be innovated by focusing on improving the teaching mode of college English, improving the quality of college English teaching and improving students' English performance.

## 4. OVERALL DESIGN

The design of the college English online teaching platform based on the B/S mode of the dynamic and static combination of Web resource technology includes three core design contents: front-end and back-end development, server building, and database establishment. The front-end uses the Vue.js framework combined with HTML interface language and JS programming language to display each functional page.

The back-end uses the ThinkPHP framework combined with sql database commands to design various functions, and applies sql database statements to store and manage various information through the MySQL database, such as personal information of teachers and students. This design adopts a three-tier architecture. The so-called three-tier architecture includes the business logic layer (BLL), the data layer (DAL), the presentation layer (UI), and the presentation layer adopts the MVC design pattern. low coupling. As shown in Figure 4, in this design mode, the view is the web page that the user sees in the browser; the controller is the program used to process user interaction. When these data files are transmitted to the BLL and DAL layers, they need to be encapsulated into independent in the model class. The presentation layer is used to display the page and accept the information entered by the user. The user enters the account password and clicks the OK option to submit a response request to the business logic layer. The business logic layer (BLL) receives the information requested by the presentation layer and calls the information detection in the database Whether the login conditions are met, the data layer responds to the request, extracts the data according to the request, returns it to the presentation layer business logic layer through the logic layer, and finally displays the data requested by the user on the web page (UI). [3] Based on the principles of safety, stability and robustness, this design combines the factors of the current environment and the teaching situation, and conducts online teaching. This teaching mode allows students to ask questions and communicate with each other, so as to improve their English learning. Interest. In this way, teachers can better understand what students are thinking and their

feedback on the content of the class, so as to adjust their teaching methods in time.

```
//login.html responsible for collecting login information
<html>
<head>User login</head>
<form name= "login form" method="post" action="login.php" onSubmit="return InputCheck(this)" >
<table for="username" class="table">username:</table>
<input id="username" name="username" type="text" class="input"/>
<table for="password" class="table">password:</table>
<input id="password" name="password" type="text" class="input"/>
<input type="submit" name="submit" value="Sure" class="left"/>
</form>
</html>
//my.php responsible for detecting login<?php
session_start();
//Check whether you are logged in, if not, turn to the login interface
if(!isset($_SESSION['userid'])){
header("Location:login.html");
exit();
}

// Include database connection file
include('conn.php');
$userid = $_SESSION['userid'];
$username = $_SESSION['username'];
$user_query = mysql_query("select * from user_list where userid = '$userid' limit 1");
$row = mysql_fetch_array($user_query);
echo 'User Info:
echo 'User ID: ', $userid,
echo "username:,$username,"
echo 'logout
?>

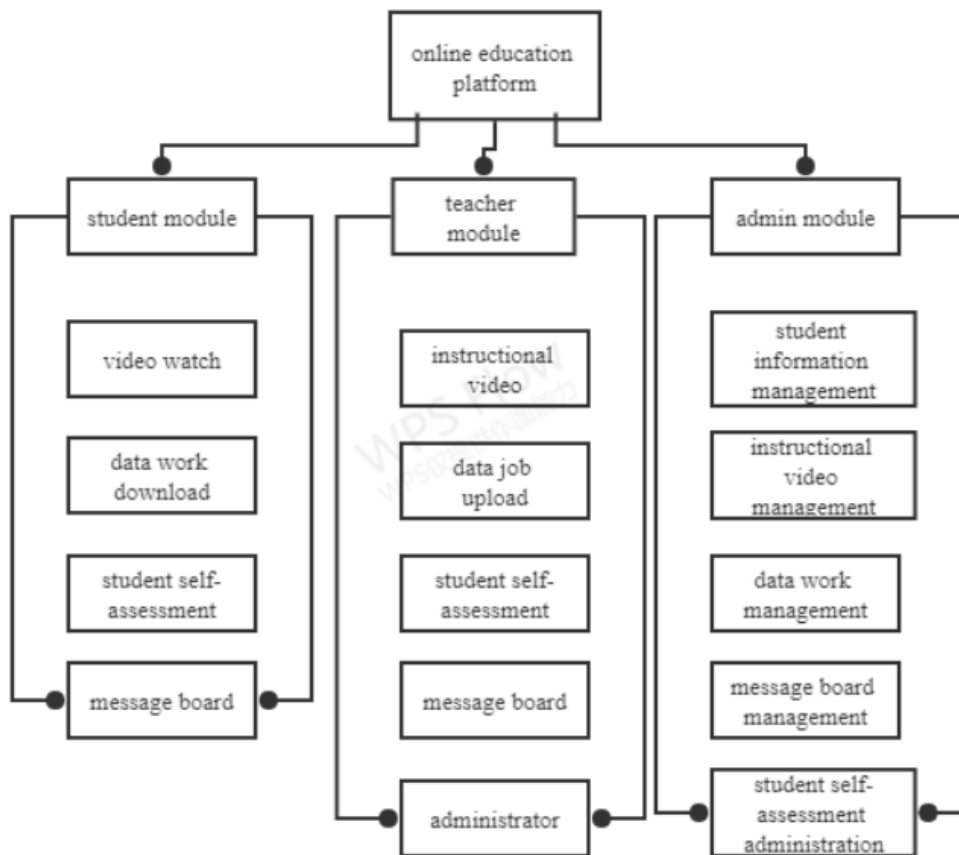
//conn.php responsible for connecting to the database
<?php
$conn = mysql_connect("127.0.0.1","root","") or die("database link error" mysql_error());
mysql_select_db("info_db",$conn) or die("database access error" mysql_error());
mysql_query("set names gb2312");
?>
```

Figure 4 User login and authentication

## 5. IMPLEMENTATION OF SPECIFIC FUNCTIONS

The front desk is mainly written through the Vue.js framework, and uses CSS and JS to fill in the effect.

Through different authentications when logging in for the first time, the corresponding interface is divided into three modules, namely the student module, teacher module, Administrator module, as shown in Figure 5:



**Figure 5** Front desk function structure diagram

Students enter the student module by entering their student ID authentication identity. The functions they see include watching videos, downloading homework materials, message boards, and student self-tests. For the function of job data download, click Download to enter the data details interface, select the corresponding data and click Download; click Download Job to enter the job interface, select the corresponding job and click Download to download the job. After the job is completed, enter the On the page, click Submit next to the homework to submit the homework; the teaching video function is that students click on the teaching video after logging in to the homepage, select the video to watch, and click play. If you want to take a note, click pause to pause the playback, and the video progress will follow the historical progress. No need to re-watch every time; online self-test function Students can click the online self-test, select the topic to be tested, click the self-test to enter the self-test interface, click the submit button after the test to view the test results, and the score will appear and the wrong questions, there will be special analysis for the wrong questions; the message board function, click the message board on the home page, enter the interface, click edit message, enter the content and click publish to complete the message, click other people's messages to view, click reply, to interact with others.

The teacher can log in to the teacher module by entering the job number for identity authentication. The functions that can be operated include homework data upload, teaching video, message board, and student self-test. After logging in and entering the homepage, click on the homework upload to upload the learning materials and assign the homework. Click the number of downloads to view the reading rate of the data. After waiting for the students to submit the homework, the teacher can click the homework again to view the homework submission rate and download and review it. After reviewing Then upload it to the platform; click on the video to view the viewing rate of the video, which is convenient for teachers to count the click-through rate of students on the course. Click on the message board to post a message or view and reply to student messages. Click on the student self-test to view the pass rate and error statistics of the student test.

In order to facilitate the teacher to view the data and understand the students' learning status, the administrator module assigns the management authority to the teacher. You can also enter by entering the teacher's job number. The functions implemented by this module include student information management, teaching video management, homework data management, self-assessment question management, and message board management. Among them, student

information management is convenient for teachers to manage and count student information. Including login status, learning status, student account registration, etc.; teaching video management can prepare course videos, publish the class content of the day, and the typesetting sequence of the videos; homework data management, can modify materials in batches and write homework after class; self-test topic management teacher Questions, answers and content analysis can be edited; message board management teachers can summarize questions through the message board and answer them in a unified manner, and can also post messages to each student's account through the message board with one click.

## 6. CONCLUSIONS

In this paper, the first is to explore the online teaching mode, and the second is to design and implement the college English online education platform. According to these two points, the main work of this paper is to design and develop the entire function and structure of the college English online teaching platform. Efficiency, stimulates interest in learning, and also provides convenience for teachers to understand students' dynamics in real time, and to adjust and formulate teaching plans in a timely manner. It has played a role in promoting the innovation of traditional teaching mode. Overall, the expected design goals have been achieved, and the overall design has given teachers and students an excellent sense of use.

## APPENDIX

Project name: Ways and Approaches to Improve the Teaching Ability and Practical Ability of Young English Teachers in Colleges and Universities in Minority Areas  
Research Project No.: NGJGH2020362.

## REFERENCES

- [1] Jiang Xiaoling.(2019).Based on "Internet +" Higher Vocational Public English Blended Teaching Research . Hunan University.
- [2] Li Kehan; Liu Yao; Xie Jinxu; Wang Liao; Zhang Linglin.(2020). Discussion on online teaching under the new crown pneumonia epidemic . China Medical Education Technology.
- [3] Wang Jiaying. (2017). Web platform front-end development design implementation and application . Beijing University of Posts and Telecommunications.
- [4] Wei Pengjuan. (2021). Key Technologies of Web Front-End Development.Electronic Technology and Software Engineering.
- [5] Wu Daguang; Li Wen.(2020). The stage characteristics of large-scale online teaching in my country's colleges and universities: an empirical study based on the questionnaire survey of students, teachers and academic staff . Journal of East China Normal University (Educational Science Edition).
- [6] Wu Huimin; Zheng Xiaoke; Ma Ligang; Zhao Le. (2019). Exploration of the blended teaching reform model based on the online teaching platform of MOOCs in Chinese universities: Taking the course of "Biochemistry" as an example .Education Modernization.
- [7] Yuan Xiaoling.(2021). An analysis of the online teaching mode of college English . Overseas English.
- [8] Yu Leixin; Xu Shanshan; Zhang Yunli.(2020).The discussion and practice of online teaching mode in colleges and universities during the epidemic . Proceedings of the 17th Shenyang Science and Academic Annual Conference.
- [9] Zhao Liang; Chen Yun; Yu Bo.(2019). Research on the online teaching mode of ordinary colleges and universities from the perspective of smart education . Computer Knowledge and Technology.
- [10] Zheng Baoyu. (2021). Research on the application of online teaching mode in public sports basketball courses in colleges and universities—taking Guangxi Normal University as an example . Guangxi Normal University.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

