

Design and application of online teaching platform in colleges and universities based on the background of "Three All-round Education"

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Abstract. According to the current situation of educational development, there are still a series of problems in college education, such as single teaching mode, outdated teaching content and imperfect evaluation system. Therefore, with the help of the advantages of science and technology, this paper constructs the online teaching platform of colleges and universities based on the background of "Three All-round Education". The platform adopts B/S architecture as the development framework of online teaching platform, Windows 10.0 as the operating system, C# as the programming language, and ASP.NET as the development platform. ASP.NET relies on HTTP protocol, and uses HTTP commands to set up the two-way communication between browser and server to ensure the system operation. Then, the Visual Studio 2019 is selected as the underlying development tool, the SQL server database is selected to store system data, and aspx function page is set under the function module to improve the detailed functions of each module of the online teaching platform of colleges and universities. The IIS 10.0 version is selected in the web server to improve the operation ability of the server and ensure the teaching effectiveness of college education.

Keywords: Three All-round Education; Online teaching platform in colleges and universities; Web technology; ASP.NET; SQL Server.

1 Introduction

At present, with the release of China's "14th Five-Year Plan" and the outline of long-term goals in 2035, "building a high-quality education system" has not only become an educational development goal that needs to be adhered to at present and for a long time to come, but also marks that the modernization reform in the field of education has officially entered the fast lane. Meanwhile, the idea of "Three All-round Education" has added new teaching contents and provided new teaching methods for the development of higher education. [1]

But at present, there are still some problems in teaching in colleges and universities. Firstly, the teaching mode in colleges and universities is fixed and single, and most of them still follow the traditional classroom teaching methods, which is difficult to arouse students' enthusiasm and hinder the development of students' learning ability. Secondly, the teaching content is outdated, mostly based on textbooks. Nowadays, the resources are updated quickly, and the paper version of the teaching content is inconvenient to modify in real time, which leads to the outdated teaching content and the separation of knowledge from practice. The

effectiveness of teaching is poor, because teachers follow the textbook, students learn instead of using it. [2] Finally, the evaluation system of teaching in colleges and universities is not perfect, and it is difficult to comprehensively evaluate the actual learning situation simply by relying on the examination papers.

Based on the above problems, this paper constructs an online teaching platform of colleges and universities based on the background of " Three All-round Education", and makes full use of Internet technology to construct a diversified learning environment for all-round training before, during and after class. [3] The online teaching platform combines the dual advantages of online teaching and real-time classroom teaching, and it is also the concentrated embodiment of offline teaching actively using modern educational technology.

2 Introduction of key technologies

2.1 Web technology

The Web is a kind of service that can provide efficient and convenient information retrieval for users accessing the Internet, and its overall design and development depend on Web technology. The development technology of Web application includes Web front-end development and Web back-end development. Among them, the core technologies of Web front-end development are HTML, CSS and JavaScript. Through Web front-end development technology, man-machine interaction between users and the system can be realized, and the data information of the server can also be presented to users. [4] The core of back-end Web development technology is to use a variety of object-oriented programming languages to complete the development of server-side functions, such as Java, PHP, Python, C, C++ and so on. The development content includes business logic, data storage and processing, message queue processing, etc.

2.2 B/S structure

The browser/server structure needs to be deployed on the server side, and other software needed to access the website and run on the client side only needs to adopt the browser. In the B/S framework, users express their needs at the client, enter the corresponding parameters, and then access the server through the network. Firstly, the user needs are solved by the logic layer, and then the data needs are transmitted to the database, and the specific content is executed by the server. Finally, the business logic layer accepts this kind of feedback information, so as to generate a web page that meets the needs of users. The specific process of B/S operation is shown in Figure 1.



Fig. 1. B/S operation flow chart(Source: original)

2.3 Development process

According to the introduction of the above-mentioned related technical contents, the configuration and deployment of the development process of online teaching platform in colleges and universities based on the background of "Three All-round Education" are completed. In order to improve the system function of the platform, the construction of this platform will be carried out by using ASP.NET and other related technologies. The bottom development tool is Visual Studio 2019, and the operating system is based on Windows 10.0. In the aspect of web server, choose IIS version 10.0 to improve the operation ability of the server. Selecting SQL server 2019 as the data storage tool.

During the development of the platform, first of all, choose Visual Studio 2019 tools in the menu, and create new required projects in the File section under the file. In the application, select ASP.NET Web, and then preset the configuration attributes and paths of new projects, and then click Next. In the pop-up working window, select MVC and name it, then you can create ASP.NET MVC project and carry out the subsequent writing of the platform.

After the specific functional modules are configured, the simulation test is carried out. After that, publish the generated website to IIS, then create a new website project in IIS, select the advanced settings in the management website page, and select the physical path. After the basic configuration is completed, the online teaching platform of colleges and universities based on the background of "Three All-round Education" can be built. By the description of the above key technologies, the overall framework of online teaching platform is roughly planned, and the feasibility of establishing online teaching platform in colleges and universities based on the background of "three-round education" is clarified.

3 Function realization

3.1 Student side

Online Learning Module: In using the system for the first time, users need to complete the user registration according to the relevant guidance given on the page, and then log in to the system for subsequent operations. In the preview part of basic courses, students can learn according to the preview materials uploaded by teachers, and mark out the doubts and difficulties, and then use the online communication function to communicate with teachers in time. [5] In the follow-up classroom teaching, teachers will focus on explaining this part so that students can understand it. The high-quality open classes mainly include the open classes of famous schools, and the learning content covers the whole curriculum system. The system will regularly retrieve the browsing records of students and generate corresponding charts, as shown in Table 1, so as to obtain the most popular open courses and put them on the homepage of the system. [6]

Table 1. Browse records of high-quality open class students

Course name	Number of viewers	Number of likes	Number of comments
Dialect and China Culture	3211	2010	2833
Psychology and life	3500	2953	2330

Educational research methods	4200	3669	3900
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The video recording and broadcasting course is mainly composed of the recorded and broadcasted videos of offline teaching uploaded by teachers. Students can adjust the video progress according to their own learning efficiency, and they can watch it repeatedly until they master it. If you don't understand, you can ask the teacher questions in real time with the help of online communication function, which speeds up the efficiency of problem solving. The micro-lesson video is a targeted explanation video made by teachers to students' shortcomings. This kind of video is relatively concise and generally consists of one or two contents, so students can watch and learn according to their own needs.

Extracurricular Development Module: This module is mainly composed of various types of social messages. By clicking the information headline module, students can browse the current hot topics, such as: Opinions on Promoting the Normalization and Long-term Effect of Party History Learning and Education, The 20th National Congress of the Communist Party of China (CPC) Learning Report and other hot topics issued by the General Office of the Central Committee of the CPC. This module enables students to know the current hot issues more quickly, improve their thinking pattern and enrich their logical thinking. In the news broadcast module, students can browse all kinds of news information and decisions in recent years. The establishment of theoretical module aims at cultivating students' practical ability. [7] After learning systematic theoretical knowledge, students must take part in public welfare social activities organized by the school, and upload the learning result theory to their personal space as part of their usual performance evaluation. In this module, students can receive all-round ideological education, and they can be influenced by Chinese excellent ideas in the whole learning process, so as to cultivate students' feelings of home and country and national pride, and promote students to form correct ideas. At the end of the study of this module, the system will select 2,500 students to conduct a questionnaire survey on their learning achievements, and finally collect the information filled by the students to generate a statistical chart as shown in Figure 2, so that teachers can better understand the learning effectiveness of the students. [8]

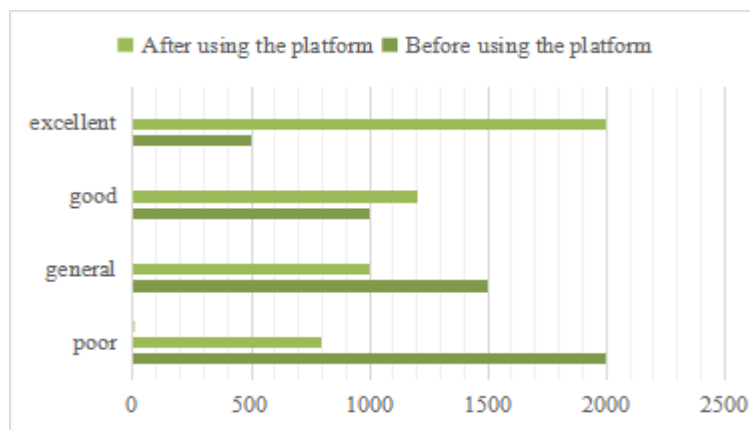


Fig. 2. Survey data of current political learning achievements

3.2 Teacher side

Resource Upload Module: When the teacher user system logs in successfully, courseware resources and collected current political resources can be uploaded by using Courseware Add.aspx under this module. The detailed uploading code is shown in Figure 3. As far as the functions of students are concerned, teachers pay more attention to the guidance and organization of educational activities, which lays the foundation for building a long-term educational pattern. The courseware uploaded by teachers is included in the teacher center, which is convenient for teachers to use the courseware again.

```
</script>
<script type="text/javascript" src="inc/Admin.Lesson.js"> </script>
<script type="text/javascript">
Var vReiD=<%=ReiD%>,
Window.addEvent('domready',function(){
GetFolder(vReiD);
$('SeiRoom').addEvent('change',function(e){
E.stop();
GetFolder(vReiD);
});
});
</script>
<form id="SocutForm" action=" ajax.aspx?do= Admin_LessonAdd"Method =" post">
<input type="hidden" id="Type" name="Type" value="1" />
<input type="hidden" id="iD" name="iD" value="<%=siD %>"/>
<input type="hidden" id="File" name="File" value="<%=File%>"/>
<input type="hidden" id=" OrderingOld" name="OrderingOld" Value=" <%=Ordering%>"/>
<input type="hidden" id="GUID" name="GUID" value ="<%=File%>"/>
<input type="hidden" id="CheckTips" value="Tutorial title"
```

Fig. 3. Resource upload code (original)

Comprehensive evaluation module: Because most college courses are theoretical and changeable in practice, a single evaluation method can't comprehensively evaluate students' learning process and results. Therefore, this system changes the evaluation method, combining the process evaluation with the summative evaluation to form a multidimensional evaluation method, so as to meet the actual teaching needs and pay attention to the internalization of practice content and the extension of practice process. The process evaluation G will be graded from several aspects, such as online time, academic completion and classroom activity. The grading standard will be graded according to five grades: excellent, good, fair, poor and bad, which respectively correspond to five weights: 5, 4, 3, 2 and 1. [9] The final comprehensive score calculation formula of students is shown in Formula 1, where W represents the final exam score, C represents the final score, M represents the teacher's score, and I represents the degree scores of different assessment points. [10]

$$\sum_i [(g_i \times 30\%) + (m_i \times 20\%)] + \sum_i (w \times 50\%) = C \quad (1)$$

4 Conclusions

The practice of the educational concept of "Three All-round Education" is of great significance to college education. With the help of the practice of all-round education, the sense of responsibility and mission of college teachers and students can be enhanced. The

online teaching platform of colleges and universities based on the background of "Three All-round Education" constructed in this paper can give full play to the educational functions of colleges and universities in various fields and promote the construction of long-term educational pattern. And make use of the advantages of all-round education to enhance the effectiveness of higher education. In the follow-up research, we will further expand the extensibility and applicability of the platform, and make the system function more perfect.

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