Design and Application of Online Teaching System of Shang Culture Education in Higher Vocational Colleges Based on Web

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Abstract. As an ancient civilization, China has a profound cultural background and a rich cultural system. However, in the process of long-term evolution, traditional culture is disturbed by external factors, and some cultures are difficult to preserve, with fewer and fewer channels of circulation and smaller scope, which is urgent for the inheritance and protection of Chinese traditional culture. This paper takes the Shang culture in traditional culture as an example to carry out follow-up research. With the help of the advantages of electronic technology, the system takes the computer as the system development hardware, and combines web technology with multimedia technology to construct the online teaching system of Shang culture education in higher vocational colleges based on Web. The overall development of the system takes Windows 10.0 as the operating system, B/S architecture as the system development framework, and C# as the programming language. With the layered advantages of MVC, the contents of each part are deployed in layers, the system functions of the teaching module are refined, and the cultural resources are expanded to ensure the communication quality of traditional Shang culture.

Keywords: Shang culture · online teaching · web technology · B/S architecture · AHP hierarchical analysis

1 Introduction

Chinese culture is extensive and profound, among which Shang culture is an indispensable part of traditional culture. With the progress of technology and the development of economy, the traditional history of business development in China has been gradually valued by all walks of life, and the research and exploration of Shang culture has also been strengthened [1]. Shang culture refers to the commodity economy that is gradually formed and increasingly manifested by the influence of regional culture. Shang culture is the basic driving force to promote the development of China's commodity economy and the treasure to condense the wisdom of the Chinese nation, which should be protected and passed down. As the main platform for educational exchange and communication, higher vocational colleges should actively act as the promotion medium of traditional culture, actively construct local courses or school-based courses, so that more people

can understand China's excellent traditional culture, and then spontaneously inherit and promote it [2]. Therefore, this paper constructs a web-based online teaching system for Shang culture education in higher vocational colleges. The establishment of the system promotes the traditional culture to enter the campus, enriches the students' spiritual level, and expands the influence scope of Chinese traditional culture, so that the inheritance of traditional culture can continue.

2 Development Environment

According to the introduction of the above related technical contents, the configuration and deployment of the development environment of online teaching system for Shang culture education in higher vocational colleges are completed. In order to improve the learning function of the system, the whole module will be constructed by using web and other related technologies. Visual Studio 2019 is selected as the bottom development tool, Windows 10.0 is used as the development basis for the operating system, B/S architecture is used as the system development framework, and C# is used as the programming language. With the layered advantages of MVC, all parts of the content are layered and deployed [3]. SQL server 2019 is selected as the data storage tool, and IIS 10.0 version is selected as the web server to improve the overall running ability of the online teaching system [4]. Through the description of the above key technologies, the overall framework of the online teaching system of Shang culture education in higher vocational colleges has been roughly planned, and the feasibility of establishing the system has been clarified.

3 Functional Implementation

3.1 Learning Center

Click on the course learning section, and student users can choose their favorite learning methods in the classification column, such as audio courses and open courses [5]. In audio courses, there is no fixed order learning requirement, and student users can arrange audio courses according to their learning habits. The downloaded audio course can be used offline so that students can arrange their free time reasonably [6]. The open course module brings together two kinds of resources: the high-quality courses of our school and the national excellent courses. Teacher users will announce the start time of open classes on time, and student users can make appointments as needed. After the reservation is completed, the system will automatically notify the students by SMS 10 min before the class starts, so as not to forget. After the end of the open course, the administrator can browse the viewing data and other contents under the data analysis function, as shown in Table 1, which is the statistics table of the open course data [7].

   In order to enrich the spiritual world of student users and construct correct thinking habits, the system specially sets up an digital library as a basic tool to improve students' cognition. The system sets a reasonable reading task according to the user's learning preference [8]. Among them, the required reading tasks occupy the main assessment part. Different titles represent different scores, and the final score of users will be included in

Table 1. Statistics table of open course data

Opening time	Course theme	Number of viewers	Total number of barrage	Per capita viewing time
22.09.11	The development and spread of Shang culture	3325	4122	25.3 min
22.10.07	The changes of Shang culture caused by regional influence	2159	2365	32.6 min
22.11.15	The development of traditional culture and the inheritance of Shang culture	1963	1540	19.7 min
22.11.23	The application of Shang culture in commodity economy	3630	3369	27.6 min

the usual grades. Users can express their thoughts in the comment area below the bibliography after completing the reading task, or communicate with other users in a friendly way with the help of the communication function of the system. The implementation code of online communication function is shown below.

```
<!DOCTYPE html>
<htmllang="en">
<head>
        <meta charset- "UTF-8">
        <title>Problem study</tile>
        <link type "tetxt/css" rel" tylesheet" href "ISTest4.css" />
</head>
<body>
<div class="bbs">
        <header>< span ondlick- "TWantPos0">I want to post</span> </header>
        <section>
           <div>
```

3.2 Resource Innovation Center

In order to ensure the completion of the fundamental task of higher vocational education and the continuous inheritance of Chinese traditional culture, teachers should actively

make changes, improve their own abilities and update teaching methods, so as to play a sufficient role in promoting and guiding. This system collects all kinds of excellent teaching resources, and teachers and users can use the search function or keyword positioning to obtain the required content and enrich the teaching content. As far as teaching design is concerned, teachers and users can make targeted improvements to the teaching content with the help of the huge resource pool of the system, and appropriately increase the integration of Chinese traditional culture, excellent ideas and various professional courses [9]. For example, when teaching students majoring in finance, teachers can appropriately combine Shang culture with Contemporary Marketing to compare the similarities and differences between ancient and modern business marketing methods and improve students' interest. When teaching Chinese majors, teachers can focus on the literary changes caused by the change of Shang culture in different dynasties to attract students' attention. This targeted teaching integration can effectively improve students' learning effect and promote their comprehensive development.

3.3   Comprehensive Evaluation Module

After the students' overall study is finished, the system will comprehensively evaluate the students' academic performance by multi-dimensional evaluation. The formula for calculating the total score is shown in Formula 1. The system will also use AHP algorithm model to evaluate the learning 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, D represents the hierarchy, and Q ranks the weight vector [10]. The establishment of this module not only improves the authenticity of the learning effect evaluation of online teaching system of Shang culture education in higher vocational colleges, but also updates the overall evaluation system of higher vocational education.

$$\lambda_{\max} = \sum_{i}^{n-1} \frac{(DQ)_r}{nQ_i}(i = 1) \tag{1}$$

Table 2. Student learning results assessment form

Target layer	Standard layer	Weighted value	Score	Final score
Learning results score	Course participation degree	$q11 = 0.036$	0.835	0.684
	Homework completion degree	$q21 = 0.173$	1.017	
	Teacher evaluation	$q31 = 0.212$	1.642	
…	…	…	…	…

4 Conclusion

This paper takes the development and inheritance of Shang culture in traditional culture as the main research object, and puts forward a more comprehensive cultural development plan in view of the current national emphasis on traditional culture education and the new goal of promoting Chinese traditional culture in the new period, with the help of the application advantages of electronic technology, blending Internet technology into the teaching of traditional Shang culture. In the follow-up research, we will continue to enrich the content of the system, increase the convenience and practicability of the system, let more people know and learn the excellent Chinese traditional culture through the system, and make a modest contribution to promoting the inheritance of Chinese traditional culture.

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