

Analysis of Education Resource Information Management System Based on ASP Technology and SQL Internet

Zhu Wanchun
Caritas Institute of Higher Education
Hongkong
{Cfde3242@fastmail.fm}



ABSTRACT: This article explores designing and implementing an education resource information management system based on ASP technology and SQL Internet. The system aims to provide an efficient, convenient, and scalable solution to meet the growing demand for educational resources. This article first analyzes the current situation and requirements of educational resource information management and then elaborates on the system's design concept, technical architecture, functional modules, and database design. Subsequently, this article verifies the feasibility and superiority of the system through system implementation and testing. Finally, this article summarizes the advantages and disadvantages of the system and looks forward to future development and improvement.

Keywords: Tourism Teaching Resources, Multimedia, Management System, Material Library

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1. Introduction

Computer technology development is increasingly widely used in education, and network education resources have become an indispensable part of the education process. Countries have also set up several research groups to study the teaching of the network environment. In such a large environment, the teacher's lesson preparation and students' learning can be done through the network to collect educational information. The management system of network education resources can organize educational resources and open management of knowledge, and this can provide personalized services according to the needs of teachers and students. It also can enhance the communication between students and teachers. It can also offer a wealth of educational information and knowledge to use educational resources more efficiently.

Chow constructs a practical and interactive multimedia real-time teaching system using network technology. It uses the C/S architecture, mainly composed of four functional modules: the server, the teacher, the students, and the recording and playback teaching situation. Among them, the real-time recording and playback module teaching conditions can be used as a stand-alone system for the teacher's lectures and remote teachings [1]. Using synchronous media technology, Runjie has produced

a multimedia network of resources and developed a multimedia course system based on WWW for autonomous asynchronous distance education. He also realized the release of the multimedia courseware [2]. Shen has designed a set of tourism information systems. This system can not only serve the visitors but also can provide information technology support for tourism management and tourism practitioners to achieve the tourism information system based on the function of WebGIS, such as the visitors' information query, the travel route optimization, the traffic information query, and so on [3]. Buyya proposed the network teaching mode, the system and the overall data plan, the design software engineering method, the system modelling and the method of the technology. Using a B/S development model and system architecture, the system combines the MicrosoftAccess2003 database, ASP and JavaScript technology, Dreamweaver8.0, Flash8.0 PhotoShop7.0, etc. The website provides online forums, news, online chat, online messages, online bookstores and other functions [4]. Deng designed the multimedia interactive courseware and the virtual laboratory based on the VRML programming language. The 3D virtual technology based on the Internet has been introduced into network education, which has enriched and promoted the development of network education [5].

In order to make the tourism education resources effectively used, this paper constructs a management system of multimedia educational resources of tourism knowledge based on the relevant technology of the Internet. The second section mainly describes and summarizes the construction of educational resources at home and abroad. In the third section, the principle of network technology ASP, database system and other development tools are described, and the management system of tourism education resources is designed and built on this basis. The tourism education resources management system is implemented and tested in the fourth section to prove its correctness and universality. Finally, the fifth section summarizes the process and results of the study.

2. State of the Art

Along with the popularization of computer technology and the rapid development of education information, the information accumulation of the educational resources system of colleges and universities at home and abroad has become more and more abundant, and the system has made great progress. Some economically and culturally developed Western countries have constructed teaching and scientific research institutions as early as the middle of the last century, and they have a wide range of educational websites and rich content. Through the development of data information, the browsing, retrieval and access of the teaching knowledge can become more efficient and convenient [6]. Germany attaches great importance to the construction of network education resources, especially the network management and sharing of teaching knowledge. Germany has built a national network of teaching resources which can be linked to the world's teaching and scientific research institutions, and it provides a large number of high-quality education and teaching information for the majority of scholars in Germany and even other countries in the world [7]. The United States government also attaches great importance to the sharing of teaching information. The United States has an educational database with the world's highest access - the United States National Education Information Resources Center, which can provide many global scholars educational information resources [8]. In recent years, there has been a kind of educational model called MOOC Online, and it can fuse the global quality of university curriculum and knowledge, which provides the corresponding curriculum resources for scholars from around the world [9]. In China, although the education resources management system started late, it has made significant progress in recent years. Colleges and universities have established BBS or other network communication modes to carry on communication at or after class, and they, according to different majors and student courses, provide personalized services. These can recommend courses and knowledge for students that they are interested in, enabling the students and teachers to search for knowledge and information [10] conveniently. The establishment of a teaching resources management system has changed the traditional teaching mode, and this can stimulate students' learning interest and improve students' ability to autonomous learning so that students can learn more efficiently and conveniently.

3. Methodology

3.1. Models and Tools of System Development

The system studied in this paper is based on the B/S model and is improved from the traditional C/S structure [11]. The B/S system is mainly divided into three layers: presentation, logic, and data. The browser is located on the top of the display layer. The operator sends instructions to the server, and then the server sends the information to the browser. The browser here is not only limited to the computer display screen but also can be the multimedia terminal. The server is in the logical layer, while the server can process the received data information [12]. A data layer exists in the database, and the database information will be processed according to the requirements of the Web server data, and then the processed data will be sent

back to the Web server. Different from the traditional C/S structure, the B/S structure can be more convenient to operate the system, which not only can borrow the browser and system development costs but is also convenient for the upgrade of the system in the future.

ASP technology refers to the ASP in the server, which can, according to the information in the database, generate the results of the web page implementation and send them back to the client [13]. ASP technology has many advantages; for example, the development of this technology has good performance, which makes the program development more and more convenient and flexible; it can also use the C# language and replace the script language, which increases the speed and stabilities of the language; at the same time, the technology of the operation is very simple, so this can reduce man-made errors and unnecessary workloads [14].

The commonly used data link in the ASP technology is the ADO technology. The interaction between the two can access the data and operate the database data [15]. Figure 1 is the method of using ADO.NET to connect to the database.

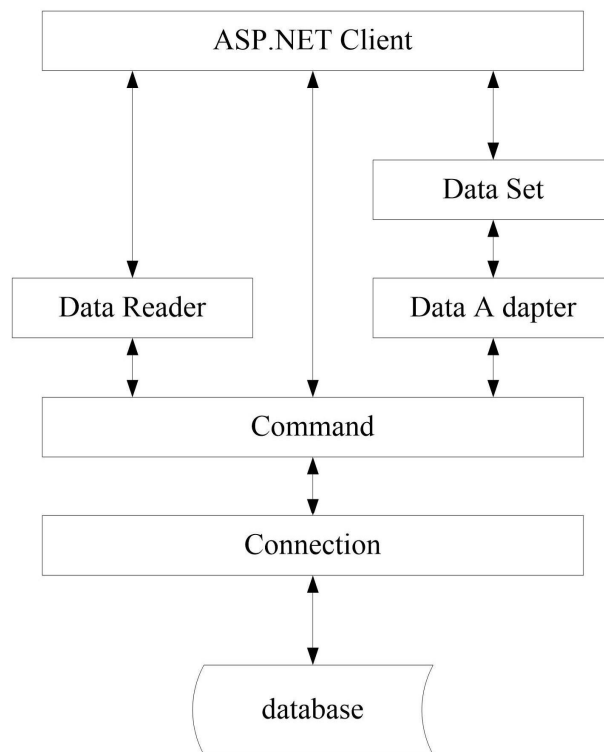


Figure 1. The steps of the ADO.NET technology to connect to the database

3.2. Analysis of the Demand for Resource Management Systems of Tourism Teaching

The traditional teaching of tourism majors in colleges and universities lacks information, and the students cannot integrate and organize the knowledge. An excellent tourism teaching resources website can be related to other network knowledge and allows teachers and students to find more convenient learning resources. In the study of tourism knowledge, students and teachers cannot personally go to learn the local culture in many places, so we need to use the role of multimedia based on the network to provide the scene for teachers and students at all times and in all countries.

To achieve better system operation and bring conveniences to the study, the system needs to have enough rich content, which includes courseware, pictures, videos and audio, and these different resources should be managed; the operation of the system also needs to be simple and convenient, and it also should according to the individual needs of users to provide search functions, which can make users to do the convenient operation; the system also has human-computer interaction functions, and it can timely update the system with perfect and smooth operations.

In front of the system, users, teachers and students should do the real name registration and achieve the login according to the student ID or job numbers. After logging in, we will enter the system's main interface, which should be simple and clear, mainly including the search for resources, information statistics, the user's notice, and so on. In terms of resources, it can provide electronic lesson plans, which can be convenient for teachers to upload and record the contents of the teaching. At the same time, it can also be convenient for students to download other courseware resources, picture resources, video and audio resources, and so on. It also sets the forum, which can facilitate teachers' and students' communication in and after class to achieve the function of interaction.

The administrator is responsible for managing the system and doing a good job of data collation and management. It should manage the account and password of the private information of teachers and students, students' login and maintenance, the release and disposal system notification, the review of educational resources, the maintenance and management of the forum, and it should promptly clean up illegal or unnecessary messages issued by students and teachers in the system.

3.3. System Design

Based on the analysis of the above requirements, the construction of a tourism education resources management system based on ASP technology makes full use of the advantages of the .NET platforms, such as stability, high performance, security, and so on. The management system of teaching resources is designed using a B/S system and a Server SQL database.

The main interface designs the search operation, the notification message, lesson plan resources, courseware resources, audio resources, video resources, picture resources, statistical information, links and other functional modules. In the system's background, the administrators mainly manage the member management, the interactive management, the resource management, the information management, and so on.

The database information is managed with the Server SQL 2005; With the Server Management Studio SQL, the database is created.

After the information in the database is integrated and planned, the data table will be planned. Different types of information are classified, and the names and types of data tables are also listed, as shown in Figure 2 below.

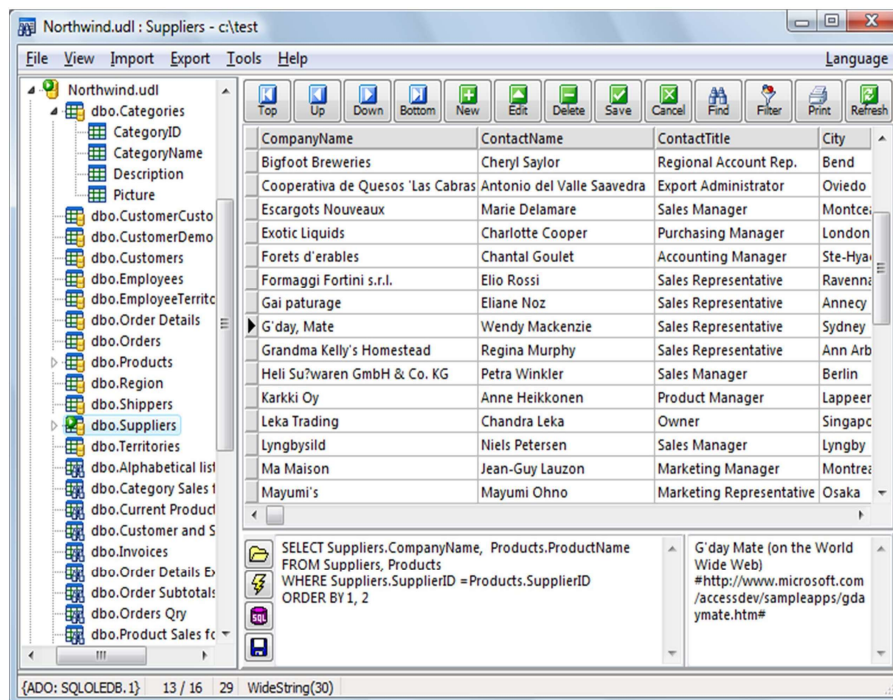


Figure 2. Data table structure

The multimedia tourism education resources database uses the establishment of a distributed list to carry out the classification of information. This mainly includes the member information table, lesson plan resources table, resource type table, class name classification table, the department of class table, notice information table, message table, and so on, as shown below.

Field name	Type	Length	Explanation
Teaching material number	Auto		Primary key
Name of teaching material	VarChar	20	
Storage address	VarChar	20	
Teaching materialdescription	VarChar	50	
Audit status	VarChar	10	
Audit person	VarChar	12	
Upload time	DateTime		
Typeof teaching material	VarChar	10	

Table 1. Teaching material table

Field name	Type	Length	Explanation
User name	VarChar	12	
User rights	VarChar	12	
Commit time	DateTime		
Submit content	VarChar	50	

Table 2. User list of teaching materials

4. Result Analysis and Discussion

4.1. Realization of System Function

In the management system of tourism teaching resources, the main interface design of the system is very important because it involves a reasonable layout, clear structures, and complete sets of functions. Figure 3 is the design of the system's main interface, and we can do the registration and login on this page. After logging in successfully, we can enter the system's main interface. The main interface is clear with simple operation functions: menu navigation, search, notice announcement, teaching resources, teacher-student interaction, etc. In the use of these features, it also provides us with convenient and personalized services. In the search for resources, the system provides different ways for users to search.

The system background function is realized. System background relies on the administrator account login to carry out the operation of the background management. In the management and notification announcement, the administrator needs to

release the text and publish pictures, documents, and so on. This information cannot rely on ASP.NET's control to be completed; it needs HTML control. In addition, the filter cleaning, membership users of personal information management, resource management and release should be completed, as shown in Figure 4.

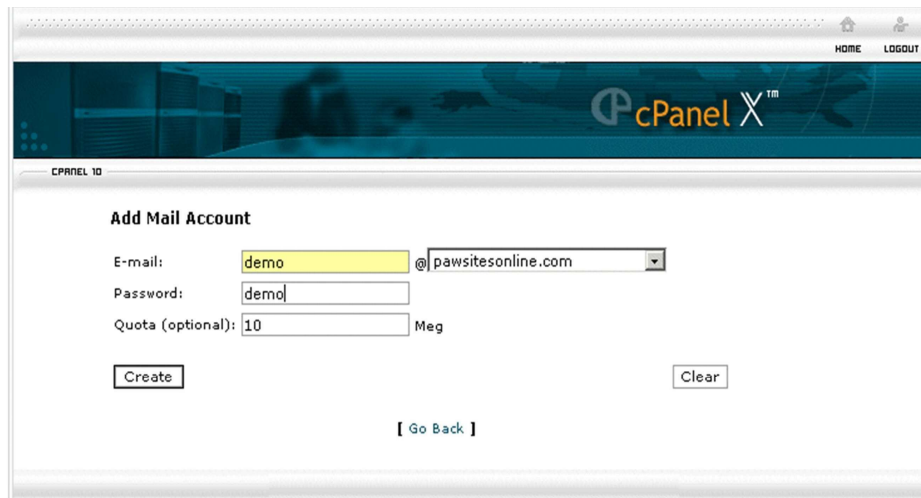


Figure 3. Login interface of the system

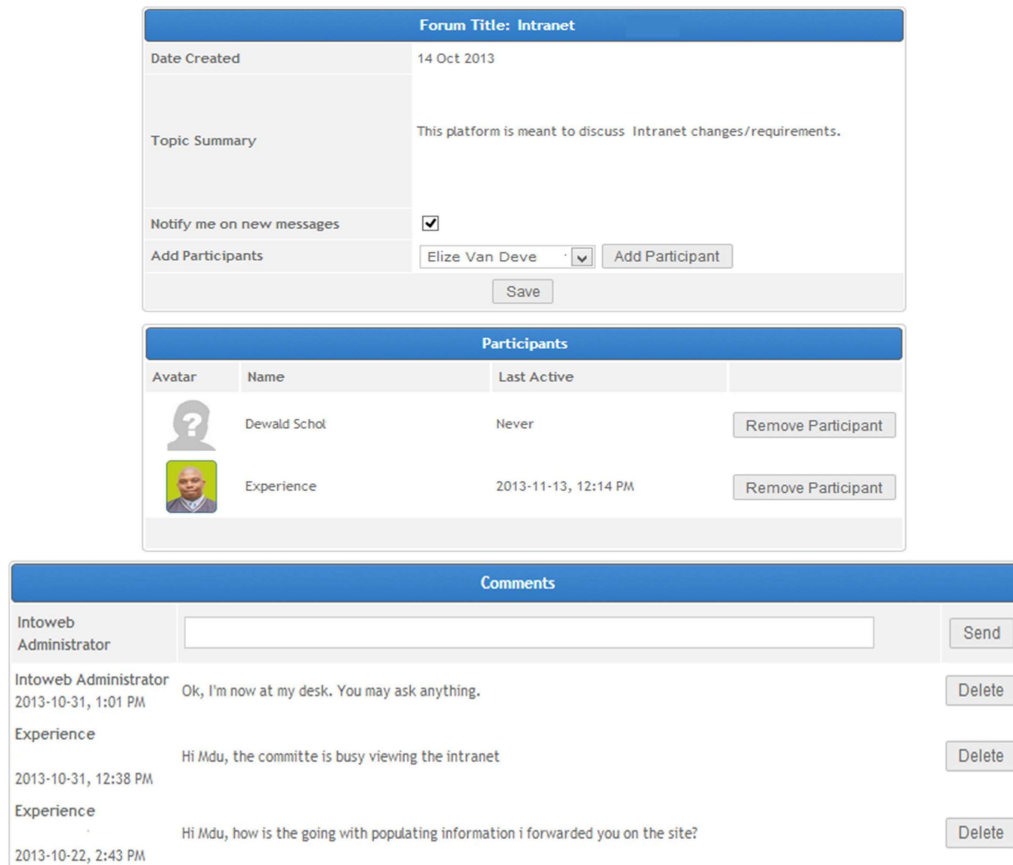


Figure 4. Information management of the system background

4.2. System Testing

As shown in Figure 5, the management system of tourism teaching resources is the main page, and the test of the system is a very important step. It can detect the risk and find vulnerabilities and risks so as to identify and correct the problem in time.

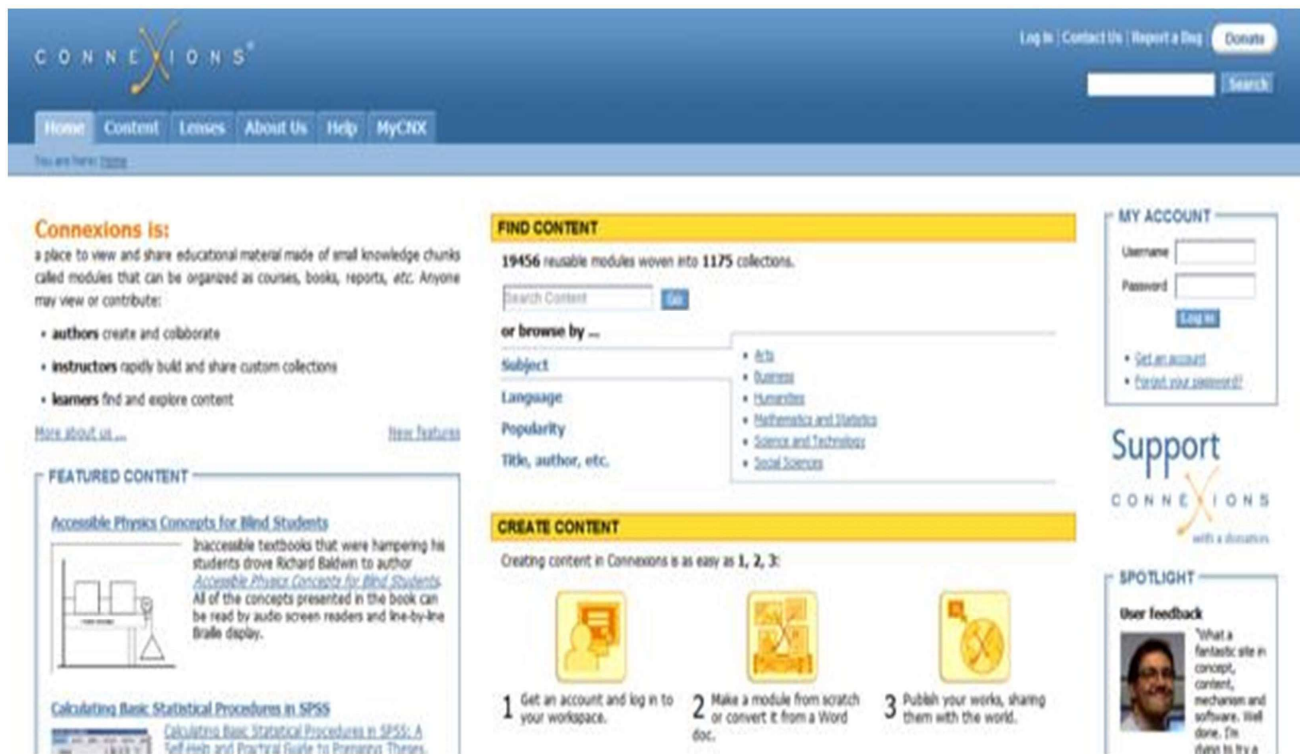


Figure 5. Main interfaces of the system

The system is carried out in three aspects: system login detection, system function detection and system performance detection.

Functional testing can test whether there are errors in the user's access and use of resources in the operation, as shown in Figure

The performance test mainly aims at the operation speed, hardware processing and memory, and the system's securities.

The above tests verify that the system can execute well with the normal operation of each function, so it has achieved the expected goal.

5. Conclusions

After introducing the current situation and development trend of the teaching resource management system for a management system of multimedia educational resources for the tourism major, with the structure of B/S model, SQL Server database management system and ASP.NET technology, the system was developed and realized. Tests and evaluations have proved that the system can provide valuable educational resources for students and teachers, which provides great convenience for future education and study.

Although the system's design has gained great test results, the education resources are updating quickly, so there will be more and more education resources. So many educational information systems need our systems to improve constantly. We also need to improve the system's running speed to reduce the calculation time consumption. In the future, the use of multimedia will become a major trend, and the use of educational resources in different multimedia intelligent terminal systems will be the research goal.

Test items	Test contents	Test results
Browsing resources	Click to view courseware, video, audio, pictures and other titles can be online viewing or browsing	Test success
Upload resources	Click the upload resources function module, upload the text, video and other resources	Test success
Download resources	After browsing the resources, the operation of the resources to be downloaded	Test success
Recommended resources	Click on the resources recommended to see if there is a link to the teaching resources recommended by interest	Test success
Search resources	Try to search courseware, lesson plans, video, audio and other resources of the operation	Test success
Forum interaction	Click the forum module to enter the forum.can publish a message	Test success
Member management	Lock member or unlock member	Test success
Resource management	To publish and cleanup the resource operation	Test success
Message management	To clean up the message operation	Test success
Notification management	To publish and clean up the notification operation	Test success

Table 3. Tests of system function

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