Design and Implementation of English Autonomous Listening System Based on Web Database

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Abstract

Based on the distributed nature of modern distance education, and relying on the Windows platform and B / S browser server architecture this paper designs and implements a network-based English listening self-learning system. Through the existing single machine and network examination system features, a comprehensive and optimized design was set to achieve the following functions: flexible test library management, automatic test paper, diversified question type, and flexible test time control flexibility. Advanced teaching information collection and feedback information analysis and processing technology were adopted, the quantitative control of the teaching process was effectively realized. Combined with audio, video and other multimedia technology and Internet network technology, the language acquisition mechanism was constructed, on the basis of the language information input and output of teaching framework.

Keywords: Web database, Windows platform, English autonomous listening system, multimedia technology.

1. INTRODUCTION

After entering the 21st century, the rapid development of information science, information technology education as an important aspect of education information has aroused widespread concern around the world, and it is an important part of education reform (Kaji, 2006). As far as English teaching is concerned, from the CALL (Computer-assisted language learning) started in the 1960s to the current IALL (Internet-assisted language learning), the main aspects of its research are how to give full play to the potential of the computer (Chen and Zhang, 2010). According to the characteristics of students' learning and English teaching, the computer is organically integrated into English teaching (Kanngieser et al., 2014; Zhao, 2014). And even how to use the computer for human-computer interaction to improve language learning ability based on the potential of computer. With the focus of language teaching from the original focus on language knowledge teaching to student-centered skills and ability training, training learners' ability to learn independently is particularly necessary (Leguizamo et al., 2005). Especially the number of university students soaring, the relative lack of teaching resources, the task of cultivating students' independent learning ability becomes even more urgent.

English practice management system application of B / S structure consists of three levels: client browser, Web browser and database server (Kim et al., 2015). The system does not require any pre-installed plug-ins, only need to be able to network anyone within the LAN. This system is available to all computers, which make it easy for teachers, administrators and student users to manage their own curriculum data (Leguizamo et al., 2003). It is very necessary to study the web - based English practice platform management system for English teaching of graduate students in colleges and universities. It can fully meet the needs of graduate English teaching, and can highlight the needs and requirements of cultivating English proficiency (Worp, 2017). Ensuring the quality of college English teaching and improving students' English skills will help improve students' interest in English learning and lay a good foundation for their future research in English.

Therefore, how to organically combine the advantage of computer and network with the theory of language teaching to study language is the focus of current research in the field of language teaching. This study is based on autonomous language learning theory, combined with the advantages of network teaching, and aiming at the characteristics of English listening training (Cheng and Jiang, 2015). An English listening self-learning system is designed and implemented. English listening training is not simply the accumulation of listening materials, nor a single resource organization. It is a collection of many factors. The system is to combine these factors to form a new network listening training environment. In this environment, each learner takes himself as the center,
interacts with the network environment in his own unique way and achieves good listening training effect through various specific training modes and stage classification tests.

2. SYSTEM INTRODUCTION

2.1 Basic content

According to the questions and characteristics of English listening exercises, the author designs and develops the English autonomous listening learning system based on Web database (Liu, 2014). Taking into account differences in learners' learning interests and listening comprehension, listening materials are collected and classified according to topics selected for interviews with students. There are news reports, casual English, lecture interviews, English for science and technology, national culture and practical training. Each type of theme material is divided into A (difficulty), B (middle), C (easy) three kinds of difficulty. Listening practice questions include cloze, multiple-choice, true or false, dictation, summary writing, question answer, as well as enjoyment. The main system technology is the use of frontpage web development, the use of ASP technology framework, and adding VBScript scripting language to generate dynamic capabilities.

2.2 System features

The purpose of English autonomous listening system based on Web database is to promote the teaching of English software. Based on computer and network by using advanced information technology, it provides learners with an environment for autonomous learning. While improving their language skills, students' autonomous learning ability is also improving. The system is divided into learning board and management board. From the perspective of the study section, it has created an open and independent foreign language learning environment for learners, which reflects the individuality of learners. Learners formulate their own learning plans, select learning resources, adjust learning time and rhythm, and reduce the need for teachers. It makes the foreign language learning towards to personalized learning, without the constraints of time, place, content, methods, and the development of active learning. It establishes the dominant position of students in the learning process and stimulates learners' confidence in learning. From the perspective of the management panel, the monitoring of learners and the asynchronous help to learners are realized. It uses advanced teaching information collection technology and feedback information analysis and processing technology, and the quantitative control of teaching process is effectively realized. It builds a language acquisition mechanism, and teaching framework based on input and output of language information.

3. EXPERIMENTAL DESIGN AND PROCESS

3.1 Listening classroom module

The listening classroom module mainly divided into two parts: the class resources and the extracurricular resources. After entering the listening classroom, users choose the class resources or extracurricular resources according to their individual needs. Among them, the class resources include all the original text materials, so that students can consolidate and review the knowledge of class. At the same time, the listening classroom also provides a great deal of extracurricular resources, which can be chosen by students according to their own interests. Most of the resources in the listening classroom can be viewed offline. Students are also able to learn in the environment where the mobile phone does not have Wifi and traffic. However, some resources can only be learned online because of permission issues of some resources. Users who are into the listening classroom interface, choose class resources and extra-curricular resources to learn. They also choose to enter the class resources, which in the class also have multiple choices, including a total of four English textbooks. The textbooks provide the original text and listening content. If they choose to enter the extracurricular resources, according to the interests of students to the extracurricular resources list, it includes brand English, popular English and various fields of English information. Figure 1 shows the timing diagram of the listening classroom module.
3.2 The realization of listening practice

The purpose of reading data and playing video is achieved through the pages of a label of the library files. The advantage is the player can be shown or hidden, can customize the size, appearance. And only through a label server controls, a variety of media format are supported to the basic function, listening while looking at, or looking after listening. The core code of Playclass. ss is as follows:

```csharp
public class play class
{
    public play class ()
    {
    }

    public string Play (string url, int width, int height)
    {
        string strTmp = url.ToLower ();
        if (strTmp.EndsWith (".wmv") || strTmp.EndsWith (".mp3") || strTmp.EndsWith (".wma") || strTmp.EndsWith (".avi") || strTmp.EndsWith (".asf") || strTmp.EndsWith (".mpg"))
        {
            return wmv (url, width, height);
        }
        else if (strTmp.EndsWith (".mp3"))
        {
            return mp3 (url, width, height);
        }
    }
}
```

Figure 1. The time sequence diagram of the listening classroom module
else if (strTmp.EndsWith(".swf"))
{
    returnswf (url, width, height);
}
else if (strTmp.EndsWith(".jpg") && strTmp.EndsWith(".gif"))
{
    returnimg(url, width, height);
}
else if (strTmp.EndsWith(".rm"))
{
    returnrm (url, width, height);
}
else
{
    return "";
}

4. DATA ANALYSIS AND DISCUSSION

4.1 Word query and memory implementation

In the word query and memory module, when the user inputs a new word and press the OK button, and then the database judges the input characters. If the database complies with the requirement of the database analysis, the database is accessed and a query is performed in the database to see whether the string exists. If stored, the word is returned to the client. If it does not exist, “The word does not exist” is displayed. Figure 2 shows the flowchart of the word query function.

Through the grasp of the system processes and ordinary users use case diagram analysis, you can be ordinary users after the system timing diagram. When the ordinary user opens the client of the mobile device and clicks to enter the system button, the user will be asked to log in, register, and then retrieve the password. The user who logs in for the first time needs to register. After successful registration, he can log in to the system. The function of retrieving the password is to get the password after the user forgets his password. When registering again, the password is set in the form of question and password protection, and then the password is modified by answering the set question.
4.2 System function test

System function test is the main part of the entire system testing part of the test process. It should be strictly in accordance with user needs to be tested so that the software can be constantly modified and improved to meet the expectations of users. System functional testing needs to develop test schedules, and use test cases to make sure the system's function, to see whether the test structure meets the demand. The following uses user management functions as an example to describe the test plan. Table 1 lists the test plans managed by the user.

<table>
<thead>
<tr>
<th>Test username</th>
<th>Test program name</th>
<th>The store path</th>
<th>instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The user login</td>
<td>Userlogin. java</td>
<td>com. yytl. user</td>
<td>None</td>
</tr>
<tr>
<td>User registration</td>
<td>UserReg. java</td>
<td>com. yytl. user</td>
<td>None</td>
</tr>
<tr>
<td>Password finding</td>
<td>FindPassword. java</td>
<td>com. yytl. user</td>
<td>None</td>
</tr>
<tr>
<td>Personal management center</td>
<td>Personal management. java</td>
<td>com. yytl. user</td>
<td>None</td>
</tr>
</tbody>
</table>

User-managed module implementation assistant was designed three modules: namely database design, user login interface design and user registration page design. The use of the database is to save the registration and login information, so that users have the legal authority to use the system resources. Of course, the background is to establish the identity of the administrator, make it be able to register ordinary users to manage.

4.3 System performance testing

Performance testing of the system is mainly on the word and memory module, video learning module and test module, because these modules require for the higher data transfer rate. There may be transmission data response delay phenomenon, that is, it shows too long from the data requests to the end of the data display, then it will affect the learning efficiency and mood of students. Take the word query performance test cases as an example to introduce.

Enter the word beginning with a different letter in the word input box, and the length of the word is four letters. Record the time after the word is entered. Repeat the operation 10 times, display the collected data, and display the delay comparison chart of the i-th letter as shown in Figure 3.
As can be seen from Figure 3 and Figure 4, the maximum delay of the word does not exceed 0.1 s, and this can meet the system's need for time response. The system uses the database is SQLite database. SQLite is an open source, and is embedded relational database. The database has the advantages of ease of use, portability, reliability and effectiveness, so it is loved by the majority of database developers. SQLite has a sophisticated architecture framework, and it is implemented by referencing unique methods, which breaks SQLite into modules that do different things, but are closely related to each other and work in the same order as the pipeline. In the architecture, at the top of the compilation of the compiler statement, the middle is to execute the statement, and the bottom is the interface for storing data information.
5. CONCLUSIONS

By mastering the basic theory and technology which are needed for the development of this system, the listening comprehension of college English is analyzed. Use the case diagram to analyze the system functional requirements. And the functional requirements modules of the system can be mainly divided into user management module, word query and memory modules, listening classroom modules, video learning modules and exam modules. At the same time, the feasibility of the system is also analyzed. From the market feasibility, technical feasibility and advantages of mobile listening platform, several aspects of the system performance needs analysis are studied. A clear understanding of the needs of university students is needed to establish a good college English listening learning system.

REFERENCES