Research and Design of College Courses Resources Sharing Platform Based on WeChat Mini Program

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Abstract. The lightweight application development technology based on WeChat Mini Program is particularly popular at present. The framework of WeChat Mini Program is simple and easy to develop. Mini Programs can be used without deployment on the client and can easily call the camera, microphone and GPS, etc. Naturally, the development of college courses teaching resource sharing platform based on Mini Programs can facilitate teachers and students to share curriculum resources and enjoy online learning and communication.

The project follows the design principles of simple operation, clear interface layout, personalized learning mode, diversified communication means, scientific management methods, etc., adopting WeChat Mini Program, data acquisition and data analysis technologies to build a college courses teaching resource sharing platform, a teaching service system featuring university teaching resource sharing and students' individualized learning.

Keywords: WeChat Mini Program · College courses · Resource sharing · WeChat teaching · Online learning

1 Introduction

Tremendous desire of self-exploring study has emerged among the college student group, no longer is the traditional teaching mode with blackboard attractive to them. They prefer a variety of learning methods. According to statistics, almost every college student owns a mobile phone on which WeChat is one of the indispensable applications. This lays the foundation for promoting the use of WeChat Mini Programs to carry out the teaching and learning activities of college courses.

The current mobile Internet education and teaching platforms are mainly represented by WeChat official accounts classroom and educational applications. The former is easy to promote and attract a large number of customers, but its function is quite restricted due to system limitations. Also these educational applications involve downloading, installment, update, uninstall, etc., it is more difficult to promote and use. Whereas WeChat Mini Program combines the two advantages of them, providing developers with a solution that is both powerful and lightweight.

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To begin with, this paper introduces the fundamental technology modules used, and then expounds on the main functions and user roles. In the last part, conclusions and prospects are given based on the analysis.

2 Research Objectives and Content

2.1 Research Objectives

The open online teaching resource sharing platform [1] is designed with the purpose of sharing services, with the completion of curriculum tasks as the guiding principle, emphasizing on the cultivation of students' self-learning ability [2], representing the characteristics of data sharing in the information era; This platform focuses on the integration of course objectives and teaching content to propel the transformation of teaching concepts; This platform also adopts diversified curriculum teaching methods [3] to promote teaching reform, thereby improving the quality of teaching.

2.2 Research Content

To fully utilize the ease of operation and accessibility of WeChat Mini Program [4] and meanwhile take into account of the characteristics of college courses, this open platform will include functions such as student management, material library, online course videos, quizzes, course documents downloading, online communication, etc. Finally, the goal of sharing teaching resources and cultivating students' self-learning ability will be realized.

3 The Introduction of Key Technology

3.1 WeChat Mini Program

WeChat Mini Program [5] is a kind of application that does not need to be downloaded or installed. Users can use WeChat to scan or search to open the program. Its outstanding properties include easy sharing, easy operation, convenient browsing of pictures, audio and video files.

3.2 Vue.js, Vue-resouse.js

Vue.js is a progressive framework for building data-driven web interfaces. The goal of Vue.js is to achieve a data binding and combined view component of the response through the simplest possible API, which uses Vue-resouse.js for data interaction [6, 7].

3.3 Data Collection and Data Analysis

The data collection [8] in this study refers to the extensive retrieval, downloading and categorization on the Internet by employing crawlers for teachers to integrate those data into appropriate teaching resources. Data analysis [9] refers to the system collecting the users' all operational behavior, analyzing their learning status according to users' behavior, and then giving constructive comments.

4 The Design of the Sharing Platform

4.1 Technical Solutions

This system adopts WeChat Mini Program [10] technology supplemented by HTML5 and vue.js [11] to build software interaction interface, using PHP to develop data response service and taking mysql [12] as data storage.

4.2 Overall Structural Design

See Figs. 1, 2, and 3.

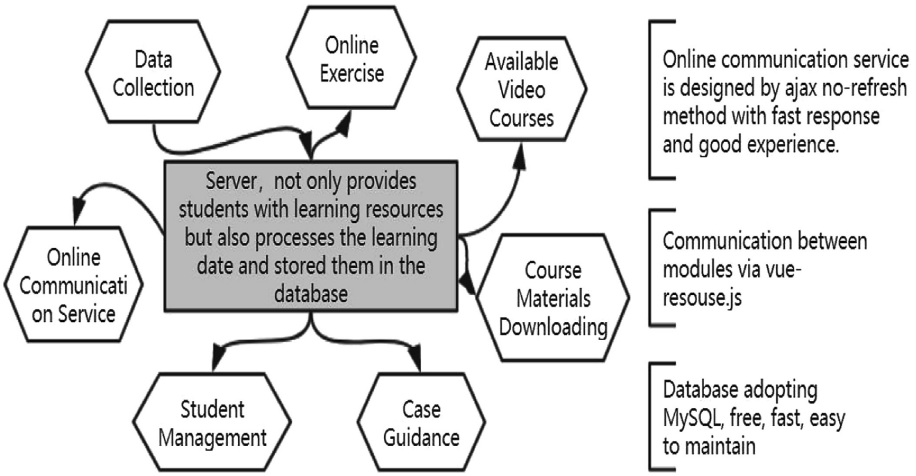

Fig. 1. Server design.

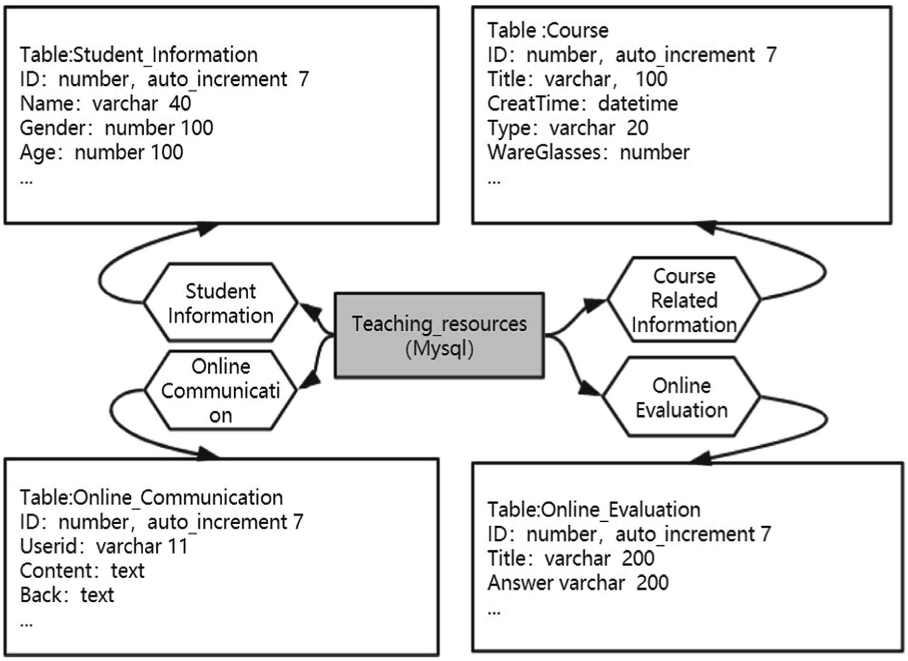

Fig. 2. Database design.

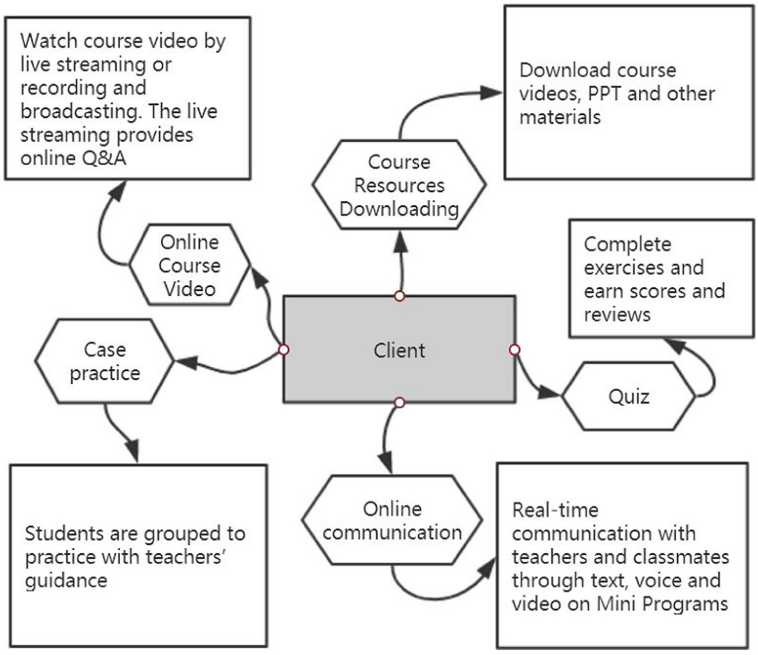

Fig. 3. Client design.

4.3 Main Functions

Course Management. Course management refers to teachers using the inherent models in the system, filling in the attributes of the course, creating courses, and then enriching the resources required for the course according to the teaching objectives and characteristics, such as PPT, audio and video, exercises, cases, experiments, etc., so that students can learn online. In the later stage, teachers can modify and maintain the resources of the course according to the feedback of students.

Online Learning. Online learning means that students study the courses created by the teachers through the WeChat Mini Program, acquire the basic knowledge of the course, complete the after-school exercises and participate in the case analysis and experiments.

Online Communication. Online communication refers to communication between teachers and students and among students. They can communicate through text, voice or video provided by WeChat Mini Program to solve the problems encountered in learning.

Online Evaluation. Online evaluation means that students can use the evaluation function after study and answer the teacher's preset questions to examine their own knowledge and then give corresponding comments and suggestions.

4.4 User Role Design

The system is designed with three roles: system administrator, teacher and student.

The System Administrator. The system administrator is responsible for the collection and classification of parameters and data of the system.

Teacher. The teacher is responsible for uploading course materials, guiding S**tudents.** Students to learn and practice, and communicating with students online.

Students use the system through the WeChat Mini Program.

5 Conclusions

This research aims to build a platform for college teaching resources sharing platform based on WeChat Mini Program through comprehensive use of information technology, ultimately to provide an effective way for students and people outside campus to learn online. This research will go on with long-term accumulation of curriculum resources through mutual cooperation between different universities, mutual recognition of college credits and other mechanisms to achieve regionalized curriculum sharing.

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