Design and Optimization of the Curriculum System of College Preschool Education Under the Background of "Internet+"

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Abstract. In order to promote the optimization of college preschool education curriculum system, this paper takes oral English teaching as the research object, with the help of network information technology, database management technology, computer application technology and so on, designed a college preschool education curriculum system construction platform. The platform adopts the B/S architecture and follows the MVC design. Idea. Java language is used to write the server. SSH framework is introduced to complete the overall design and deployment of the Web Server. It has made the teaching of preschool education in colleges and universities more streamlined and flexible, and contributed to the training of outstanding teachers in preschool education and the promotion of preschool education in China.

Keywords: Internet + Education · Preschool Education · Systematic Curriculum · Software Design · Computer Application

1 Introduction

Preschool education is to promote the development of children's physical quality and mental health development of the foundation stage, to cultivate people's moral quality, ideological understanding and learning habits of crucial period. With the development of society, people pay more and more attention to preschool education, and the requirements for preschool teachers are higher and higher. As an important outlet for preschool teachers, preschool education in colleges and universities shoulders the important task of exporting professional Preschool teachers. However, there are still many problems to be solved in the curriculum system of preschool education in colleges and universities, which still need to be further designed and optimized. Therefore, by combining years of teaching experience and Internet technology, the author of this paper designs a curriculum system construction system for preschool education in colleges and universities. The system can provide a new platform and new ideas for the design and optimization of the curriculum system of preschool education in colleges and universities, and realize the systematization of preschool education teaching work.

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2 Analysis of Key Technologies

2.1 JavaWeb Technology

JavaWeb technology is the core technology of dynamic Web application development using Java language. A complete Java web application is usually composed of a number of components, typically consisting of presentation layer components, control layer components, business logic layer components, and data access layer (or persistence layer) components, as shown in Table 1.

2.2 SSH Framework

SSH framework is an integration framework composed of Struts2, Spring and Hibernate. On the whole, the integrated SSH framework can be divided into presentation layer, business control layer, data persistence layer and domain module layer. SSH framework conforms to the three-layer object of MVC development mode, which helps developers to build Web applications with clear structure, good re-usability and easy maintenance in a short time.

2.3 Development Environment

Based on the key technologies used by the system, the operating system of the system development is Windows 10, the underlying development tool is Eclipse, and the version of Java Language Development Kit (JDK) is 1. 8.091. JDK, as the core of Java, contains the running environment of Java development and various development tools. The choice on the Web server is Tomcat 8.0. The overall deployment of SSH framework requires three parts: Struts, Spring and Hibernate. Struts framework is constructed by struts-2 3.30-apps resource package. Spring framework-4.2.2. RELEASE resource package was selected to build the Spring framework. Hibernate-release-5.2. 2. Final resource package is selected in the construction of Hibernate framework. The most important thing is the integration of the three SSH frameworks. The integration logic is shown in Fig. 1. The scripting language of the system was selected as JSP, Sverlet and JaveBean to complete the development of the client side and the Server side respectively. SQL Server 20 19 was selected for the database server to complete the compatibility and unity between all levels under the SSH framework.

Table 1. Component composition at each level of a JavaWeb application

The JavaWeb consists of layers	Component
Iayer of presentation	HTML, JSP pages
Iayer of control	HTML, JSP pages
Business logic layer	HTML, JSP pages
Persistence layer	JDBC and Hibernate

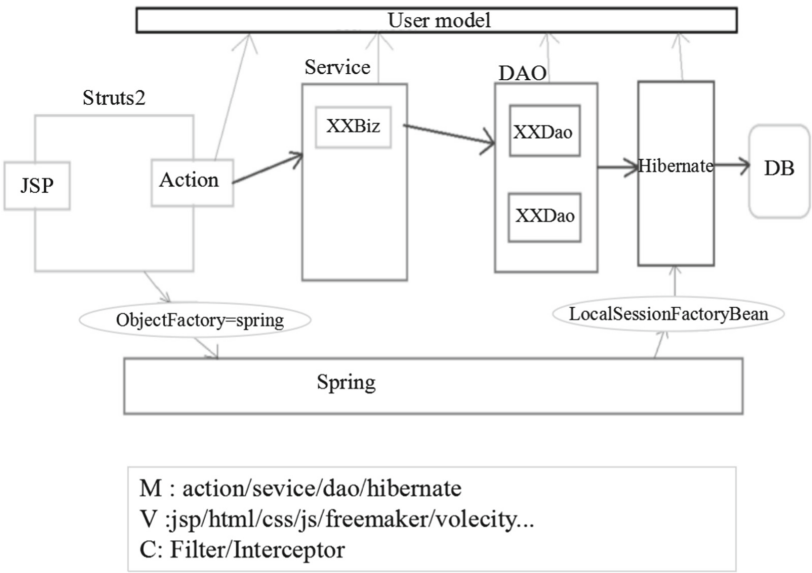

Fig. 1. Logic diagram of SSH framework integration

Through the analysis of the above key technology theory, the overall environment of the system development, the configuration of related software and tools are determined, and the feasibility of the overall project is also clarified.

3 Function Realization

Teachers need to complete three tasks: teaching content sorting, teaching activity design and teaching effect reflection, corresponding design functions are: co-create resource library, online seminar, collective lecture evaluation.

3.1 Create the Resource Library

Teachers can make courseware online, including WORD, PPT and video, etc. WORD and PPT can be made and modified by multiple people online at the same time. Micro-class videos can be recorded online and uploaded automatically, and video files or network resources recorded by oneself can also be uploaded. You need to identify and calculate the file size. The formula for calculating the audio file size is shown in Formula (1).

$$\begin{aligned}\text{Audio size} = &\text{Audio sampling rate (asamples) bit depth} \times \text{number of audio channels (channels)} \\ &\times \text{time length (unit : second)}/8 \end{aligned} \tag{1}$$

```
//@Override
  Public void run() {
      try {
          InputStream clientInput=client.getInputStream();//Gets the data stream for the client
           Scanner scanner=new Scanner(clientInput)://Byte stream conversion character stream
           /**
           *The message is read by line
           *1.register:<username>For example:register:Teacher zhang
           * 2.Group chat: groupChat:<message>For example:group Chat:The meeting
           *3.Private chat: privateChat:Teacher zhang:Howdy
           *4.Quit:bye
           */
```

Fig. 2. Part of the webinar code

3.2 Webinar

Teachers can design teaching activities through online meetings. This is done by creating a multi-person online chat room, which includes sending text messages and initiating voice meetings, as well as single-person chats. Here the server and client are connected using I/0 streams, part of the code shown in Fig. 2.

3.3 Collective Lecture Evaluation

Teachers can grade and give suggestions on courseware and recorded micro-lessons made by other teachers or groups. In the future online seminars, teachers can consult and discuss together to improve and optimize teaching content and activities. The TOPSIS algorithm is used for scoring, and the algorithm model is shown in Formula 2.

$$Z = \begin{bmatrix} Z_{11} & Z_{12} & \cdots & Z_{1m} \\ Z_{21} & Z_{22} & \cdots & Z_{2m} \\ Z_{n1} & Z_{n2} & \cdots & Z_{nm} \end{bmatrix} \text{Matrix 1}$$

Unnormalized score of the ith (i(i = 1 1,2,…, n) evaluation object:

$$S_i = \frac{D_i^-}{D_i^+ + D_i^-} \tag{2}$$

The author put the system into the preschool education major of our school for testing, mainly referring to the teachers and students at both ends of the operation convenience and fluency, system utilization and popularity, as well as the background running of the structure design rationality, database design, code implementation and other aspects of the analysis, and the system has been partially optimized. The test results are shown in Table 2.

Table 2. Functional test results (Part)

Test item	Affection (percentage)	Usage rate (percentage)	Number of bugs	Analysis of Results
Online Discussion	82	63	1	Add meeting modes, Such as video conferencing
Courseware cooperation	84	77	4	Improve system stability and reduce latency
Resource upload and download	79	86	2	The connection to the Database needs to be optimized.
communication	81	76	1	This feature needs to be heavily promoted.

4 Conclusion

The design and optimization platform of preschool education curriculum system in colleges and universities provides a digital platform of re source co-construction and resource sharing for. Preschool education curriculum construction. It optimizes preschool education curriculum from three aspects of teaching resource development, teaching activity design and teaching problem reflection, and builds a professional platform for cultivating high-level preschool education teachers. In the future exploration and research, we will continue to optimize the research on the construction of professional curriculum system of preschool education in colleges and universities, let "Internet + education" give full play to the driving force, provide a service platform with richer functions and more stable performance for the construction of preschool education curriculum, and make contributions to the cause of preschool education in China.

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