Research on the Design of College English Blended Teaching Model Based on Big Data

Xiaoyu Gu(✉)

Changchun Institute of Technology, Changchun 130021, Jilin, China
tg667788@xzcstudio.com

Abstract. Under the background of today's big data era, the traditional college English teaching model has been unable to meet actual needs. It is a general trend to create a college English blended teaching model based on big data technology. To this end, the paper builds a college English blended teaching model based on big data technology, and discusses how to realize this blended teaching model through a system platform, so as to realize the optimization and innovation of the teaching model and create intelligence. The model of English teaching is designed to fully improve the teaching quality of teachers and the learning effect of students.

Keywords: big data technology · college English · blended teaching model

1 Introduction

In today's information age, big data has been deeply integrated with education. Through the application of big data technology, the massive amount of data in education and teaching can be effectively processed, which helps realize the concept of precise teaching. In this context, researchers have also conducted in-depth research on the application of big data technology in teaching. Foreign research in this area is mainly reflected in the exploration of teaching models and the application of information technology. For example, Scott and others pointed out that through the Internet big data technology, students' learning situation is clear at a glance, and multi-level and multi-dimensional information sharing can be achieved. On this basis, domestic researchers have also conducted in-depth research on this aspect. Professor Zhong Shaochun believes that the full use of big data technology in classroom teaching can transform traditional teaching methods, build a personalized smart classroom teaching environment, and effectively promote and improve a new type of classroom for teachers and students to teach and learn. Some scholars have conducted systematic research on various elements involved in smart classrooms, and designed a unified learning model to promote the in-depth integration of information technology and classroom teaching. There are obvious differences in the specific application paths of big data technology in different disciplines. How to make full use of the advantages of big data technology in English teaching to promote precise teaching for the final teaching effect is still a topic that needs to be studied.

Table 1. The user information table

Name	Instruction	Data type
id	ID	int
yhm	User's name	varchar
mm	Password	varchar
zcsj	Registration time	datetime
yx	Mailbox	varchar
dhhm	Phone code	varchar
zylb	Professional category	varchar

2 Big Data Technology and Its Significance in Blended Teaching of College English

Big data mainly refers to the application of advanced information technology to analyze and process all data information to obtain the key content of the data information. Specifically, it is mainly manifested in the following aspects. (1) With the help of data mining technology and cloud computing technology, it can achieve accurate push and improve the learning efficiency of learners. (2) By collecting the learning situation of learners, it is helpful to construct the evaluation index system of software, and provide reference suggestions for software developers to update software functions [1, 2].

3 The Application Paths of Big Data Technology in College English Blended Teaching

3.1 Use Big Data to Build a Corpus to Promote Blended Teaching

In order to realize the establishment of the corpus, it is necessary to design the database first, and combine the actual needs of the mixed teaching mode to establish a user information table. The specific content of the information table is shown in Table 1.

After the establishment of the database, the corpus is initially complete. Based on this corpus, teachers can break through the limitations of textbooks and provide students with more learning resources by retrieving a large number of real corpora related to textbook topics.

3.2 Use Cloud Computing Technology to Analyze Students' Academic Conditions

At present, there are already some big data teaching systems in China. When the online review process is completed, the big data system can sort out the review results in a relatively short period of time, and provide specific academic analysis based on the review results. The results of academic analysis are stored in the database. As a result, teachers can conduct various assessments through the big data teaching system (Fig. 1).
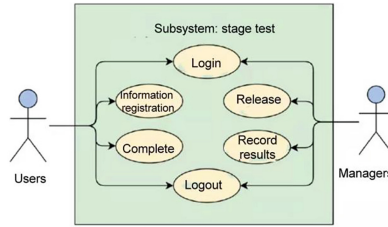
Fig. 1. Schematic diagram of the evaluation function test

When setting the level of difficulty of teaching objectives, it is necessary to accurately determine the level of learning ability and knowledge base of students, provide students with teaching content with a certain degree of difficulty, and stimulate students' potential to carry out accurate and effective English teaching [3].

3.3   Arrange the Pre-class Testing and Feedback Functions Online

Teachers can arrange pre-class tests online through the big data teaching system. Generally, the pre-class test is mainly divided into the following two parts. The first part of the test questions test the relevant old knowledge used in the new lesson in this section. Teachers can more accurately understand the students' previous knowledge base and ability base. The second part of the test questions test the main content of the new knowledge. Teachers can quickly scan and obtain real-time learning data of students before class. Through the big data teaching system, comprehensive analysis of the long-term academic situation of the students in the class [8].

3.4   Achieve Accurate Propositions, Examinations and Comments

First of all, based on big data technology, teachers can analyze students' weaknesses in knowledge and abilities by retrieving students' learning data to achieve more accurate propositions. Secondly, teachers need to directly analyze the scores of students through the big data system, and make horizontal and vertical comparisons, and make accurate comments on the test papers, so that the test can check for deficiencies [4].

4   Construction of Big Data Technology Platform for University English Mixed Teaching

4.1   System Development Platform and Technology

The system mainly uses Eclipse as the development tool, Tomcat and JSP as the backend server, and MySQL as the database.

One is data mining technology. The main function of this technology in the system is to mine the potentially valuable information from the user learning data recorded by the system through the blessing of intelligent algorithms, and analyze and calculate the information to find the law of learning to seek the corresponding basis for the

Table 2. The architecture of the data mining system

Class	Name	Major functions
1	Data preprocessing	The data is extracted, converted, cleaned, integrated, and loaded.
2	Algorithm parallelization	The data is further processed by various algorithms and association rules.
3	Users' interface	The results are displayed after the user has input the relevant content.
4	Cloud services	Personalized applications through Web services and knowledge flow.

Table 3. System classes and functions

No.	Classes	Major functions
1	Clients	Interactions between the learner/manager and the system.
2	Business	Realize the core business of the system.
3	Data	Provide data storage services, and ensure security on the data.

learner's in-depth study. Generally, data mining technology is implemented based on cloud computing technology, and its specific architecture is shown in Table 2.

Cloud computing technology can allocate computing tasks to a large number of computer-integrated resource libraries for calculation and analysis. As a result, relatively low-performance equipment can be used to achieve computing power equivalent to or even more than traditional large-scale servers. This is more prominent in terms of the current background of growing English learning resources. Based on cloud computing technology, it can quickly conduct in-depth processing and analysis of the collected learner's performance and other big data to achieve the goal of intelligent analysis [5].

4.2   Basic Architecture of the System

In this system, the system architecture is mainly divided into three layers, and each layer and its functions are shown in Table 3.

4.3   Corresponding Mechanism and Function Implementation of the System

The effective mechanism of the English mixed teaching mode system platform based on big data technology is realized based on the following modules, and the whole process is a real-time, dynamic, and self-adaptive process [6].

One is the user interface and login module. The main function of this module is to provide a simple system login function. After the user issues a login instruction, the module determines whether it is a teacher or an administrator. The next is to generate

a new student subsystem, and connect it with the interface of the system to realize the collection and analysis of user data information.

The other is the student model module. This module is the core of the entire system platform. The evaluation results provide users with targeted learning tasks.

The third one is the teaching expert module. It mainly uses artificial intelligence technology to build an expert system model according to the specific situation of the students. According to the characteristics of different students, different teaching methods are adopted to achieve teaching in accordance with their aptitude, which is an adaptive process.

The fourth one is the cooperative service module, which mainly realizes the communication mechanism between platform users, including real-time interaction and message.

The fifth one is the teaching organization module. The main function of this module is to present the teaching content provided by the teacher to the students, including learning content, learning progress, homework, examination and other teaching links.

The sixth one is the coordination system module. This module mainly manages the above five modules and coordinates the functions between these five modules to resolve the conflicts between the modules in the process of information transmission.

4.4 The Final Teaching Model Framework

After completing the above content, the final teaching model framework is formed. Specifically, in this final teaching model framework, the main framework is that the administrator account manages the accounts of students and teachers. The framework can maintain and update various information and systems, and view and add related data information, update and delete. The main functions of the teacher end include resource management, resource upload, homework assignment, interactive communication, and test evaluation [7].

4.5 Practical Application Test Effect

In order to ensure that this big data-based college English blended teaching model can achieve the expected results, according to statistical methods, 10 students with similar levels are selected for the test in each of the two teaching classes, and their test scores are shown in Table 4.

From the data in Table 4, it is not difficult to see that through the application of the mixed teaching model under the big data technology, the students' learning effect in many aspects has been significantly improved, proving that it is necessary to further apply this mode [9].

Table 4. Average English scores of the two groups after the experimental test

Test item	The average score of the experimental group	Mean score of the control group
Listening up	72.3	64.6
Speaking	61.1	43.9
Translation	85.7	64.5
Reading	78.2	76.2
Cooperative learning ability	9.2	3.4

5   Conclusion

All in all, from the perspective of big data, the English teaching model has undergone significant changes, and the mixed teaching model has become inevitable. Due to the limitations of various reasons, there are inevitably many deficiencies in this research, and the teaching quality evaluation under this model is still relatively lacking. Therefore, in the future work, it is expected that more additional factors will be considered, the corresponding evaluation system and indicators will be constructed using methods such as mathematical statistics, and the actual operation effect of the college English blended teaching model based on big data for accurate evaluation.

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