Discussion on the Application of Information Technology and Big Data in College English Teaching

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Abstract. In the era of information development, college English teaching has undergone some changes and faced many difficulties in the learning process. The continuous development of information technology and big data has strengthened the role of students in the teaching process. Taking the interactive mode of English mobile teaching under the background of big data as the research point, this paper discusses the new education system built in the interactive mode of English mobile teaching, explores the methods to solve the disadvantages of traditional classroom education, with a view to providing a theoretical basis for future college English education, and develops a new interactive mode of English mobile teaching.

Keywords: Big data · College English teaching · model of instruction

1 Introduction

In the era of Internet integration and intelligent digital media mobile terminals, college English teaching is no longer limited to classroom paper media teaching and audio-visual input of a single platform. The compatibility of information technology and big data technology makes different media platforms and different mobile terminals interconnected, highlighting the interactive efficiency of various media, breaking the restrictions on learning time and space, and realizing the interactivity and verticality of learning content [1]. The application of information technology and big data in college English teaching will bring new experiments, opportunities and challenges to language learners. By using the Internet, students can effectively learn English on the ground and improve their college computer skills [2, 3]. Use AI to meet the actual needs of English learners, so that students can quickly find their own learning methods in the process of learning English without any obstacles. The way of English teaching is taught by teachers and children learn to listen as follows [4, 5].
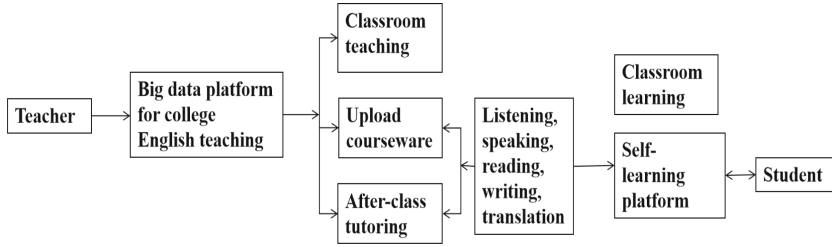
Fig. 1. Overall system architecture

2 Big Data Platform Architecture Design

2.1 Functional Analysis

Based on the multi-dimensional, multi-source and heterogeneous characteristics of college English teaching, the big data platform for college English teaching needs to realize the collection, modeling, integration, fusion analysis and sharing of multi-dimensional and multi-source heterogeneous risk data [6]. By building a big data platform for college English teaching, the problems of data inconsistency, hidden association, huge structural differences, staggered management institutions, and difficulties in integration and sharing of college English teaching multi-systems are solved. Static data, dynamic data, historical data, real-time data and future forecast data are managed and fused in a unified time coordinate system, which provides strong support for college English teaching monitoring, forecasting and early warning, and intelligent prevention [7].

2.2 Structural Design

A big data platform for college English teaching. Figure 1 shows the design framework.

2.3 Construction Process

Based on the structural diagram design of big data platform for college English teaching, the construction process of big data platform for college English teaching is put forward. In the data acquisition layer, high-precision acquisition and data update strategy based on ground state correction are adopted. Build a college English smart classroom teaching system, design a series of smart teaching activities, such as closely linking all teaching links, personalized training programs, intelligent resource push, intelligent teaching activities, interactive teaching, diversified teaching evaluation and real-time feedback, and truly realize the comprehensive innovation of college English classroom teaching. The structure of college English smart classroom based on big data platform is shown in Fig. 2.

3 Result Analysis

Select the students in the practical class of smart classroom teaching as the research object to conduct a questionnaire survey. There are 4 classes in the practical teaching class of Smart Classroom, including 31 students in class A1, 28 students in class A2,
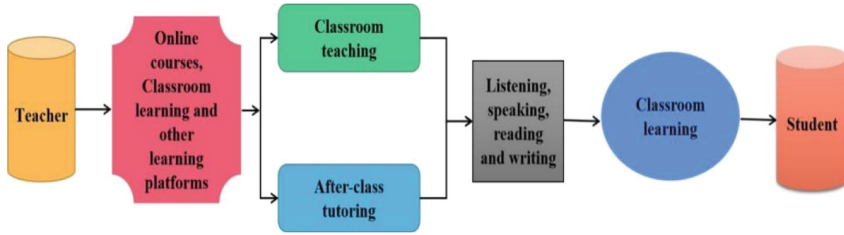
Fig. 2. Architecture of College English Intelligent Classroom based on big data platform

32 students in class A3 and 30 students in class A4, with a total of 121 students. The contents of the questionnaire are the satisfaction of teaching methods, the satisfaction of communication and interaction, whether the feedback channels are perfect, and which one do you prefer to traditional teaching methods. According to the questionnaire data, we can see that students are more inclined to the novel teaching method-smart classroom [8] (Table 1).

Four smart classes in the questionnaire survey and four classes (B1, B2, B3 and B4) that did not participate in smart classroom teaching were selected for special comparative analysis. They are tested and compared from four aspects: listening, reading, writing and translation. The single test score is 100 points. Data comparison between four experimental classes and four non-experimental classes. As shown in Table 2.

Table 1. Test data of the experimental class

Classes	Test item			
	Listening (Points)	Reading (Points)	Writing (Points)	Translation (Points)
A1	75	80	80	85
A2	80	79	79	80
A3	71	81	78	78
A4	72	77	78	79

Table 2. Non-experimental class test data

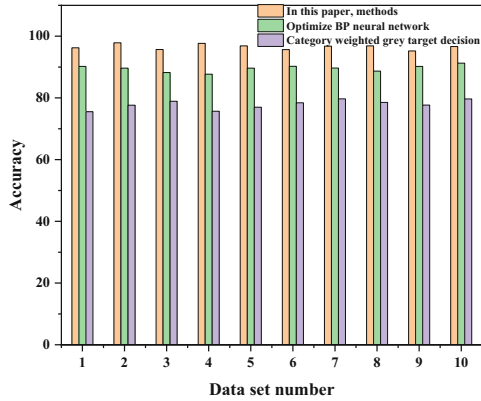| Classes	Test item			
	Listening (Points)	Reading (Points)	Writing (Points)	Translation (Points)
B1	62	65	60	70
B2	65	60	61	63
B3	70	71	68	60
B4	55	60	62	59

Fig. 3. Comparison of Evaluation Accuracy Results

Select the best English teaching guide on the main computer of the college as the research object, and write a sample paper as an evaluation of English education. The college English course is taught and evaluated by experts [9, 10]. 200 samples are divided into 10 documents, and 20 sample documents in each category are tested. Among them, the effect of English education; English score is defined as X1; X2 is used to change job, time definition, etc. The number of dropouts from English classes is interpreted as X13.Our method is used to evaluate the experimental data, and the obtained accuracy results are shown in Fig. 3.

According to Fig. 3, the average accuracy of this method is 96.56%, which is 7% and 18.68% higher than the average accuracy of the optimal BP neural network training method, respectively. Therefore, the accuracy of this method is the highest [11, 12].

4   Conclusion

The traditional way has certain restrictions on college English education, but under the background of big data, the education mode is gradually open, the thinking of students and teachers is changed, and the education mode is also enriched. Mobile English teaching has effectively increased students' interest in English teaching and improved the classroom. In the whole teaching process, teachers play an important role. First of all, the existing multimedia platforms and mobile APPs are used to tap the potential of educators and the educated to learn and accept new knowledge, to build the practical significance of the knowledge system, and to use all available resources and educational means.

References

1. Deng, Y. . (2022). Exploration and practice on task-based language teaching theory in college english teaching. Chinese and American English teaching, 19(3), 88-93.
2. Liu, A. , & Kong, D. . (2021). A study on the diversified college english teaching mode based on artificial intelligence. E3S Web of Conferences, 251, 01058.

3. Wang, L. . (2021). Analysis of college english teaching in application oriented colleges and universities based on the effect oriented concept. Contemporary education research, 5(2), 3.
4. Jiang Hua, & Xu Qing. (2021). Multimedia college english teaching based upon the behaviorism theory. (2014–5), 76–77.
5. Li, M. . (2021). An immersive context teaching method for college english based on artificial intelligence and machine learning in virtual reality technology. Mobile Information Systems, 2021(2), 1-7.
6. Wu, X. . (2022). Research on the reform of ideological and political teaching evaluation method of college english course based on "online and offline" teaching. Journal of Higher Education Research, 3(1), 87-90.
7. Cao Lingmei and Zhu Shuxian. (2021). Teaching strategies against emotional barriers in college english writing. Overseas English, 000(005), P.279–280.
8. Li, F. . (2022). The application of wechat in college english teaching in yunnan. A review of educational theory, 5(1), 40-44.
9. Deng, Y. . (2022). Exploration and practice on task-based language teaching theory in college english teaching. Chinese and American English teaching, 19(3), 6.
10. Huang, Y. . (2022). Task design of task-based language teaching in college english - a case study on criticism: don't take it personally. Contemporary education research, 6(1), 115-120.
11. Tan, H. . (2022). A brief discussion on college english writing teaching. Culture and religious studies, 10(10), 4.
12. Wang, C. X. . (2021). Research on the online college english teaching mode from the perspective of autonomous learning. Contemporary education research, 5(11), P.114–117.