Design of a College English Smart Teaching Platform Based on Big Multimedia Data Technology

Shanshan Yan, Hebei University of Engineering, China

Jiajia Liu, Anhui Polytechnic University, China*

ABSTRACT

College English teaching should give full play to the important role of network resources, implement the student-centered network autonomous learning model, and give full play to learners' autonomous learning potential. At present, although some universities have tried this new model, its application in college English lacks practical research. Only by establishing an intelligent English teaching platform based on big multimedia data technology can big multimedia data play an important role in college English teaching. Based on the analysis of the current situation of English classroom teaching in colleges and universities in China, this article puts forward the corresponding optimization plan according to the existing better teaching experience and the "suiting measures to local conditions" model. Large multimedia data technology provides a convenient learning platform and learning space for English learners, and a very convenient learning environment and learning platform for users with English learning needs.

INTRODUCTION

Smart teaching driven by a new generation of information technology, such as big data, cloud computing, mobile Internet, has become a new trend of global education reform. The smart teaching in the information age is a new realm of educational informatization. Through the innovation of smart teaching methods, it helps the learning subject to implement smart learning, with a view to improving the quality and efficiency of learning. Smart teaching is a teaching process in which teachers give full play to their wisdom, tap students' potential and wisdom, and work together to create a new type of teacher-student community under the intelligent teaching environment of modern teaching technology and equipment. Of course, some scholars have pointed out that mobile communication technology such as information technology is also the embodiment of human wisdom, and there is

*Corresponding Author

also a certain reason. Using the intelligent teaching platform or in the intelligent teaching environment of the intelligent classroom, organically connecting the "teaching" of teachers and the "learning" of students can break through the multi-dimensional online and offline interactive teaching in space and time, use advanced teaching concepts and teaching models, use a variety of forms and flexible teaching methods, and in the process, teachers can also optimize teaching design, Use big data to record and analyze students' learning process, conduct teaching reflection with reasonable evidence, and further develop scientific and reasonable teaching plans. This series of teaching activities is completely different from traditional teaching activities, which can give full play to the wisdom of teachers' teaching and also develop the wisdom of students' learning. Smart teaching means that with the support of information technology, teachers can organize teaching activities in a planned way by making reasonable teaching plans and using smart teaching platforms to achieve the teaching goal of cultivating smart talents (Chen&Liu, 2012). This is a new reform in the field of education in the context of the rapid development of the Internet, which strongly promotes students to learn college English better (Fan&Liu, 2021). The promotion and application of smart teaching platform need to build a good smart learning environment, help students perceive learning situations, provide students with rich learning resources, and record and evaluate students' learning, so as to promote students' effective learning (Song et al., 2019; Guo&Wang, 2018).

The application value of college English smart teaching is embodied in five parts: teaching process, mobile terminal, application support, big data evaluation and resource service. It realizes dynamic learning analysis and evaluation, builds new classroom forms and learning environments, optimizes cognitive goals and teaching design, reorganizes teaching process and changes classroom teaching methods. In the age of big data, an important way for teachers to improve teaching is to have data intelligence. It can be predicted that smart teaching in universities will bring higher economic and social benefits. To sum up, the research on college English intelligent teaching has high practical significance and research value. This paper analyzes the current situation of English classroom teaching in colleges and universities in China, and according to the existing better teaching experience and model of "adjusting measures to local conditions", puts forward the corresponding optimization scheme, which meets the current fast-paced social needs. Finally, according to the characteristics of the application of multimedia information technology in college English education and the significance of the application of multimedia information technology in college English education, this paper uses the oTraining system architecture to give a design idea of a college English teaching platform, hoping to introduce more and enrich the cultural heritage of teachers and students, enable college education through multimedia information technology, and cultivate more outstanding talents for China. The purpose of the intelligent teaching platform of college english based on large multimedia data technology is to integrate all kinds of new media in the internet era into traditional classroom teaching, and to realize real-time monitoring and evaluation of students' learning situation and learning effect. Through the analysis and processing of large multimedia data resources, we can provide individualized teaching information service for teachers. Online video livestreaming enables students and faculty to interact with each other in real time to improve classroom efficiency.

LITERATURE REVIEW

The research results and cases of smart teaching have received more attention. For example, (Liu, 2019; Wei, 2018) believed that a good smart learning environment can strengthen the interaction between students and teachers, improve students' classroom participation and learning enthusiasm, and also help teachers adjust teaching arrangements according to students' learning status. In addition, (Xia, 2020; Wang, 2020) conducted research on students' learning attitude and experience in a smart environment, and found that most students are willing to use corresponding technical support in the classroom to obtain better learning experience. At present, domestic research on smart teaching mainly includes connotation discussion, technical environment support and resource development,

teaching model construction and application, among which the application research is still in its infancy, especially smart teaching of college English. The research on smart teaching is in full swing in China, but its application in college English lacks practical research.

English, as a compulsory course in our study and life, has several important practical significances: first, it can improve students' language ability and add a language skill; second, it is conducive to future work and life. for example, multinational companies will involve English communication between employees; third, help us learn foreign culture and language customs, so as to better understand the customs of other countries; fourth, expand our knowledge. As a language discipline, it also contains a huge "spiritual food" worth exploring and discovering. "Involution " has become popular in all walks of life, and the education industry is no exception. The involution, spread through the Internet, is used by many college students to refer to irrational internal competition or "voluntary" competition. The essence of students' involution is to hope to get more high-paying jobs in the future and to enter big factories (Ren,2019; Li, 2020). Therefore, during their university studies, students continue to obtain various certificates, pass various professional title exams, CET 4 and 6, IELTS TOEFL, etc., just to make their job-hunting resumes more attractive and competitive. Obviously at the moment of internationalization, the gold content of the CET-4 and CET-6 certificates is highlighted (Lin,2021; Liu, 2017). Despite this, the students preparing for the test also show serious polarization. Those who can go ashore are still learning and improving their scores, and they are still struggling in the sea of questions. Others simply gave up and waited for the "naked test" again and again (Gaol, 2022).

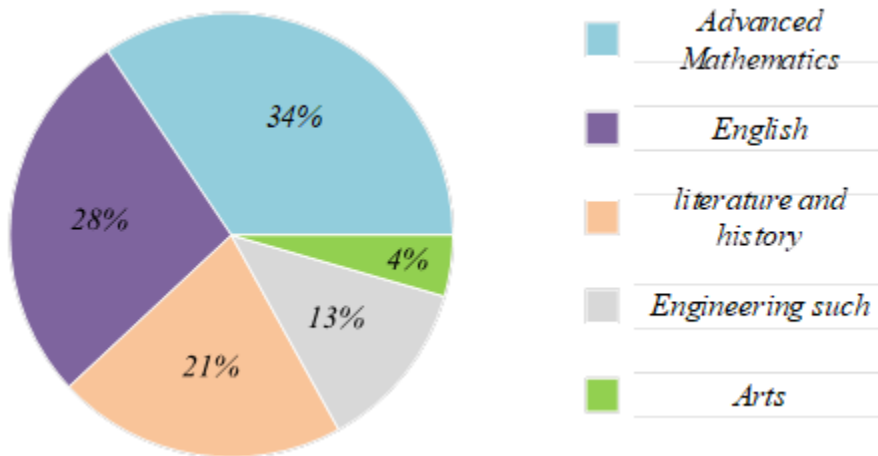## The Current Situation of English Classroom Teaching in Colleges and Universities in China

With the rapid development of society, all walks of life have gradually increased the requirements for college students' English ability, and colleges and universities have also shown some areas for improvement in English classroom teaching (Fang, 2021).

First, students' English literacy varies. The most significant manifestation of the different language literacy ability is that some students' English foundation is too weak. The reasons for this problem are divided into two aspects: interest and study habits (Jiang & Sun, 2021). Most of the students did not develop good study habits in middle school, resulting in inability to draw inferences from other facts and learn and apply them in the process of English learning (Sun et al., 2021). From the perspective of exam preparation, they adopted the "old method" of rote memorizing various grammar knowledge points. On the other hand, a small number of students have no motivation to learn English at the root, so they directly unload the burden of learning in their hearts and start the "flat" road of English learning (Anshari et al., 2016). Major colleges and universities often do not take more effective methods to deal with root-causing problems such as students, which also leads to a high proportion of college English courses in the truancy rate of basic subjects (see Figure 1 below)

Secondly, the English teaching mode is backward. In the education system of colleges and universities, the special disciplines that are vigorously supported and developed are often neglected (Zhai, 2022; Yang, 2022). Majors such as ideological and political philosophy and English are the main objects that are neglected. Therefore, the investment in the funds and teachers of these professional courses will also be greatly reduced, resulting in relatively backward teaching equipment in colleges and universities. The backward teaching equipment will seriously affect the teaching enthusiasm and quality of college teachers.

Thirdly, there is a problem with the use of multimedia courseware. Multimedia courseware plays a very significant role in helping college teachers improve their teaching effects, but in the field of teaching, multimedia courseware is only a tool to assist college teachers in completing classroom teaching, not SOP (standard operating procedure). Some younger college teachers are deeply influenced by the Internet era, and prefer the method of multimedia courseware teaching, but their rhythm and content of classroom teaching are often limited to "interpreting PPT", so multimedia courseware dominates college classroom teaching (Wang & Zou, 2011).

Figure 1. The proportion of college students who skip classes in professional courses

The Optimization Plan of English Education in Colleges and Universities in China

The realization conditions of smart teaching refer to various internal and external conditions that affect the construction of smart teaching mode and the achievement of teaching objectives, including teachers, students, teaching methods, teaching means, teaching environment, teaching resources, etc. The combination of these factors effectively contributes to the realization of smart teaching mode and changes the monotonous status quo of traditional college English teaching mode.

First of all, improve students' basic English level at all stages. The education of English teaching in China is divided into two parts: interest cultivation and application education. Schools should adopt multi angle interest guidance activities or atmosphere building to fundamentally reduce the exclusion of domestic students from English and improve their interest in learning languages (Yuan&Zhang, 2022). At each stage of education, the school carries out more practical courses in English and other language disciplines to improve the proficiency of English skills in essence.

Second, colleges and universities should make rational use of multimedia technology to apply the existing high-tech information technology to the field of college English education, so that it can endow and add educational vitality to college English education, thus improving the effect of college English classroom teaching (Sharma&Madan, 2012). For example, using virtual reality technology, through its three typical features (see Table 1 below), participants can directly apply vision, hearing and touch, and enable them to observe and manipulate the "virtual world" independently and interactively. This can greatly improve students' participation in the teaching process, and mobilize students' physiology and psychology to study seriously.

Table 1. Three characteristics of virtual reality technology

Feature	Feature explanation
Multi-sensibility	Through multi-sensory perception, such as hearing, sight, touch, etc. By wearing VR equipment, users can experience multi-sensory perception in the VR environment, giving people a real environmental experience.
Immersion	When a device user is in a virtual environment, the brain's neural perception system will, to the greatest extent, respond to the situation in the same way that the user encounters a situation in the real environment.
Interactivity	The user can control the device through the virtual environment, and the degree of response to the "real" feedback obtained from the virtual environment. Real-time and high-precision modeling of physical motion trajectories in virtual environments.

Multimedia teaching can complete various teaching functions through a series of interactions between students and computers. The specific steps are as follows: the first step is that computers provide information; the second step is that students respond to it, and the third step is that computers judge and process it. This work can be repeated until students learn it. This interactive way enables students to get feedback information in time so as to teach students in accordance with their aptitude and needs, give full play to each student's maximum initiative and stimulate their thirst for knowledge.

Third, strengthen the construction of college teachers. One of the biggest keys to determine the quality of teaching lies in teachers. Therefore, in order to improve the quality of college English teaching, it is imperative to cultivate high-quality, high-level and innovative college teachers (Zhang, 2020; Juan, 2016). First of all, as a reserve of teachers in the language education system, normal universities can increase the training of language education professionals. In addition to constantly improving their language professional skills, they should also improve their teaching level, create a unique teaching style for teachers (Shao, 2021), and continuously provide high-quality talents for college English education. Second, we should strengthen the talent introduction of English departments in colleges and universities to achieve multi-channel access to talents. Third, we should strengthen the communication, learning and training between teachers and students of English departments in colleges and universities, such as college English teaching and research activities, and advanced studies in top foreign language research institutions at home and abroad. Finally, according to their own actual teaching situation and effect, each college and university regularly conducts teaching discussion and analysis, and adopts an organic combination of daily teaching and teaching research.

The Significance of the Application of Big Multimedia Data Technology in College English Education

Improve the quality of English teaching in colleges and universities. The integration of multimedia information technology and teaching in colleges and universities is a process of "adding wings to the tiger", and the two achieve each other. Through the practice of multimedia information technology in teaching, the teaching content is more vivid, in addition to enhancing students' interest and enthusiasm for learning, on the other hand, it also strengthens the attractiveness of teaching to students, effectively reducing classroom sleeping, playing with mobile phones, deserting frequency of occurrences. The information transmission system it has has greatly supplemented the teaching content. While ensuring the transmission of learning information in colleges and universities, the teaching mode is also conducive to the personalized definition of each college, so as to meet the learning needs of students and deliver more all-round talents for our country.

Broaden the knowledge of English teaching. In addition to being a universal voice in the world, English itself also carries this rich history and culture. It is an alternative expression of a country's culture. Therefore, the ability of multimedia information technology to broaden knowledge is superior to traditional teaching methods. College English teaching under the integration of multimedia information technology not only enables students to understand and master English learning-related knowledge to a greater extent, but also provides students with learning paths and directions in its application fields and in-depth cultural exploration, and ultimately deepens Reform of English teaching.

It is convenient for English practice. Many colleges and universities will introduce foreign English talents in English teaching, such as foreign teachers, which is actually a manifestation of learning from each other. With the help of multimedia information technology, colleges and universities can effectively reduce the cost of teaching funds in this area. Through online remote connection, they can also achieve the same training for students' listening, speaking, reading and writing abilities. By connecting with foreign teachers in an actual "English" voice environment, students' spoken English can be more authentic. Multimedia information technology itself can also ensure that the pure pronunciation learned in oral practice can be improved through intensive learning.

Stimulate enthusiasm for learning. Studies have shown that college students' rejection of simple knowledge points in the learning process can reach 55.06%, but the acceptance of the combination of

knowledge points with events, cultural backgrounds, and things is as high as 89.32%. The application of multimedia information technology in college English education will make the knowledge points in the learning process more acceptable.

Innovative Application Ideas of Big Multimedia Data Technology in College English Education

The interactive multimedia teaching mode is very ideal for most teachers, and this teaching mode also has its scientific theoretical basis. According to the famous American learning psychologist, "learning is such a cognitive process, which transforms the stimulus from the external environment into the internal information process necessary for acquiring a new skill." This confirms that learning and teaching are an interactive process, and the theoretical basis of multimedia classroom teaching is the constructivist learning theory. Constructivist learning view conforms to the cognitive law of foreign language learning. The rapid development of multimedia technology will guide college English teaching towards personalized learning and autonomous learning. At present, many linguists in the world have done a lot of research on constructivist learning theory. The research shows that constructivist learning theory is of great significance to the process of foreign language learning.

Multimedia information technology has also promoted the emergence of a large number of online education platforms. Its essence is to use the advantages of the Internet to share resources and information, and to achieve a new educational innovation model. Since the field of online education has begun to take shape, we might as well adopt this approach in college English teaching.

In order to make multimedia information technology become a favorable tool for auxiliary teaching, some principled problems must be understood. First, the service principle of multimedia information technology is guaranteed. Therefore, when teachers complete their teaching tasks, they need to prepare materials in advance and make teaching courseware to ensure that they can provide students with a quality teaching process. At the same time, the use of multimedia information technology in the classroom should be interactive, which is also an important principle in the application of college English. In addition, in the courseware, in addition to some fixed pictures and videos, teachers can also put some resources into it according to needs to meet the students' thirst for knowledge. Students can expand their thinking with various information resources to make themselves the main teaching subjects.
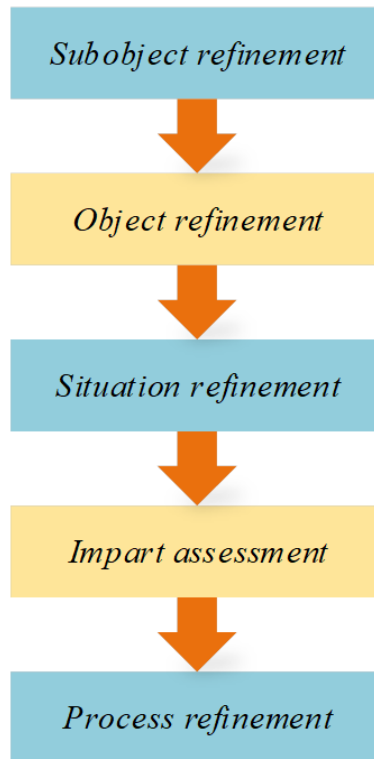
METHODOLOGY

The Characteristics of Big Multimedia Data Technology for English Education in Colleges and Universities

The four characteristics of multimedia information technology also perfectly explain why it is suitable for English education in colleges and universities. Information integration is strong, and the powerful information integration of multimedia information technology benefits from its information fusion technology. Through the collection of information from all channels of the Internet, and then use computer algorithms and mathematical statistical models to integrate the collected information, so as to output the required effective information technology. The existing information fusion models are roughly divided into information fusion models and mathematical statistical models, such as the commonly used JDL model (see Figure 2 below)

Strong interactivity, multimedia information technology is suitable for college English teaching because of its strong real-time interactive ability. Most of the traditional information exchange media technologies can only transmit and passively receive and disseminate information in one direction, while the current multimedia technology can realize the user's active selection of information and the control of information flow size and threshold.

Figure 2. JDL model hierarchy diagram

The use of information is extremely convenient, and the "5G surfing teenagers" in the new era have very high requirements for the use of information, just like the current popular: "lazy" is a powerful driving force for technology. College students are now more willing to use efficient methods to obtain and record learning information, such as taking pictures or screenshots of a certain page of PPT to record teaching notes. Students can use information according to their own needs, interests, task requirements, preferences and cognitive characteristics, and take any form of information such as pictures, texts, and sounds.

The information reconstruction is strong. For English teaching in colleges and universities, the collection and arrangement of knowledge points is a very important link. The series of knowledge that students acquire from the teacher's classroom is formed according to the teacher's framework system for the course arrangement and the teacher's cognitive characteristics, but the real students need to fully digest this knowledge according to their own needs, hobbies, ideas, Cognitive reconstruction of information structure, including pictures, text, voice and other information.
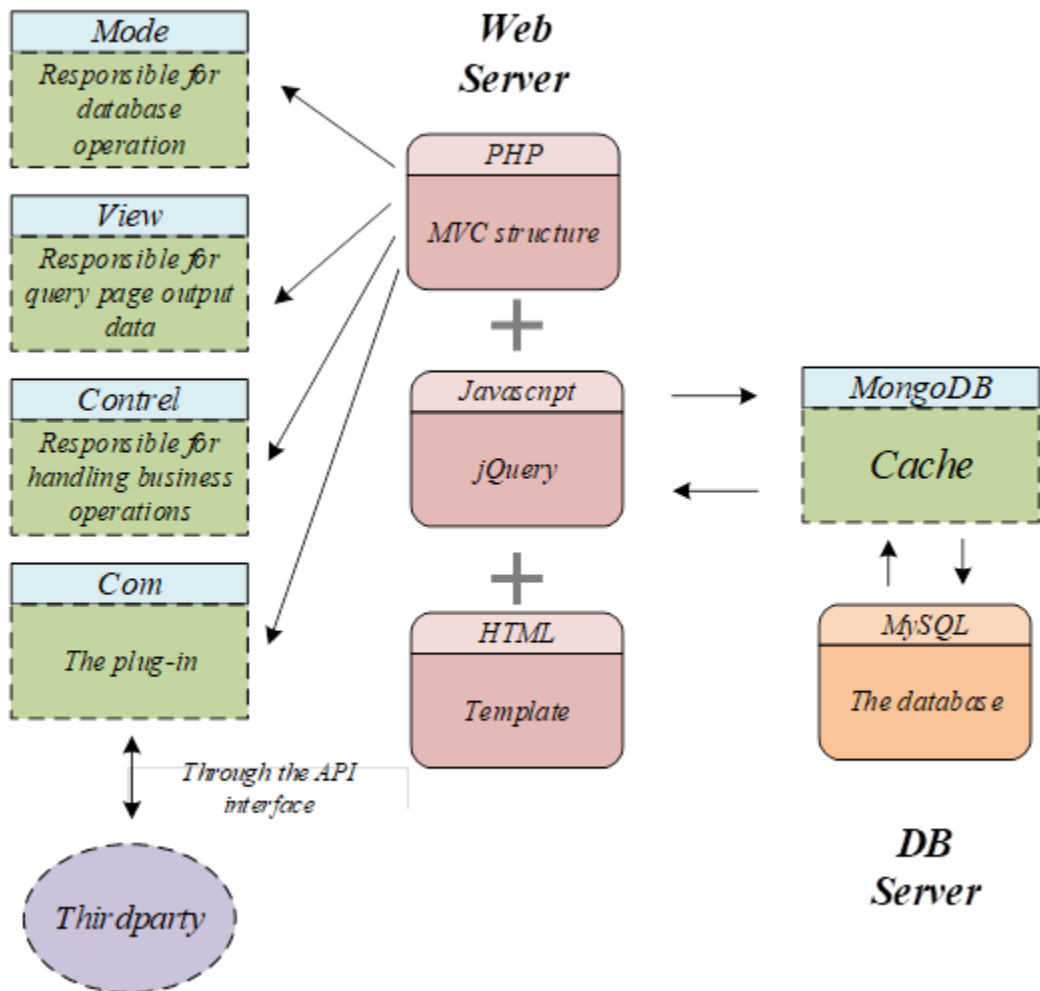
Design Ideas of English Teaching Platform in Colleges and Universities Based on Big Multimedia Data Technology

OTraining online training system records the training process completely and forms a complete training system through different types of courses and learning methods. It helps users to master skills efficiently and quickly, and can provide managers with rich monitoring, management and statistical means to control the learning and growth of the management personnel of the Institute, so as to achieve comprehensive management and skills improvement. Based on the above assumptions, we can use the existing open source oTraining system to create an English teaching platform that is

easy to expand, has strong applicability and is easy to maintain for colleges and universities under the multimedia information technology.

First of all, it is a web page system, so we need a web server environment to deploy the oTraining software environment. Install the corresponding PHP software and database on the environment. College English teaching platform should not only comprehensively manage a large number of user groups, but also provide extremely rich shared resource information. This requires that the system must have the ability to store and manage massive data. Therefore, designing a good data organization structure and building a database according to the organization structure, so that the entire system can quickly, conveniently and accurately call and manage the required data, is an important indicator to measure the excellence of a network education platform system. The database can use Mysql or DB2. For its overall structure, see Figure 3 below. For colleges and universities, because there will be teaching and research activities that require all faculty and staff to go online, we can use multiple server clusters, so that even in extreme cases, our servers can handle QPS (number of transactions per second). As for its system installation environment, using Linux will be more convenient and easier to maintain.

Figure 3. The overall architecture of the oTraining system

The modules of college English teaching platform mainly include: account registration, course teaching, management center and learning announcement. Unregistered users can access course information and online learning pages. The management center is used by teachers for user management, assignment management, assignment addition, college and other basic information management, forum management and administrator information modification. The whole network education platform system takes "curriculum teaching" as the core, and curriculum teaching is mainly composed of learning tests, teaching aids and teaching aids. In addition, for the functional modules that the system already has, we can select the functional modules that we will commonly use for custom transformation. For example, the course management of the course module, the overview of the real-time (or historical) data of the course; the question management (including import, modification, export) of the question bank module, the composition of the test paper, etc.; the user management center module of the student courses, wrong question bank, learning tasks, etc. According to the actual situation of English teaching in colleges and universities, we focus on the functions of the system performance optimization, so as to improve the applicability and significance of the system in college English teaching.
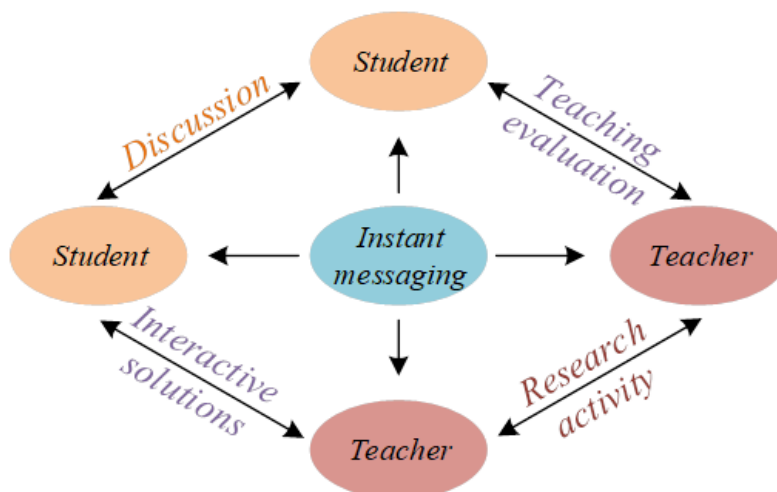
Through the design of the English teaching platform of the oTraining system in colleges and universities, we can also implant instant messaging information technology in the platform to establish a one-to-many communication system, so that the learning platform system can be more organically communicated with students, teachers, and even the first the tripartite learning institutions are organically combined. The communication system is mainly used for the communication of questions and meetings between students, teachers and students, and staff (see Figure 4 below).

Through the design of college English teaching platform system based on multimedia information technology and the implantation of instant communication technology, it is believed that it can play a positive role in improving the quality of college English teaching. At the same time, it also plays a certain role in promoting the update and iteration of multimedia information technology.

RESULTS AND DISCUSSION

Using this intelligent teaching platform can improve students' awareness of autonomous learning and effectively improve their learning effect; Through comparison, it is found that students' overall English learning performance has been significantly improved after using the intelligent teaching platform. In

Figure 4. Schematic diagram of instant messaging technology

order to study the influence of smart teaching English learning platform on English teaching effect, Microsoft Excel 2013 was used to make statistics on the English test scores of the experimental class and the control class, and then SPSS19.0 software was used to conduct independent sample T test on the English test scores, and the results were analyzed. The independent sample t-test is used to study whether there is a significant difference in the overall English score between the experimental class and the control class. In the total score, the scores of the experimental class and the control class are 10.0610 and 9.9878 respectively, and the t-value is 0.108, which does not reach a significant level at the 0.05 level. Therefore, there is no significant difference in the total score between the experimental class and the control class.

After a four-month experimental study, the English scores of the experimental class and the control class were obtained. The independent sample t-test is used to study whether there is a significant difference in the total score between the experimental class and the control class. In the total score, the scores of the experimental class and the control class were 12.4756 and 10.9146 respectively, and the t value was 2.823, which reached a significant level at the level of 0.05, so there was a significant difference in the total score between the experimental class and the control class. After four months of study, the average score of English in the experimental class is significantly higher than that in the control class, but the students in both classes have made some progress in their English ability. According to the data, the English scores of the experimental classes that use the intelligent teaching English learning platform to assist teaching have improved significantly. Therefore, the use of learning platform can have a significant impact on college English teaching.

Through English tests and questionnaires, it is found that the intelligent teaching English learning platform has a great impact on the English teaching effect of college students. Through the learning platform to learn English listening and speaking, the students in the experimental class have increased their confidence in English learning, and the planning of learning has been enhanced. They actively seek suitable learning methods in learning. It can be seen that the learning platform can help students at different levels in their English learning, improve the quality and efficiency of learning, and thus provide necessary guarantee for quality education and lifelong learning. It can be seen from the questionnaire that the students in the experimental class have a positive attitude towards English classes. Most of the students think it is useful to learn English well. In the process of using the learning platform for English learning, students have active psychology and can exercise their English ability. The students in the experimental class attach importance to English learning in attitude, can actively exercise their English ability, and have confidence in English learning.

According to the questionnaire survey of relevant research, a class was surveyed. 56.52% of the students thought that their English level had made great progress, 36.96% of the students thought that their English level had made some progress, and 6.52% of the students were not sure whether they had made progress. It can be seen that many students have increased confidence in their English level, and it can also be seen that the use of learning platform to assist teaching has a certain positive impact on students. 78.26% of the students think that English listening and speaking are very important, 15.22% of the students think that they are generally important, and the remaining 6.52% are not sure. It can be seen that most students have a correct understanding of English and also attach importance to English learning. Among the factors that affect the development of English listening and speaking level, the more choices are insufficient vocabulary, small knowledge and too fast speaking speed. It can be seen that students can correctly understand their own shortcomings (Yuan, 2021).

CONCLUSION

The age of big data promotes college English teaching to become intelligent, modern and information-based. Supported by modern information technology, it can better improve college English classroom teaching philosophy, improve college English teaching efficiency, meet students' different needs, stimulate students' learning motivation and awareness, and improve students' language application ability and autonomous learning ability.

In the context of the rapid development of multimedia information technology, college English teaching should not only practice the basic concept of educating people at home, but also improve the strength of the school's own software and hardware, so as to establish a balanced and sustainable teaching ecosystem, so that college education and multimedia information technology can be in a virtuous circle, and improve the quality of college English teaching. This paper analyzes the current situation of English classroom teaching in colleges and universities in China, and according to the existing better teaching experience and mode of "adjusting measures to local conditions", puts forward the corresponding optimization scheme, which conforms to the current fast-paced social needs, reasonably applies multimedia information technology, and avoids the use of multimedia information technology. Teaching is only formal, superficial, and truly achieves the deep learning and exploration of knowledge. Finally, according to the characteristics of the application of multimedia information technology in college English education and the significance of the application of multimedia information technology in college English education, this paper uses the oTraining system architecture to give a design idea of a college English teaching platform, hoping to introduce more rich cultural heritage of teachers and students, enable college education through multimedia information technology, and cultivate more outstanding talents for the country.

After the implementation of the four-month experiment, the data results show that the use of learning platform has a significant impact on English teaching effect, and it is a teaching model worthy of promotion. However, this study also has certain limitations and needs further improvement in the future research.

(1) Insufficient samples. This experiment only selected two classes as the experimental class and the control class, and did not involve more age levels or different schools in different regions. The research sample is obviously insufficient. Whether there is applicability in a wider range also needs further exploration and verification.
(2) The research period is too short. This experiment lasted for four months, but language learning is a gradual process, which can not reflect the effect of language teaching in a short time, and it needs long-term accumulation and practice. The time of this study is not long enough, and the conclusion needs to be exemplified by the follow-up long-term experimental results.

DATA AVAILABILITY

The figures and tables used to support the findings of this study are included in the article.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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Shanshan Yan was born in Jiangsu, China, in 1983. From 2001 to 2005, she studied in Huaiyin Normal University and received her bachelor's degree in 2005. From 2005 to 2008, she studied in China University of Mining and Technology and received her Master's degree in 2008. From 2018 to 2022, she studied in Chungbuk National University in Korea and received her Doctor's degree. She is working in Hebei University of Engineering. Her research interests are included in Intercultural Communication and Second Language Acquisition.