Innovation of college English listening and speaking teaching model based on multimedia technology

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Abstract: With the improvement of the modern education system, multimedia technology is widely embedded in the classroom teaching of various subjects. Classroom teaching based on multimedia technology conveys relevant knowledge information to students through the use of text, images, sounds, and other media, reasonably selects modern learning media according to students' actual learning conditions, and adequately combines it with traditional classrooms, which can significantly enrich classroom teaching and help students understand and remember knowledge, and improve students' quality. At present, in teaching speaking and listening in English classes in colleges, the application of mobile information technology is relatively poor, resulting in the inability to make breakthroughs in the quality of English classroom teaching. To address this issue, this paper applied multimedia technology to the exploration of the innovation of college English listening and speaking education mode, and constructed a teaching environment under multimedia technology through big data technology. According to the trial's results, employing the multimedia technology-based teaching mode for college English speaking and listening could enhance instruction by 9.72% compared to the conventional mode. This allowed colleges and universities to offer higher-quality college English courses and enhance students' English language proficiency.

Keywords: English listening and speaking education; multimedia technology; big data; university English.

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1   Introduction

The application of multi-media technology in college English listening and speaking education can significantly improve students' understanding of the basic concepts of knowledge, and the flexibility of its use is greatly improved, far exceeding the effect of teaching through traditional teaching methods. Multimedia technology only involves products related to computer technology, and other simple media technologies such as television and movies are not included. The following introduces the relevant scholars' research on English listening and speaking education and multimedia technology.

Scholars nowadays have made significant progress in multimedia technology and English listening and speaking instruction. Based on earlier theoretical findings, this study integrates multimedia technology with English listening and speaking instruction and investigates innovative teaching methods that support the advancement of English listening and speaking instruction. The college English listening and speaking teaching model based on multimedia technology in this study has the following innovations: first, it realises the diversification of teaching methods through multimedia technology, breaking the single mode of traditional teaching; second, it uses interactivity to enhance students' subjectivity and promote active learning; third, it realises personalised teaching with the help of big data analysis. The combination of multimedia technology and big data technology provides collaborative support for innovation in teaching models. Big data analysis generates personalised learning portraits by tracking students' learning behaviours, and multimedia technology dynamically adjusts teaching resources and interactive forms based on these portraits. The two work together in listening and speaking teaching, building a teaching path that adapts to individual students' needs through data-driven resource matching and immersive experience presented by multimedia. This technological integration not only improves the pertinence of teaching, but also achieves continuous optimisation of teaching results through a closed-loop mechanism of data feedback and multimedia adjustment.

2   Related work

There are some studies on the teaching of English listening and speaking by scholars. The goal of Zhao's (2019b) research was to cultivate students' self-education awareness and improve their listening and speaking ability, so that they can become useful foreign language personnel who can meeting the demands of international exchanges, social growth, and the economy development. Jiang et al. (2019) introduced the mobile learning model into the English teaching of independent colleges, cultivated high-quality applied talents who meet the needs of development, and developed related teaching application programs to cultivate students' autonomous learning ability, thereby improving students' comprehensive listening and speaking ability. From the perspective of ESP teaching

theory, and taking the current situation of business English listening and speaking education in independent colleges as an example, Zhao (2019a) proposed a student-centred teaching model, using multimedia teaching methods, and strengthening teaching evaluation and other teaching reform methods to promote the reform of business English listening and speaking education. Chen (2019) mainly analysed the evaluation model of college English listening and speaking classroom teaching in the information environment, hoping to provide English teachers with better English listening and speaking teaching methods, so as to improve students' English literacy. In Lian and Zhu's (2019) research, the combination of teaching students according to their aptitude and a variety of teaching methods was used to effectively practice students' listening and speaking in the classroom through concise strategies and skills. Hong (2018) constructed an interactive college English listening and speaking education model under the information environment, and tested its application in teaching. The results showed that this teaching mode was conducive to the formation and cultivation of students' innovative personality, ability, and quality, and ultimately improved students' English listening and speaking ability. Na's (2017) research reconstructed the teaching mode integrating college English listening and speaking and flipped classroom while based on the characteristics of knowledge transfer, and provided a new teaching mode for students' personalised needs in English listening and speaking education practice. These scholars have conducted research on the relevant contents and modes of English listening and speaking education.

In addition, many scholars have conducted research on multimedia technology. To examine the function of multimedia technology in physical education, Liu and Chen's (2017) research integrated its advancement in higher vocational education. He then suggested the computer-assisted physical education approach. Ge and Darcy (2022) proposed an interactive remote multimedia teaching system based on virtual reality (VR) technology, realising system information reconstruction, fusion, and scheduling. The simulation results showed that the system had a stability of over 99% and a strong human-computer interaction response capability, which improved the remote multimedia teaching control capability. Zhang (2021) designed a multimedia English teaching system based on the browser/server (B/S) network model and model view controller (MVC) design pattern, realising the rational division of teaching resources and system function design, thereby enhancing students' interest in English learning and classroom effectiveness. Zhao et al.'s (2020) research found the shortcomings of multimedia teaching, thus creating a new blended teaching model and eliminating the shortcomings of multimedia technology to better play its teaching advantages. To help high school students enhance their listening abilities, Jian's (2017) research primarily examined how multimedia technology was used in high school English listening instruction and offered some recommendations. Li and Xiong's (2021) study first examined the state of affairs and issues surrounding the teaching of English in colleges and universities. He then looked at the way that multimedia technology was used to support English instruction in these institutions. Lastly, he provided an application strategy for multimedia technology in English instruction in colleges and universities. Many studies have shown that multimedia technological innovation has permeated every aspect of society, and the contemporary educational landscape is poised to undergo a significant and historic transformation. It is best to use multimedia technologies for teaching, though, because medical imaging is a quite abstract subject. According to research by Yulda and Widiaty

(2021), using multimedia technologies in the form of e-books could enhance teaching quality and promote digital learning. The research and use of multimedia technology by a few scholars is shown above.

3   Construction of English listening and speaking education mode under multimedia

3.1   Teaching of English listening and speaking

In the past college English teaching courses, the actual number of courses for English listening and speaking skills was relatively small. In teaching, English reading and writing are the main support points, and listening and speaking are not paid much attention to, which leads to students' listening and speaking abilities not meeting the requirements and unable to practically apply English (Lin, 2018). Under normal circumstances, college students mainly show their English proficiency through various English certificates, but the current society has higher and higher requirements for English, and it depends on whether college students are proficient in using English for oral communication. This has prompted college English teaching to change from emphasising test ability to emphasising practical English ability. The fundamental reason is that English speaking and listening teaching have changed with the needs of society. English listening and speaking education mode is shown in Figure 1.

Figure 1 shows the content of the English listening and speaking education model. Data transmission through the cloud module: in the cloud module, the data center first sends the data to the server; then the server sends the data to each terminal through the wireless network, and the users of each terminal use the corresponding software to teach and learn English listening and speaking. The front-end and back-end separation mode is used in the overall construction technique, which highly encapsulates its fundamental elements. A sizable database can be used to import it, which can lessen project bloat and make user involvement easier in a variety of situations. In this mode, there are two types of terminals, namely PC terminal type and mobile terminal type; there are two types of application scenarios for listening and speaking learning modes, namely classroom teaching scenarios and after-school autonomous learning scenarios. The combination of two types of terminals and two types of application scenarios is convenient for giving full play to the individuality of students, establishing an equal relationship between teachers and students, and emphasising the interaction of the teaching process. The teaching of English listening and speaking must keep pace with the times, especially the teaching of oral English and listening needs to update the concept. According to the requirements of society and enterprises for English, the characteristics of language learning, and the different conditions of students, students are taught in accordance with their aptitude, so as to design an effective, interactive, and cooperative teaching mode. Additionally, speaking and listening skills have been strengthened using a range of instructional strategies and techniques to pique students' curiosity and encourage their initiative in self-directed learning. The development of language application skills and autonomous learning abilities must be prioritised in addition to teaching general language knowledge and abilities in order to adjust to the evolving demands of English teaching methodologies. Through multimedia technologies such as academic lecture recordings, workplace conversation audio, and cultural interview clips, diverse listening materials are

integrated, combined with oral practice topics such as debate, scenario simulation, and speech training, so as to enrich the teaching content and strengthen students' language application ability in real contexts. This design broadens the breadth of listening input and improves the depth and fluency of expression through structured oral tasks. The real-time interaction between teachers and students is enhanced through the multimedia platform. The online question-and-answer system is used to collect students' feedback on their understanding of the listening materials in real-time, and the group discussion tool is used to organise students to conduct collaborative analysis around the listening content. This interactive mechanism ensures that the teaching process is student-centred, and teachers dynamically adjust the teaching rhythm and focus based on feedback, thereby optimising classroom communication efficiency and learning outcomes.

Figure 1 English listening and speaking education mode (see online version for colours)
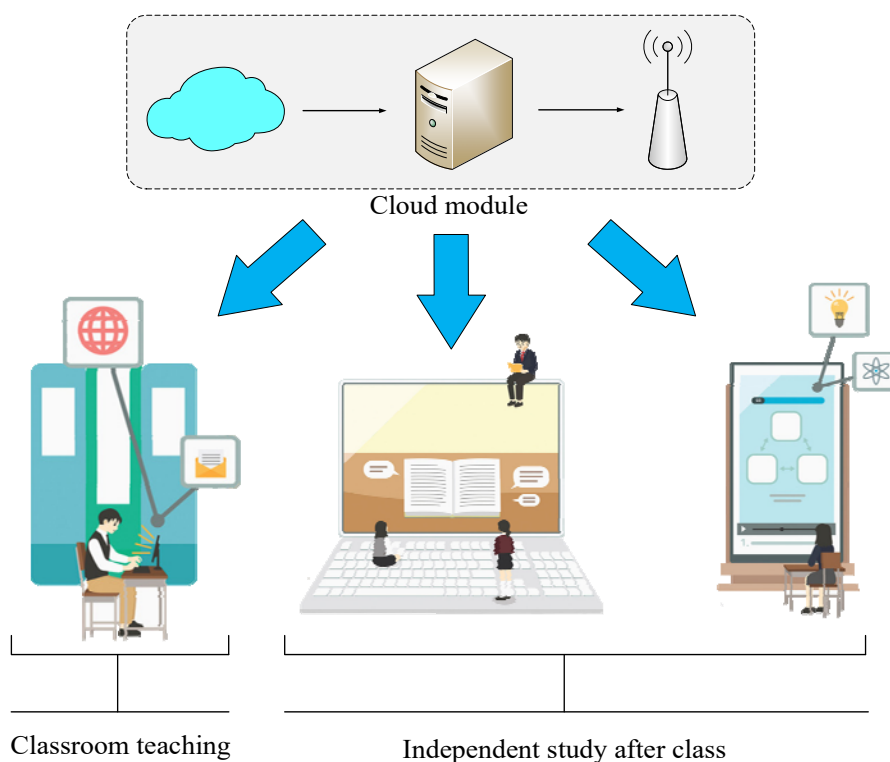
3.2 Multimedia technology

3.2.1 Concept of multimedia technology

Multimedia refers to the organic combination of media in multiple fields, or the integration of a system composed of computers, televisions, and communication media (Cui, 2023). Multimedia technology refers to the technology that organically combines multiple media forms such as text, graphics, images, animations, audio, and video, and processes, stores, and interacts through computers. It not only covers traditional text and

image information but also includes dynamic audio and video content, which can provide learners with rich and diverse learning experiences. In the field of education, the application of multimedia technology has significant advantages, such as enhancing the visualisation and dynamics of information, promoting students' active participation and interaction, and thus improving teaching effectiveness and learning interest.

3.2.2   Characteristics of multimedia technology

Multimedia technology integration allows for the realisation of multi-channel unified information collection, storage, and organisation, with a primary focus on the computer. This includes the thorough processing and management of multimedia information, which can be expressed in a variety of media formats to suit human sensory needs (Weng et al., 2018). One of the primary ways that multimedia apps differ from conventional information exchange media is through interactivity. Multimedia technology enables people to actively choose and control the information they consume, whereas traditional information exchange media can only disseminate information passively and in one way. The traditional sequential reading and writing methods are altered by the nonlinear nature of multimedia technology. Previously, most people employed the chapters, sections, and pages framework to progressively learn new information, but today's users require a more varied and adaptable presentation of content. The corresponding multimedia information can be controlled in real-time when the user gives an operation command. The user can use images, sounds, texts, and other information representation forms based on their needs, interests, preferences, task requirements, and cognitive traits.

3.2.3   Application of multimedia technology in teaching

The application of multimedia technology in the field of education is not only based on its technological advantages, but also supported by cognitive psychology and learning theory. From the perspective of cognitive psychology, multimedia technology provides rich learning materials through multiple sensory stimulations, which can effectively promote the encoding and memory of information. According to the dual coding theory, the combination of text and images can enhance learning effects because they activate the two cognitive channels of language and vision respectively. In addition, constructivist learning theory emphasises the active role of learners in knowledge construction. The interactivity of multimedia technology provides students with an environment for independent exploration and knowledge construction, which enhances the depth and persistence of learning.

The use of multimedia in college English listening and speaking education can not only eliminate the difficulty of knowledge, but also allow students to increase their interest in learning from image perception. In the content standard of listening, speaking, and expression in college English, optional learning scenario materials are provided for the implementation of the standard, which is the basis for students to engage in research and acquire knowledge. By applying multimedia technology to create targeted learning scenarios to enhance students' interest in learning, it is beneficial to play the role of emotion in teaching and make university listening and speaking learning more effective.

The use of multimedia technology in college English listening and speaking instruction mostly concentrates on hardware, as seen in Figure 2. In terms of hardware, it is equipped with a multimedia classroom, including a projector, speakers, and

student-side equipment, supporting high-quality audio and video playback. Multimedia technology's hardware underpinnings guarantee that students can receive immediate feedback on their speaking and listening in the classroom. Additionally, the biggest benefit of multimedia is that it has helped pupils transition from passive to active learning. To improve the quality of listen and speaking instruction in colleges, the knowledge is first converted from abstract to concrete; then, it is solidified through speaking and listening exercises; lastly, multimedia technology is employed to pique students' interest based on educational research. The specific application of multimedia technology tools in English listening and speaking teaching is reflected in the use of video resources to present cross-cultural communication scenarios, audio tools to support voice input and automatic error correction functions, and interactive platforms to strengthen listening and speaking training through virtual dialogues and real-time scoring systems. Video content is supplemented with subtitles and pause discussion functions to help students analyse language details; audio tools provide pronunciation improvement suggestions through voice recognition technology; interactive platforms improve student participation and language response speed by simulating real communication scenarios. The integrated application of these tools has transformed listening and speaking teaching from static delivery to dynamic practice.

When designing the multimedia English listening and speaking teaching model, the individual differences of students are fully considered, and students' learning levels, habits, and needs are analysed through big data, realising personalised teaching. Tiered teaching resources are provided according to students' English levels, and diversified interactive exercises are designed for different learning habits, ensuring that each student can improve their listening and speaking skills at a pace that suits them.

To more intuitively demonstrate the application effect of multimedia technology in college English listening and speaking teaching, the English speaking course of a certain university is taken as an example. The teacher uses the multimedia platform to create a virtual language learning environment, and students can practice speaking through video dialogues, voice exercises, and interactive games. In a classroom activity, the teacher plays a video about cross-cultural communication through multimedia equipment, and then guides the students to conduct group discussions and role-playing. The results show that the students' participation in the multimedia environment is significantly improved; their oral expression is more confident; their grammatical errors are significantly reduced.

3.3   *Big data module*

The operational efficiency of many industries where big data technology is used has greatly increased due to the quick growth and advancement of associated technologies in the big data era (Peng, 2022). The importance of big data technologies in college English listening and speaking instruction is also discussed in this study. As a result, teaching strategies that differ from conventional approaches have surfaced, and teaching assessment, teaching methodologies, and teaching link design have all improved. Therefore, it can be claimed that the big data era has had a significant influence on college English speaking and listening instruction. The application of big data modules in college English listening and speaking education courses is shown in Figure 2.

As can be seen from Figure 2, in the process of college English listening and speaking education, it is first necessary to formulate teaching goals and subdivide the teaching

goals into multiple small goals. At the same time, the process analysis of the teaching objectives is carried out; the teaching framework is designed; the framework is refined; finally, the teaching evaluation is obtained. The data of the subdivision target is transmitted to the teaching management system, which outputs the data to the evaluation feedback. The data of the teaching management system is shared by teachers and students, and students can practice listening and speaking after class and evaluate teachers. The listening and speaking education mode has the following characteristics: the decision-making needs of students are used as the point of interest; the teaching framework is effectively used to extract various characteristic data such as the learning-related data of the object; the database is used to effectively reduce the mutation in the process of data transmission; it has strong fault tolerance and high flexibility.

Figure 2   Application of big data module (see online version for colours)
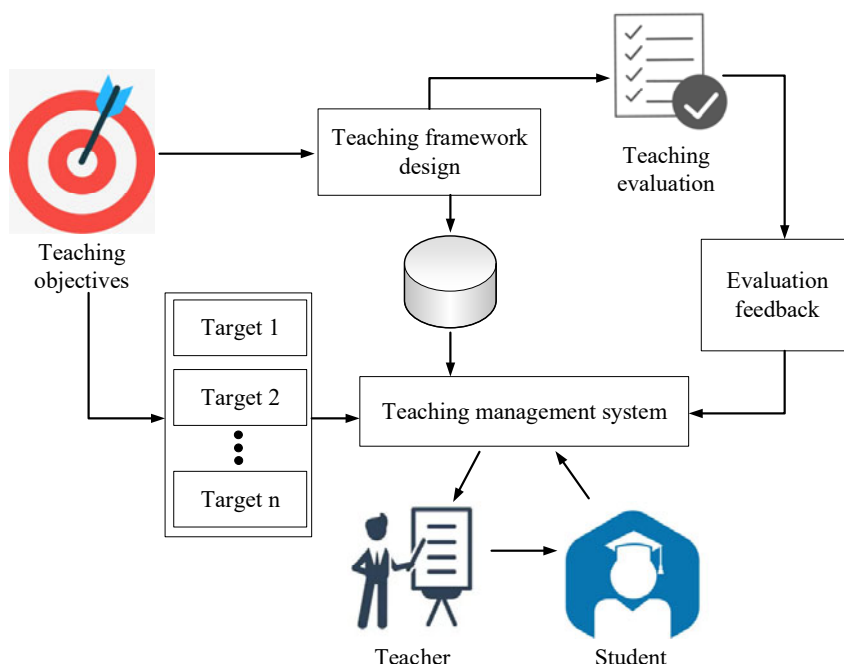
In the teaching of college English listening and speaking based on multimedia technology, teachers should make full use of big data technology to mine students' learning habits and learning strategies, and analyse students' other personality characteristics, so as to design teaching scenarios in a targeted manner, and conduct high-frequency interactive question-and-answer sessions with students. The process of designing teaching scenarios is as follows: first, relevant technologies are used to collect and summarise the learning-related data of English learners. Based on this, detailed analysis and scientific predictions are made, so as to fully understand the mastery of English learners and their learning behaviours and habits. Finally, according to the predicted learning trend, it gives corresponding help and designs a more suitable teaching plan and points out its problems in English learning. In the classroom where students learn college English listening and speaking, teachers should adjust their positioning and

keep in mind that they are no longer a one-way input of knowledge, but a guide on the way of students' learning. Teachers should give timely explanations for students' incomplete learning and incomplete understanding, so as to sort out the knowledge system for students.

4   Practical application of multimedia technology in teaching and experimental support system

The practical application of multimedia technology in English listening and speaking teaching needs to be closely integrated with teaching scenarios and experimental objectives, and provide a technical basis for empirical research through systematic tool design and data-driven strategies.

The speech recognition engine based on deep learning is integrated into the classroom interactive platform to collect students' oral practice data in real-time. The system distinguishes individual pronunciation characteristics through voiceprint analysis, and compares the standard voice library to generate a multi-dimensional evaluation report, covering indicators such as phoneme accuracy, intonation coherence, and speech speed stability. In the classroom of the experimental group, students need to complete the 'AI dialogue simulation task' to debate the topic with the virtual foreign teacher, and the system automatically records their language error rate and response delay time.

To match the personalised needs of the experimental design, a learning management system based on the Hadoop framework is built. The platform tracks students' classroom behaviour (such as the number of repeated playbacks of listening materials, the completion rate of oral practice) and after-class learning trajectories through the log analysis module. Combined with the K-means clustering algorithm, students are divided into three categories: 'basic', 'advanced' and 'extended', and differentiated resources are pushed dynamically: basic students receive slow news listening and basic dialogue templates; advanced students receive TED speech analysis and debate tasks.

During the experimental teaching process, the multimedia system displays the overall learning status of the class in real-time through a visual dashboard. For example, teachers can view the 'listening blind spot heat map', showing the vocabulary or grammatical structure that most students fail to understand (such as the phenomenon of connected reading 'want to' misheard as 'wanna'), and adjust the teaching focus of the next stage accordingly. This kind of dynamic adjustment mechanism is directly related to the 'teaching strategy optimisation' link in the experiment to ensure the teaching intervention accuracy. In addition, the system integrates students' classroom performance data (such as role-playing scores) and after-class practice records (such as APP dubbing task completion) into a unified database, providing multi-dimensional data support for the 'comprehensive teaching quality score' of the experiment.

In summary, the practical application of multimedia technology not only reconstructs teaching tools and scenarios, but also realises the 'teaching-learning-evaluation' closed loop through systematic design, providing technical support for the quantitative improvement of English listening and speaking skills.

5   Comparison of experimental results of teaching model innovation

5.1   Sample set setting

If college English teachers want to improve the quality of listen and speaking education in the classroom, they must first examine the students' basic knowledge and the ability to understand the students' basic learning situation, so as to effectively adjust the listen and speaking education strategies. Therefore, teachers can understand students' listening and speaking skills through the English classroom test conducted by multimedia technology.

In this experiment, the sample set includes 50 college students' learning courses under two English listening and speaking teaching modes, with 25 classes in each mode. The sample selection follows the principle of randomised controlled trial (RCT) and is randomly selected from college English courses in two universities to ensure that the two groups of students are comparable in their initial English level. In the experiment, the teacher first plays a listening material for the students and controls the playing time as a test basis. Then, the students simply repeat what they heard, and the teacher scores the students in terms of the completeness of the retelling, the accuracy of pronunciation, and the speed of real-time translation, so as to obtain the final teaching quality score. The data collection methods include classroom observation records, student test scores, and teacher scoring feedback. In addition, a questionnaire survey is conducted to assess students' learning interest and autonomous learning ability to further ensure the comprehensiveness and reliability of the research results. The data analysis tool uses Excel for data collation and descriptive statistical analysis, and the independent sample t-test is used to compare the effect differences of the two teaching modes. The unimproved college English listening and speaking teaching class is recorded as S1, and the college English listening and speaking teaching class based on multimedia technology is recorded as S2.

5.2   Students' Retelling of the Scoring Results of Completeness

The purpose of college English is to cultivate students' preliminary skills in using English through the training of listening, speaking, reading, and writing. Recitation can lay a solid foundation for further in-depth study. Retelling is a comprehensive training form. It is a kind of play and creation on the premise of students mastering basic knowledge, and it plays an important role in the learning of English in middle school. It can free students from time-consuming, laborious word memory, and tedious grammatical analysis. Therefore, retelling is a good method for students to memorise, master language knowledge, and convert it into practical application ability. The teacher scores the completeness of the students' retelling, and the results are shown in Figure 3.

The comparison of the scores of students' retelling completeness scores under the two modes can be seen in Figure 3. Among them, under the unimproved college English listening and speaking education mode, the teacher's scoring range for the students' completeness of repetition was 2–6 points; in the teaching mode of college English listening and speaking based on multimedia technology, the teacher's scoring range for students' completeness of repetition was 3–7 points. Therefore, the college English listening and speaking education mode based on multimedia technology was slightly better than the unimproved college English listening and speaking education mode in terms of the completeness of students' repetition.

Figure 3 Students' retelling integrity score results (see online version for colours)
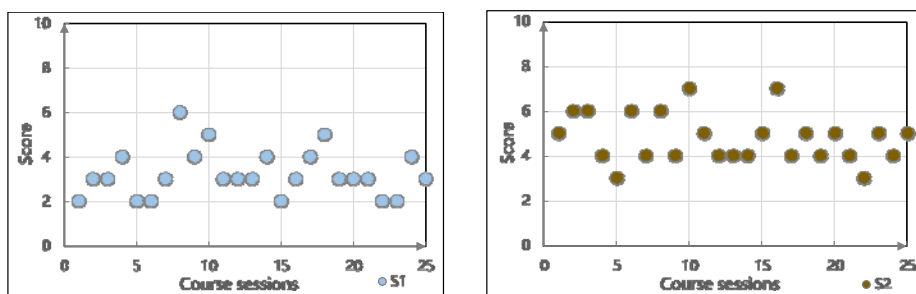
5.3 Score results of students' pronunciation accuracy

As we all know, learning pronunciation is the foundation and key to learning English well. Pronunciation teaching is actually a highly operational subject, and its phonemes and pronunciation skills can be applied to all aspects of English teaching. Pronunciation teaching combined with multimedia technology in college English listening and speaking education can make students pay attention to the connection between pronunciation and context and content, and pay attention to the pronunciation changes in speech flow, which can effectively improve students' sensitivity. When it comes to pronunciation, by reading aloud and consciously using these pronunciation techniques, the visual image becomes an auditory image. The teacher scores the students' pronunciation accuracy, and the results are shown in Figure 4.

Figure 4 shows the comparison of students' pronunciation accuracy scores in the two modes. Among them, in the unimproved college English listening and speaking education mode, the teacher's scoring range for students' pronunciation accuracy was 2–6 points; in the teaching mode of college English listening and speaking based on multimedia technology, the teacher's scoring range for students' pronunciation accuracy was 4–8. Therefore, the college English listening and speaking education mode based on multimedia technology was far superior to the unimproved college English listening and speaking education mode in terms of students' pronunciation accuracy.

Figure 4 Students' speech accuracy rating results (see online version for colours)
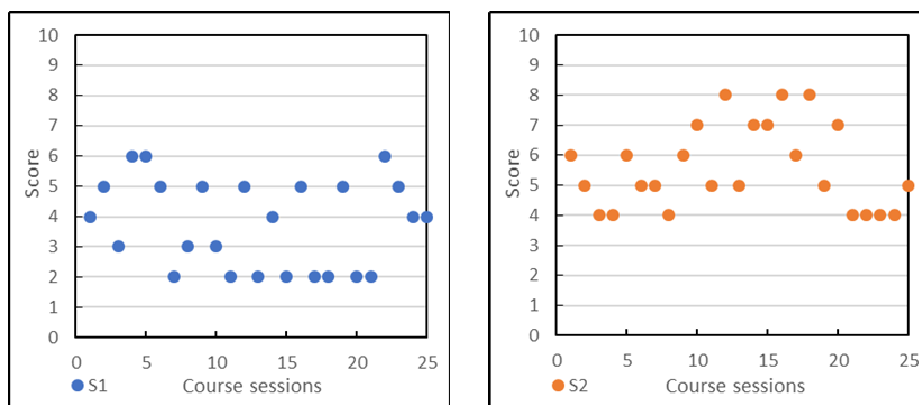
5.4   Score results of students' real-time translation speed

English translation teaching helps to improve students' comprehensive ability to learn English. College students' English translation ability is closely related to their English listening, speaking, reading, and writing abilities. Students can gain a wealth of language knowledge in a large number of English translation exercises, and at the same time, a large number of Chinese-English translation exercises greatly expand the students' vocabulary and enable students to switch between Chinese and English thinking proficiently. English translation teaching can also help students to improve their listening and speaking skills to a certain extent. The reason is that through translation in listening and speaking exercises, students can get accurate information; through translation, they can understand what they hear and exercise their ability to respond quickly and express themselves. The teacher scores the students' real-time translation speed, and the results are shown in Figure 5.

Figure 5   Students' real-time translation speed rating results (see online version for colours)
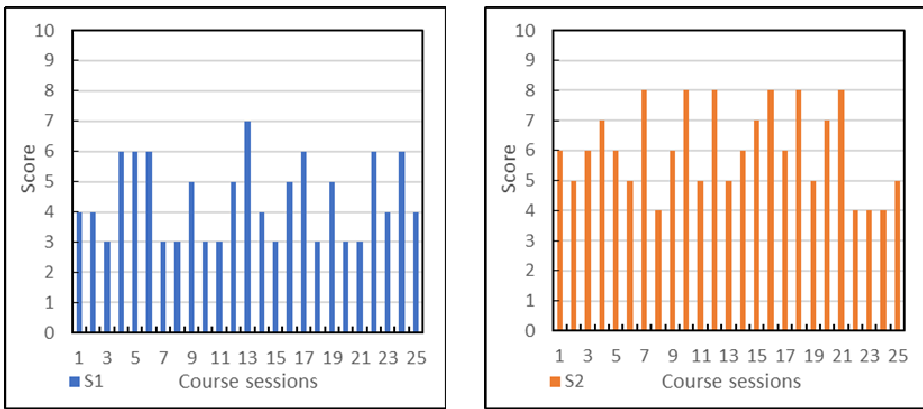

Figure 5 shows the comparison of students' real-time translation speed scoring results in the two modes. Among them, in the unimproved college English listening and speaking education mode, the teacher's scoring range for students' real-time translation speed was 3–7 points; in the teaching mode of college English listening and speaking based on multimedia technology, the teacher's scoring range for students' real-time translation speed was 4–8 points, and the number of courses with a score of 8 points in this mode was large. Therefore, the college English listen and speaking education mode based on multimedia technology was far superior to the unimproved college English listening and speaking education mode in terms of students' real-time translation speed.

5.5   Learning interest and autonomous learning ability

In this paper, students' learning interest and autonomous learning ability are evaluated through questionnaire survey and classroom observation. Learning interest is quantified by a scale of 1–10, with higher scores indicating higher interest; autonomous learning ability is measured by students' after-school autonomous learning time (hours/week) and class participation (1–10 points). The results are shown in Table 1.

**Table 1** Evaluation results of students' learning interest and autonomous learning ability

Evaluation indicators	Evaluation method	S1	S2	t-test
Learning interest (1–10 points)	Questionnaire	6.2 ± 0.8	8.1 ± 0.7	$p < 0.05$
Self-study ability (1–10 points)	Questionnaire	5.5 ± 0.9	7.6 ± 0.8	$p < 0.05$
Class participation (1–10 points)	Classroom observation	5.8 ± 0.7	8.3 ± 0.6	$p < 0.05$
After-class self-study time (hours/week)	Questionnaire	3.2 ± 1.1	5.4 ± 1.2	$p < 0.05$

Table 1 showed that S2 was superior to S1 in four indicators: learning interest, autonomous learning ability, class participation, and after-class autonomous learning time. The specific data was: for learning interest score, S2 was 8.1 points, and S1 was 6.2 points; for autonomous learning ability score, S2 was 7.6 points, and S1 was 5.5 points; for class participation score, S2 was 8.3 points, and S1 was 5.8 points; for after-class autonomous learning time, S2 was 5.4 hours/week, and S1 was 3.2 hours/week. These differences were verified to be significant by t-test ($p < 0.05$), indicating that the application of multimedia technology could effectively improve students' learning enthusiasm and autonomous learning ability, and significantly optimise the effect of college English listening and speaking teaching.

5.6 *Final teaching quality scoring results*

After comprehensive weighted calculation, teachers and students can get the final teaching quality scoring results, as shown in Figure 6.

Figure 6 reflects the comparison of the final teaching quality scores of teachers and students under the two modes. Among them, under the unimproved college English listening and speaking education mode, the teacher's comprehensive score was 7.2 points, and the students' comprehensive score was 6.9 points; in the teaching mode of college English listening and speaking based on multimedia technology, the teacher's comprehensive score was 8.1 points, and the students' comprehensive score was 7.4 points. It was concluded from this that the college English listening and speaking education mode based on multimedia technology was better than the unimproved college English listening and speaking education mode.

Figure 6 Comprehensive score comparison (see online version for colours)
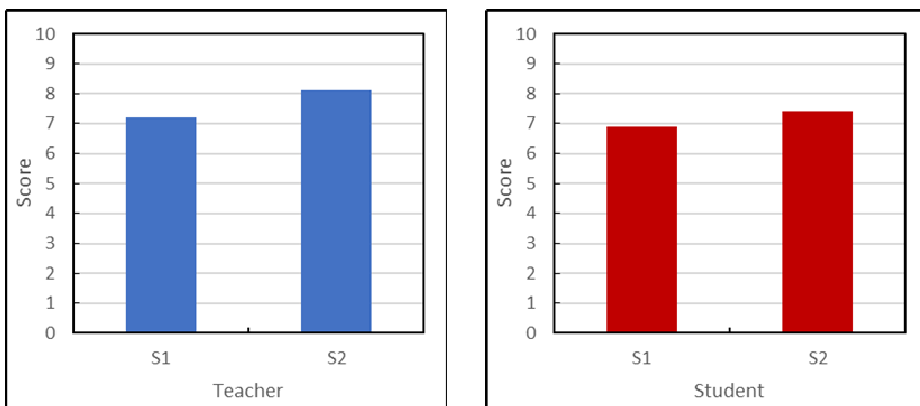
6   Conclusions

This study constructed a new model of college English listening and speaking teaching through multimedia technology, and conducted an experiment with 50 lessons as samples. The results showed that the model significantly improved students' repetition completeness, pronunciation accuracy, and real-time translation ability, thereby improving the teaching quality. This not only optimised the teaching effect but also provided a useful reference for the reform of English teaching in higher education. Future research can further explore the integration of multimedia technology with other emerging technologies to expand its application potential in teaching.

Declarations

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