

Reform and Innovation of College English Teaching Under the Background of Mobile Internet and Big Data

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ABSTRACT

The rapid development of mobile Internet has brought new development opportunities to college education and teaching. Taking university English teaching as the research object, this paper analyses the characteristics of mobile Internet in the classroom, WeChat platform, English learning app and other forms of teaching, the changes and influence of mobile Internet on English teaching, and its application in university English teaching. According to the actual teaching situation, a comprehensive evaluation system based on the learning process and results was established. The results show that the university English teaching model based on mobile Internet and the innovative evaluation and examination system can effectively improve the teaching efficiency and students' independent and sustainable learning ability. Through the reform of university English teaching, students' academic performance and learning ability have been improved. The research results are of great practical significance for promoting the reform and innovative practice of university English teaching.

KEYWORDS

Advances in Digital Forensics for Mobile Operating Systems and Applications, Big Data, College English Teaching, Mobile Internet, Reform Effect, Reform Practice, Teaching Form

College English, as one of the most important foundational courses, plays a crucial role in today's higher education. With the rapid increase in the number of college students, the number of English teachers in universities is far from adequate. The traditional teaching model can no longer meet the current needs of English teaching. With the rapid development of information technology, mobile internet has become one of the main means of education reform, bringing new opportunities and challenges to college English teaching. The application of mobile internet has injected more resources into college English courses, broken through the limitations of time and space, and organically combined theoretical teaching and practical teaching, thus improving the teaching quality. In view of this advancement, this paper takes college English teaching reform as its research object, aiming to analyze the characteristics of the mobile internet teaching mode and apply them to college English teaching. The aim of this study is to establish a comprehensive assessment system based on the

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learning process and learning results, to innovate teaching modes, improve teaching quality, and provide impetus for the reform and innovation of college English teaching. This article provides new ideas and methods for the reform and innovation of college English teaching, promotes the process of educational reform, and promotes improvements in teaching quality.

LITERATURE REVIEW

In recent years, the rapid development of mobile internet has brought a new development opportunity to college education and teaching. The influence of internet technology cannot be ignored, but it also brings challenges to college education and teaching. The rapid development of information technology has effected great changes in human society. As this advancement has changed people's studies and lives, the effect on education and teaching cannot be avoided. With the continuous improvement of the concept of university education, the effective integration of mobile internet technology and course teaching has not only promoted the construction of educational informatization, but also created a new model of scientific education. The convenience, flexibility and effectiveness of the new teaching results and teaching process have been widely recognized and praised. In the face of the continuous rise of online teaching, relevant national education departments have launched various educational reform policies, attached great importance to the construction and development of educational informatization, accelerated the introduction of network technology into the classroom, enabled students to continuously improve their ability to raise, analyze and solve problems and their ability to learn independently, and enabled teachers to improve their technical level, improve their teaching methods and update their educational ideas. As a highland of education, higher education is constantly cultivating professional English talents for the country. It is imperative to reform and innovate college English teaching. The rapid development of educational informatization will promote the reform of college English teaching, innovate the talent training mode, and cultivate excellent talent in society that meet the needs of national development.

The development of mobile internet brings hope to the reform of college English teaching. Mobile internet is a combination of mobile communication tools and the internet. It is also the real integration of internet technology, platforms, applications, and mobile communication. It can realize the use of internet services and access to teaching content at any time. The traditional teaching mode of English courses cannot guarantee the students' language output. However, the mobile internet platform can well control the proportion of students' input and output, which greatly improves the efficiency of English learning. Some research scholars have carried out research on flipped classes such as Massive Open Online Courses (MOOCs) and micro classes. Before class, students input language content by listening to or reading materials. Language output practice, guidance, and Q & A are carried out in class. After class, students spend more time practicing and writing to improve their language output. Some researchers have studied the impact of mobile internet teaching on students. Mobile internet breaks the traditional space and time constraints for learning, since students can learn anytime and anywhere. Teachers and students can interact with each other in real time using mobile phones and other tools. Research has found that the diversity of interaction greatly motivates students' learning enthusiasm. At the same time, it provides more opportunities for oral English practice. Through online learning using mobile internet, students' autonomous learning ability is continuously improved; they cultivate good habits and grow in self-confidence.

Scholars have also studied the impact of mobile internet teaching on teachers. The internet environment provides a stage for teachers to show their skills, and the innovation in teaching modes and concepts has prompted teachers to improve their professional ability and comprehensive quality. By integrating mobile internet with traditional teaching and learning, teachers have put forward modes and methods more suitable for the current educational environment to improve the educational concept and quality.

Table 1. Comparison Between Traditional Teaching Mode and Mobile Internet

Traditional teaching mode	Mobile internet teaching mode
Teacher-led “spoon-feeding” teaching form; Exam-oriented English teaching weakens learning interest;	Creates more vivid English learning situations;
Teaching relationship is difficult to distribute rationally, teachers’ work efficiency is not high, and students’ autonomous learning ability is poor;	It can greatly improve teachers’ lesson preparation efficiency;
Being out of touch with the times has created a large number of students who know only “dumb English.”	By breaking the classroom boundaries, students can have more time to communicate and study with teachers.

In addition, research scholars have studied the impact of mobile internet teaching on society. As the source of talent output, education should follow the pace of the times to innovate and explore teaching in the internet environment, and constantly innovate the ways and means of knowledge transmission so as to encourage students to adopt an innovative mode of thinking and become sources of social innovation.

RELATED MATERIALS AND METHODS

Teaching Methods for College English

The traditional teaching method of college English usually takes classroom teaching as the main form, with teachers explaining grammar rules, vocabulary, sentence structures, and other knowledge points, as well as training in reading, listening, speaking, writing, and other skills. Students passively receive knowledge in the classroom, and teachers play a guiding role. Students are usually given exercise books and assignments to consolidate their knowledge and skills. These exercises and assignments can include exercises in grammar, vocabulary, listening comprehension, reading comprehension, and writing. The traditional teaching methods in college English often rely on exams and evaluations to measure students’ learning outcomes. Teachers will regularly organize exams, including listening, reading, writing, and speaking tests, to evaluate students’ English proficiency. Traditional teaching methods often use textbooks as the main teaching materials, which include texts, exercises, and supplementary materials. At the same time, teachers also encourage students to engage in extracurricular reading to expand their vocabulary and language expression abilities. Although traditional teaching methods can to some extent meet the basic needs of students for English knowledge and skills, there are also some limitations. For example, classroom time is limited, student participation is low, and there is a lack of personalized teaching and interactive communication. Therefore, exploring innovative teaching methods with the help of modern technology and educational concepts is of great significance for improving the effectiveness of college English teaching.

Education is the foundation of all industries, and the combination of mobile internet and college English teaching has become an inevitable trend. Through the mobile internet, students can access more educational resources and teachers can be supported in resources, interaction, and data, thus changing the traditional English classroom teaching methods. Table 1 shows a comparison between traditional teaching mode and mobile internet teaching mode. Because of the advantages of mobile internet, it has gradually been introduced into college English classroom teaching, in such as flipped configurations as classroom, micro-class teaching, and WeChat group punching, which have become the inevitable trend in college English teaching methods.

Flipped Classroom

Flipped Classroom is a modern teaching method that differs from traditional classroom teaching methods. In flipped classrooms, students acquire new knowledge through previewing videos, reading materials, and other activities outside of the classroom, while time in the classroom is used mainly for discussion, answering questions, showcasing and applying knowledge, and engaging in practical learning activities. This teaching model emphasizes active and cooperative learning among students, advocates teacher-student interaction and student-to-student interaction, and promotes deep learning and ability development. In college English teaching, flipped classroom can provide students with a more flexible and personalized learning experience and promote self-directed learning and the cultivation of critical thinking abilities. The main features of flipped classroom are the following:

- (1) The video is short, usually a few minutes long, no more than 15 minutes. It focuses mainly on the explanation and learning of one knowledge point. It can be played repeatedly and is suitable for students' self-study.
- (2) The video focuses on key content and discards all irrelevant content that distracts students' energy. Flipped classroom has strict requirements for video content so that it pays more attention to the focus in the video to avoid distracting students' attention.
- (3) Compared with the strong input mode of traditional English teaching classroom, flipped classroom realizes students' autonomous learning. Students can arrange their time according to their own learning progress and can ask questions at any time. Teachers can answer questions one to one; For students with slow progress, teachers consolidate their unskilled knowledge points through review and provide targeted and specialized guidance.

In flipped classroom learning, the initiative is handed back to students. By reversing roles between students and teachers, students participate in flipped classroom. It is necessary to break the existing tradition of teachers' leading and evaluating students' learning status. In the current situation of education in China, students do not take the initiative to ask questions. Flipped classroom needs some reform to be suitable for undergraduate teaching. At the same time, it is proposed to use flipped classroom alternately, which will bring fresh elements to the classroom and achieve obvious learning results.

WeChat Platform

The use of smart phones provides the basic conditions for mobile e-learning. As a popular multifunctional platform, WeChat not only provides a new means for daily communication and interaction, but also builds a bridge for college English teaching. WeChat not only can provide the chat function, but also can become an auxiliary tool for English teaching. At present, "dumb English" and "Chinglish" are common among college students, mainly because of the emphasis on book learning rather than open communication. Because of its convenience, easy operation, zero threshold, and ready use, the WeChat platform can effectively mitigate students' fear of speaking.

College English teachers set up WeChat class groups, set up a fast and convenient means of contact between teachers and students, conduct oral communication and practice directly, upload course materials, urge students to punch in and practice, and solve difficult problems in time. At the same time, through discussion, mutual supervision, and learning, students can promote their engagement. The process of English learning on the WeChat platform (Figure 1) works as follows: teachers send course materials and assign homework through WeChat; students send the completion of voice homework in the group; then, through sharing the status of APP punch-in, teachers urge students to complete pre-class preview and after-class review; to prevent students from forgetting exercises, a dormitory responsibility system should be established to urge students to finish their homework and report to teachers in time. At the same time, students can also learn through the WeChat official

account with WeChat English, using such programs as VOA Special English and Enlightenment English, so as to automatically acquire listening and reading materials, expand their knowledge, and achieve the purpose of active learning.

English Learning App

With the increasing demand for English learning, according to incomplete statistics, the number of English learning apps on the market has reached the hundreds. There are reading, dictionary, word, spoken English, and other applications in the smart phone app store, which provide convenient conditions for English learning. Teachers can recommend appropriate application levels for students according to teaching needs, cultivate students' interest in English learning, and improve their autonomous learning ability.

In daily English teaching, teachers should pay attention to pronunciation and intonation. It is necessary to exercise students' oral English, especially their pronunciation, through various exercises. English learning apps can meet these teaching needs. At present, the English Fluency app is a common tool for oral practice. It can be used in combination with punching out a daily sentence and selecting course content. At the same time, it can help students master English pronunciation skills and intonation and correct their own pronunciation problems. SuperStar Learning Link is a common app for English learning interaction. Students can use it synchronously on computers and mobile phones to realize their interaction with teachers. At the same time, its massive resources enrich the teaching content. (Table 2)

College English Teaching Reform Measures

In terms of education mode, English teachers have changed from traditional teaching methods to modern teaching, creating a more convenient language environment for students and innovating teaching methods. The focus of teaching has changed from acquiring basic language knowledge to cultivating students' listening and speaking ability and cultural exchange. By constantly exploring the teaching methods of mobile internet, the traditional excellent teaching methods are integrated into them to form a student-centered teaching task type such as autonomous learning and situational conversation quotient, so as to realize the integration of various teaching methods.

In terms of teaching team, the innovation of teaching mode and resources plays a decisive role in the quality of teaching staff. When schools are hiring foreign teachers, their life background, teaching experience, and educational background should be taken as the key points to review. After being hired, foreign teachers should be included in the team of Chinese English teachers for unified management and training. At the same time, colleges and universities should also pay attention to

Table 2. Functions and Effects of SuperStar Learning Pass

SuperStar learning function	Effect
Open, open regularly, break through barriers, hide, etc.	Convenient, re-teaching mode
Rich and diverse interactions	Stimulate learning interest and improve classroom efficiency.
Check-in functions such as ordinary check-in, gesture check-in, and QR code check-in.	Avoid boring machinery and keep abreast of the situation of students in place.
Selection function of questioning in class	Choose people randomly to avoid students' fluky psychology.
Answering function	Giving some extra points is conducive to improving classroom efficiency.

the quality of local young teachers and should stipulate that teachers should actively participate in or attend foreign English language courses, so as to facilitate the opening of relevant courses in schools.

In terms of education and teaching philosophy, mobile internet teaching pays more attention to the dominant position of students and improves the openness of teaching. Students' learning is not limited to traditional course teaching. At the same time, teachers should change their roles in time, master advanced teaching skills, and highlight the dominant position of students.

In terms of integrating educational resources, there are a large number of teaching resources stored on the mobile internet. Teachers can integrate excellent English resources, make unified induction by using the advantages of network resources, increase the dissemination of advantageous network resources, make up for the shortcomings of traditional English book teaching, further expand the knowledge of teachers and students, and enhance students' creativity.

Regarding the improvement of students' innovative practice ability, flipping the classroom has realized the transformation of lecture mode into the form of video before class. Students can establish a knowledge system in advance and quickly integrate into the classroom through self-study; this change shortens classroom teaching time, improves students' autonomous learning ability, and provides more free learning space. Micro-classes and other courses teach knowledge points in the form of videos that students can watch and review repeatedly after class, thus changing the traditional passive learning model and making learning depend entirely on self-discipline, improving students' ability to learn and practice autonomously.

RESULTS AND ANALYSIS

Teaching Reform Practice

In the context of mobile internet, undergraduate colleges and universities actively promote the reform of college English teaching. The current English teaching reform process is shown in Figure 1:

In the process of teaching reform, teaching activities are designed to guide students to preview and complete their homework independently on the online mobile platform, and teachers teach and solve students' problems in the offline classroom. Teachers use the mobile network platform to evaluate their usual grades; in the flipped classroom, with the addition of a final offline exam, a comprehensive

Figure 1. The Process of English Learning on the WeChat Platform

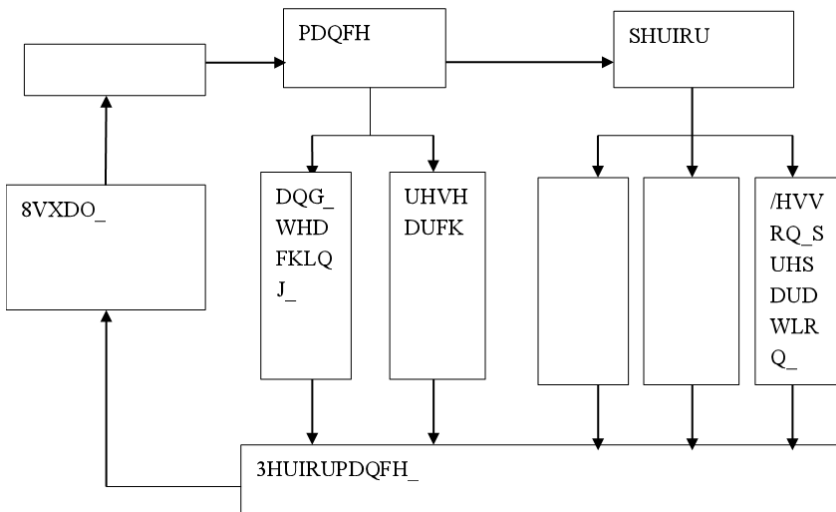
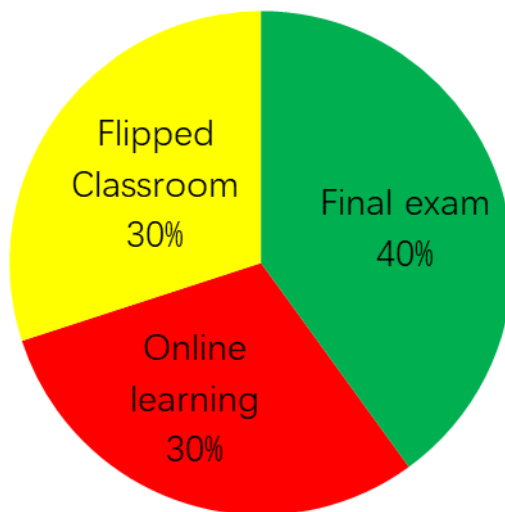


Figure 2. Proportion of Teaching Assessment Results



evaluation system is formed. In this paper, the proportion of teaching assessment scores of each part is set as 30% online learning scores, 30% flipped classes, and 40% final exams (see Figure 2).

The college English teaching mode based on mobile internet has realized the national concept of internet + education, compensated for the shortage of teachers, and improved the quality of English teaching. This model is well reflected among teachers and students. Through mobile internet English teaching, the traditional face-to-face class is supplemented, the lack of interaction is remedied, English learning is made more convenient, the limitations of learning time and place are overcome, and the learning content is made richer, transmitted in real-time and closer to life. Generally, college English textbooks are changed only once every three years. The contents of the textbooks are old and cannot adapt to the current social environment. However, the videos on the online teaching platform add the latest current events and news, a feature which is popular with students.

This paper makes a comparison between traditional English teaching and English teaching with the mobile internet, comparing the average scores of students' final exams and comprehensive exams in two classes under the different teaching modes. The mobile internet college English teaching improved students' final examination and comprehensive examination scores, with the final examination scores increasing by 8.1 points and the comprehensive examination scores increasing by 8.5 points (Table 3).

According to statistical measures of achievement, mobile internet teaching has obviously improved students' achievement, mainly for the following reasons:

First, the learning style is flexible and changeable. Mobile internet teaching combines the advantages of classroom and online teaching. Students can learn online, find information, consolidate, and review. At the same time, they can constantly cultivate their enthusiasm and improve their independent study abilities by answering questions, discussing, and communicating in offline class.

Table 3. Students' Scores Under Different Teaching Modes

Teaching model	Final exam average	Average score of comprehensive assessment
Traditional English teaching	78.2	80.6
Mobile internet teaching	86.3	89.1

Second, there are various forms of teaching activities. Teachers can make full use of the functions of the mobile internet learning platform, such as sign-in, question answering, and group discussion, to create a lively and relaxed learning atmosphere. Flipping the classroom offline will encourage students to participate more fully in the classroom, from listening to the teacher to answering the teacher, and students will become the masters of the classroom. By displaying the learning results, students' learning interest and effect will be improved.

The third reason for this improvement is the assessment process. The traditional assessment of teaching is based on the final exam results, but the assessment of the learning process takes up a small proportion of these results. Through the mobile internet teaching platform, the real-time recording of students' learning process is realized, and teachers can objectively evaluate students' learning, thus improving the comprehensiveness and scientificity of the assessment.

Analysis of Practical Applications

With the rapid development of mobile internet technology, college English teaching has gradually ushered in new changes. This article can provide guidance for teachers to understand which teaching methods and strategies are more effective in college English teaching. Teachers can adjust their teaching methods on the basis of research results to improve teaching effectiveness. This article can provide a basis on which decision makers can formulate education policies. Education policies can promote teaching reform and innovation based on research results, encouraging teachers to adopt more effective teaching methods and strategies. In addition, the research findings can also provide recommendations for education policy makers on resource allocation, education investment, and other aspects of planning. However, while discussing the advantages of the mobile internet teaching mode, we cannot ignore its limitations, namely the following:

- (1) Digital divide: In some regions and schools, students may not have full access to the mobile internet because of economic or technical constraints, resulting in uneven distribution of teaching resources. The school can provide better network and equipment support to ensure that all students have equal access to mobile resources. Meanwhile, the inequality caused by the digital divide can be addressed by providing offline learning materials and organizing offline learning activities.
- (2) It is difficult to guarantee the quality of learning: learning resources on the mobile internet are uneven in quality. It is difficult for students to judge which resources are reliable and high-quality; thus they are vulnerable to the interference of low-quality information. Teachers and schools can choose high-quality educational platforms and resources to provide trustworthy and high-quality learning content. At the same time, we should strengthen the training of teachers, improve their ability to screen, evaluate, and recommend learning resources, and guide students to use mobile internet correctly for learning.
- (3) Lack of face-to-face communication: The mobile internet teaching mode emphasizes personalized learning, but it is also easy to reduce face-to-face communication between students and teachers and between students and to fall short in real-time interaction and feedback. Although mobile internet teaching emphasizes personalized learning, it still needs to ensure face-to-face communication opportunities between students and teachers, as well as between students. Teachers can promote interaction and cooperation among students through online discussions, through real-time interaction, and by providing timely feedback and guidance.
- (4) Detriment to learning motivation: Learning on the mobile internet may increase students' distraction and thus diminish their motivation. The lack of a classroom atmosphere and teachers' on-site motivation can affect students' learning enthusiasm and motivation. Teachers can use the multimedia and interactive functions of mobile internet to design lively and interesting learning activities to stimulate students' learning interest and motivation. At the same time, it is necessary to strengthen communication and care with students, understand their learning needs, and flexibly adjust teaching strategies to improve the attractiveness and sustainability of learning.

- (5) Difficulties in teaching management: Mobile internet teaching often needs to be managed and evaluated with various platforms and tools, which necessitates higher requirements for teachers and schools' technology and management level. Teachers and schools need to strengthen the management and use training of mobile internet teaching platforms and tools and improve their technical level and management ability. At the same time, we should actively explore flexible teaching evaluation methods, such as online tests, project assignments, practical tasks, etc., to comprehensively evaluate students' learning outcomes.

In the future, the mobile internet-based college English teaching model can consider the following development directions:

- (1) Intelligent teaching: By utilizing technologies such as artificial intelligence and machine learning, an intelligent English learning system can be developed that will provide personalized learning advice, automatic evaluation, and feedback to students. This will help students learn more efficiently while reducing the workload of teachers.
- (2) Integrating reality and virtual environment: Augmented reality (AR) and virtual reality (VR) technologies can be combined to create an immersive English learning experience. Students can interact with native English speakers through virtual environments to improve their speaking and listening abilities. Meanwhile, AR technology can be used to create diverse English learning scenarios, enhancing the fun and engagement of learning.
- (3) Social learning: Social media and online communities can be utilized to build platforms for interaction and collaboration among students. Students can share learning resources, exchange learning experiences, and improve learning outcomes through mutual supervision and collaboration. Teachers can also use social media to maintain closer contact with students and provide timely guidance and support.
- (4) Emphasis on the cultivation of comprehensive ability: In addition to language skills, the future mobile internet English teaching mode will pay more attention to the cultivation of students' comprehensive ability. By providing interdisciplinary learning resources and projects, students will be encouraged to use English to solve practical problems and cultivate innovative thinking, teamwork, and cross-cultural communication skills.
- (5) Data driven teaching: Teachers and schools will rely more on data analysis to evaluate students' learning progress and identify their learning needs. By collecting and analyzing learning data, teachers can make teaching adjustments based on the personalized needs of students and provide targeted guidance to students.

To sum up, the future college English teaching model based on mobile internet will tend to be intelligent, comprehensive, and social, so as to provide a better learning experience and more efficient learning results. At the same time, the role of teachers and schools will expand to include more learning guidance and management as they become more actively engaged in the teaching process.

CONCLUSION

In recent years, the rapid development of mobile internet has brought a new development opportunity to college education and teaching. The influence of internet technology cannot be ignored, but it also presents challenges for college education and teaching. Mobile internet technology has been widely used in daily life and work. Education, as the cradle of talent training, must introduce mobile internet into college classrooms, promote teaching in this mode, guide students to use the internet and mobile phones correctly, and ensure the quality of college teaching. In the context of mobile internet, the traditional teaching mode has been unable to adapt to the development of society, and the demand

for talents in society is also increasing. How to use mobile internet to reform college teaching has become an important question. With the rapid development of mobile internet, the reform of college English teaching is also being explored. Focusing on college English teaching, this paper analyzes the disadvantages of traditional teaching and proposes changes to the traditional teaching mode involving the help of mobile internet, flipped classroom, the WeChat platform, English learning apps, and other tools and establishes a comprehensive assessment system for learning process and results according to the actual teaching situation to analyze the advantages of mobile internet in English teaching. The main research results of this paper are as follows:

- (1) In the process of college English teaching, teachers have made innovations in teaching content and form. The application of mobile internet to the college English teaching classroom not only enriches English teaching theory, but also improves teaching quality, improves students' learning efficiency, and improves students' autonomous and sustainable learning ability. Through the reform of college English teaching, students' achievements and abilities have been improved, which has enriched the development and utilization of English curriculum resources, broadened the channels for students to learn and use English, and promoted the implementation of network-based English teaching.
- (2) The application of mobile internet has enriched teaching resources and normalized interactive teaching. The classroom has become more flexible and the teaching content more vivid; moreover, the students' initiative to learn has been improved. However, there are some problems involved with mobile internet teaching, such as the stability of the network, the compatibility of the platform, the proficiency of teachers, and so on. The operating cost of the platform increases the teaching cost. College English education under the mobile internet should also prioritize human connection. Priority should be given to the English videos and micro-classes made by teachers, so that students can feel the presence of teachers and retain the sense of ceremony and seriousness of learning.

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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