

## Research Article

# Mobile Terminal System of Intelligent College English Teaching and Training Mode

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With the increasing maturity and wide application of wireless mobile communication technology and 4G networks, the use of mobile smart terminals has been popularized and has become an indispensable thing for people to live, study, and entertain. Taking college English course as an example, this paper aims to study the mobile terminal system of intelligent college English teaching and training mode. Based on the introduction of the concept, architecture, characteristics of WAP technology, and the development tools of WAP application software that need to be used in the teaching mode of the mobile terminal system, this article tentatively constructs a teaching mode of the mobile terminal system. The model is described, the collaborative filtering algorithm is proposed, and how to construct the matrix and calculate the similarity with the collaborative filtering algorithm is discussed. In order to verify the effectiveness of the system model, a test level comparison and a questionnaire survey of the teaching model were carried out. The experimental results of this article show that 91.8% of students said that their comprehensive English level has been improved in the process of applying the mobile terminal system teaching mode. In addition, 87.5% of the students said that it is necessary or basically necessary to use English for professional teaching and 76.2% of the students are very satisfied and basically satisfied with this model.

## 1. Introduction

In the context of economic globalization and the internationalization of higher education, college students' demand for professional English and academic English has increased, and the society's requirements for college students' professional English skills have also increased correspondingly. On the one hand, academic exchanges between domestic and foreign academic organizations have become more frequent, educational dialogues and cooperation between educational organizations have become normal, and academic communication between academic institutions has also continued to increase. On the other hand, after the researchers have mastered the international language, with the help of simple Internet tools, they can get new information and research materials in time without leaving home. Therefore, the research horizon of any

professional field is expanding to a wider world, and professional English knowledge has become an important part of the process of broadening the horizon. Based on such an international and domestic environment, the society and workplace requirements for college graduates' English proficiency are no longer limited to daily communication skills and college English CET4 or CET6 certificates, but they are beginning to consider whether they have the ability to use English for their professional work and the ability to learn. However, in recent years, Chinese students are dissatisfied with the impact of college English teaching, which reflects many problems in college English teaching today. After entering the workplace, graduates have difficulties in reading English materials due to the lack of professional English knowledge, and it is also difficult to use English for professional work. China's neighbor, Japan, began to offer courses taught in English at the middle

school level. In order to adapt to the trend of internationalization of higher education and attract foreign students, some key universities in China have set up all English professional courses in recent years. However, how to integrate the domestic freshmen into the all English professional courses has become a serious problem in college English teaching.

At present, under the influence of national policy requirements and social needs, colleges and universities have indeed made a series of adjustments to college English courses and teaching models. However, due to the lack of suitable teachers, teaching materials, and weak implementation, many professional English courses are mere formalities or the teaching effect is not good. In addition, under the surviving influence of the traditional English teaching model, the long-term development of students' listening, speaking, reading, and writing skills is uneven, which also hinders the improvement of college students' English proficiency. As a result, English teaching in higher education has emerged in such a situation that the traditional teaching model is still criticized, and new teaching attempts have failed to achieve the expected results. Therefore, on the one hand, the research purpose of this topic is to use the relevant theories of mobile terminal systems to propose an optimized model of college English teaching, so that the professional knowledge and English skills of college students can be truly combined, so as to effectively improve the academic English level of college students. Let English return to its essential attributes and let students "learn for what they use." On the other hand, through the mobile terminal system, the English input ability (listening and reading) and output ability (speaking and writing) are embedded in the professional courses and English skills courses, respectively, and the various English skills are tentatively trained separately to promote the balanced development of students' English skills.

The continuous updation of computers and global technology has provided the original impetus for the revolution and development of college English teaching. How to deal with the teaching methods through the computer network and establish a diversified interactive teaching system for college English courses is a serious problem. Zhao and Zhao combined the characteristics of college English teaching to explore the college English teaching model and the teaching method of multiple interactive networks. In addition, they also reviewed the evidence based on independent learning theory and several learning models, analyzed the relationship between the advantages of computer network teaching and the learning ability of students, and improved the effectiveness of practical teaching and computer network teaching. However, the research only verified the effect of the new teaching model on improving students' self-learning ability and did not conduct a comprehensive analysis [1]. Based on online learning resources and MOOC, Yu et al. proposed an improved innovation model of college English teaching. Multimedia learning

platform and online learning resources have changed the traditional English teaching mode, which is more accepted by students. The disadvantage is that this research should also take full account of teachers' teaching methods in order to improve teaching effects [2]. Huang studied the multimedia teaching model of college English based on the computer platform and discussed the inevitable trend of using computer networks and multimedia tools to cultivate students' English proficiency in the reform of college English teaching. Secondly, he introduced a foreign language teaching model based on B/S architecture and computer network, which provides a good reference for similar institutions in computer-assisted teaching [3].

The innovations of this article are as follows. (1) The definitions and connotations of several different practice modes established through mobile terminal systems are compared to distinguish the characteristics and advantages of the mobile terminal systems to be discussed in this topic. (2) In the research process of the case, the experimental statistical method and questionnaire survey method are mainly used before and after the test, then the data are obtained from it, and the data are analyzed, so as to clarify the effectiveness of the mobile terminal system in the college English teaching model and the attitude of college students to this model.

## 2. Research Method of Mobile Terminal System of Intelligent College English Teaching and Training Mode

### 2.1. Introduction to WAP

*2.1.1. The Architecture of WAP.* WAP has continued to use the WEB architecture, and in order to adapt to the characteristics of the wireless application development environment, the WEB architecture has been optimized and expanded, so that the funds, equipment, human resources, and other resources currently invested in the WEB can continue to be retained and used [4, 5]. In order to better understand the architecture of WAP, you can first understand the working mode and principle of the WEB server in the WEB architecture. The working principle of the WEB server is shown in Figure 1.

Figure 1 shows that the client sends a request to the WEB server specified by the URL. The WEB server returns the relevant content to the client according to the request procedure, and both respond according to HTTP (Hypertext Transfer Protocol) [6]; when sending a URL (Uniform Resource Locator) request starting with HTTP, the WEB server-side program may be a CGI (Common Gateway Interface) program or a static web page or a Servlet or other server program, so that the client can see the returned content on the browser [7, 8].

The WAP network architecture is composed of three parts, namely, WAP gateway, WAP mobile phone, and WAP content server, and these three aspects are indispensable [9, 10]. Among them, the WAP gateway must act as the role of converting the HTTP protocol and the WAP protocol.

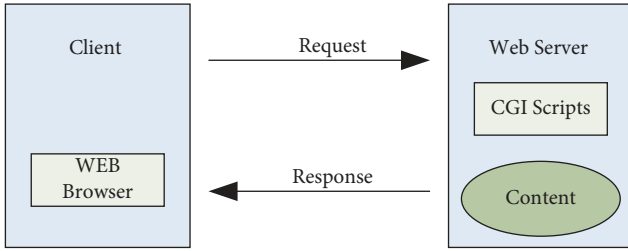


FIGURE 1: The working principle of the WEB server.

WAP gateways are mostly set up by telecom bureaus or ISPs. The WAP content server stores a large amount of data for WAP mobile users to access, browse, etc. The current WEB website is established on the basis of HTML language, WAP website is based on WML (Wireless Markup Language) language, and WML language actually follows the current XML (Extensible Markup Language) technology [11]. The architecture of the WAP application is shown in Figure 2.

*2.1.2. Development Tools for WAP Application Software.* When developing WAP application software, the mobile phone model development environment will be used [12]. The so-called mobile phone model development environment is the use of various simulators in ordinary computers to simulate the real mobile phone environment to promote the development of current WAP application software. The most popular simulators are Nokia Toolkit 1.2/1.3, Ericsson WAP IDE4, and UP.SDK4.0 [13, 14].

*2.1.3. Features of WAP Technology*

- (i) WAP is a protocol used in wireless environments [14]. The wireless environment is very different from the wired IT environment. The WAP specification is based on current Internet standards and new Internet-based protocols, and due to the limitations of wireless networks, WAP allows equipment vendors to use [15–17]. The wireless protocol will suit the attributes of existing and future wireless network equipment, so WAP has become the world’s international standard [18].
- (ii) WAP is similar to conventional Internet protocols in many cases. The core part of WAP is Internet-based [19], so it is easy to compare these two parts. Mobile phones that support the WAP protocol cannot directly interpret HTML pages on the Internet. But they can interpret the page data filtered and converted by a dedicated server.
- (iii) A WAP compatible mobile browser is comparable to standard WEB browsers. Users can browse the web services specified by the operator through a microbrowser. The end user first selects a business, and the business starts to download the card deck to the mobile phone; then, the user can browse back and forth between the cards, make selections, and enter information; and finally the selected work can be performed. The browsed information can be

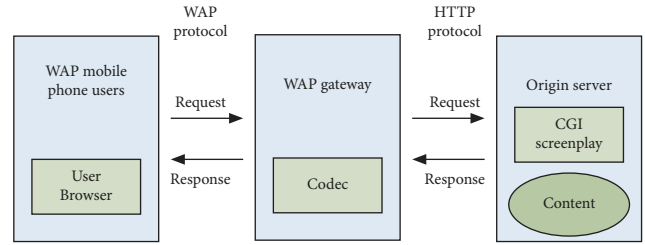


FIGURE 2: Architecture of WAP application.

cached for later use [20, 21]. In terms of security, the Wireless Transport Layer (WTLS) provides protection for data integrity, confidentiality, authentication, and denial of service.

- (iv) WAP is an open and comprehensive technology platform. It strikes a balance between existing technology and different development experience [22].
- (v) The WAP protocol can be widely used in GSM, CDMA, TDMA, 3G, and other networks. In other words, WAP services do not depend on a specific network [23, 24].

*2.2. Mobile Learning Model.* Suppose the mobile learning model is a four-tuple as follows:

$$L = S, T, R, A, \tag{1}$$

where  $S$  stands for mobile learning users;  $T$  stands for mobile learning services;  $R$  stands for mobile learning resources; and  $A$  stands for student learning activities.

The mobile learning user is a collection of students and the user layer of mobile learning [25], denoted as

$$S = \{s_1, s_2, \dots, s_n\}, \tag{2}$$

where  $s_1$  stands for mobile learning student users.

Mobile learning services include mobile learning terminal equipment, service interface, and network. Network is the support layer of mobile learning service [26–28], referred to as

$$T = \{m, w, k\}, \tag{3}$$

where  $m$  represents universal terminal equipment, including mobile phones and iPad;  $w$  represents learning network, including wired network, mobile network, and wireless network; and  $k$  represents mobile learning resource acquisition interface, through which mobile learning resources are obtained, including homework and exams, study plans, microclasses, exercises, hunting questions, and other learning resources.

Mobile learning resources are a collection of resources for students to learn [29], referred to as

$$R = \{d, h, q, e, f, g\}, \tag{4}$$

where  $d$  represents the learning resources of the guide plan and microlecture;  $h$  represents the learning resources of homework and examination;  $q$  represents the learning

resources of hunting questions;  $e$  represents the learning resources of independent practice;  $f$  represents the recommended learning resources; and  $g$  represents the notification announcement resources.

Student learning activities represent the interaction between users and learning resources and learning methods [30], referred to as

$$A = P, V, \quad (5)$$

where  $P$  represents the interaction between students and learning resources and  $V$  represents the learning methods that students can take.

The interaction between students and learning resources represents a collection of student learning interactions, referred to as

$$P = \{p_1, p_2, p_3, p_4, p_5, p_6, p_7, p_8\}, \quad (6)$$

where  $p_1$  represents collection of learning resources;  $p_2$  represents like learning resources;  $p_3$  represents learning resource marks;  $p_4$  represents learning resource answers;  $p_5$  represents learning resource sharing;  $p_6$  represents learning resource challenges;  $p_7$  represents learning resource guessing questions; and  $p_8$  means any learning resources.

Learning methods represent the collection of learning methods that students can take, which can be written as

$$V = \{v_1, v_2, v_3\}, \quad (7)$$

where  $v_1$  represents noninteractive learning method, which is a learning method that only needs to play and watch resources (this method includes document reading, video viewing, audio listening, and picture browsing);  $v_2$  represents interactive learning method for objective questions, which is an interactive learning method for single-choice, multi-choice, fill-in-the-blank, and judge the four objectivity issues in interactive resources (this method is a way to choose among the given answers); and  $v_3$  represents interactive learning method for subjective questions, which is an interactive learning method for subjective questions such as short answer, calculation, and filling in the blanks.

**2.3. Collaborative Filtering Algorithm.** User-based collaborative filtering algorithm (User CF) recommends resources that have the same hobby user groups to target users based on the user's historical behavior [31, 32]. The User CF algorithm takes users as the main body and recommends items they are interested in to target users based on user groups with similar hobbies. First, based on the analysis of the user's preference for different items, the nearest neighbors that are similar to the target user's preferences are obtained. At present, the "K-neighbor" algorithm is mostly used; then, the prediction score is generated based on the nearest neighbor set; finally, the recommendation is made based on the prediction score.

The User CF algorithm uses the following two steps to recommend resources.

**2.3.1. Building a Matrix.** Evaluation matrix notation is the most widely used one in collaborative filtering algorithms, and its characteristic is to quantify the evaluation into a matrix for representation, which is

$$\begin{pmatrix} C_{11} & C_{12} & \cdots & C_{1n} \\ C_{21} & C_{22} & \cdots & C_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ \cdots & \cdots & \cdots & \cdots \\ C_{m1} & C_{m2} & \cdots & C_{mn} \end{pmatrix}, \quad (8)$$

where  $C_{mn}$  represents user  $m$ 's evaluation of item  $n$ .

**2.3.2. Calculating Similarity.** The similarity is obtained by the "K-neighbor" algorithm to obtain the neighbor set, namely:

$$N = \{N_1, N_2, \dots, N_k\}, \quad (9)$$

where  $N_k$  represents the set of neighbors of the target user. The similarity calculation method is as follows:

- (i) *Cosine Similarity Calculation Method.* Assuming that the resource evaluations of user  $u$  and user  $v$  are represented by vectors  $\vec{u}$  and  $\vec{v}$ , the cosine value  $\cos(\vec{u}, \vec{v})$  between the two vectors can be calculated to calculate the similarity  $\text{sim}(u, v)$  between the two:

$$\text{sim}(u, v) = \cos(\vec{u}, \vec{v}) = \frac{\sum_{i \in I} R_{ui} \times R_{vi}}{\sqrt{\sum_{i \in I} R_{ui}^2} \times \sqrt{\sum_{i \in I} R_{vi}^2}}, \quad (10)$$

where  $R_{ui}$  represents the rating of user  $u$  on item  $i$ ,  $R_{vi}$  represents the rating of user  $v$  on item  $i$ , and  $I$  represents the set of user resource evaluations.

- (ii) *Correlation Similarity Calculation Method.* The correlation similarity is also called the Pearson correlation coefficient. Assuming that  $C_{u,v}$  is the resource evaluation set of user  $u$  and user  $v$ , then the correlation similarity  $\text{sim}(u, v)$  between users can be calculated:

$$\text{sim}(u, v) = \frac{\sum_{i \in C_{u,v}} (R_{ui} - \overline{R_u}) \times (R_{vi} - \overline{R_v})}{\sqrt{\sum_{i \in C_{u,v}} (R_{ui} - \overline{R_u})^2} \times \sqrt{\sum_{i \in C_{u,v}} (R_{vi} - \overline{R_v})^2}}, \quad (11)$$

where  $R_{ui}$  and  $R_{vi}$  represent the scores of user  $u$  and user  $v$  on item  $i$ ;  $\overline{R_u}$  and  $\overline{R_v}$  represent the average scores of resource evaluation by users  $u$  and  $v$ , respectively; and  $C_{u,v}$  is the intersection of resources evaluated by users  $u$  and  $v$ .

### 3. Research and Experiment on Mobile Terminal System of Intelligent College English Teaching and Training Mode

**3.1. Experimental Design.** This article uses an English major in a university in this city as a case for experimental research. The research started in the second semester of 2020 and did



not interfere with normal teaching too much during the experiment. Before the formal experiment, we learned about the teaching situation of the English major of the school and determined the pretest items and the selection of experimental subjects in the pre- and posttest experiments. In the course of one academic year of learning the mobile terminal system of the project, the syllabus, teaching schedule, and other data forms of the learning course of the mobile terminal system were collected, and a report on the teaching situation of the mobile terminal system and students' attitudes towards the model was prepared. A questionnaire survey was conducted on subjects who had studied in the mobile terminal system for one year. After passing the posttest, it was tested whether the English level of the experimental group was higher than that of the control group. At the same time, questionnaires were issued to students to understand their attitudes and opinions on mobile terminal system learning.

During the experiment, we collected and sorted out the syllabus for English majors in the school. The following takes the second semester course of English majors in colleges and universities as an example to show the composition of content courses and language courses syllabus and course schedule arrangement in the learning and teaching mode of mobile terminal system, as shown in Table 1.

The syllabus of the mobile terminal system teaching mode in the above projects reflects the composition of input professional content courses and output language courses in a semester. College English courses are the leading input professional courses, emphasizing the input of profession-related English knowledge points in reading and listening. The teaching content of both writing and speaking courses incorporates the basic concepts of college English in order to train students' profession-related language output skills through writing and speaking.

**3.2. Subjects.** The mobile terminal system teaching is currently applied to the freshmen and sophomores of the school. According to different survey purposes, this topic selects specific research objects.

**3.2.1. Experiments before and after Testing.** The research objects in the pre- and posttest are the experimental group: 48 students in the first class of college English major in the school's cooperation project, using the mobile terminal system English teaching mode. Taking this year's college entrance examination English test scores as the pretest, the full score is 120 points, and the scores are stratified for every 10 points of the college entrance examination English scores, and the number of people in each score segment is counted. Control group: choose the same number of students from the second class of English major and the third class of English major of the school who have the same scores as the first class. Finally, 48 people are selected as the control group sample, using the traditional college English teaching model.

**3.2.2. Questionnaire Survey.** The object of the questionnaire survey is all the students (150 people) who have enrolled in the English major of the school for one year. The teaching

methods used are the mobile terminal system teaching mode and the traditional teaching mode. The structure of the questionnaire is divided into three parts: the first part is a survey of students' English learning background, including surveys of students' English learning time, future plans, and so on; the second part is a survey of professional courses for foreign teachers, including the actual situation of the courses, teaching materials, assessment, and other related issues. The third part is a survey of students' attitudes and views on content courses and language skills courses, involving students' satisfaction with these courses and their views on teaching effects.

### 3.3. Experimental Procedure

**3.3.1. Determining the Implementation of the Model.** Starting from the second semester, the first class of English majors in this school has applied the mobile terminal system teaching mode and integrated professional knowledge into the English skills courses to match the students' professional courses. That is, the mobile terminal system-based college English teaching mode experiment began. Since this mode has been working well, the school still uses this mode for teaching without interruption. In addition, two of the classes have been combined with multimedia teaching equipment and tended to the traditional college English teaching mode. At the same time, the results of the college entrance examination of the students are determined as the pretest data, and CET4 is considered as the posttest data.

**3.3.2. Distributing the Questionnaire.** We distributed the mobile terminal system teaching questionnaire to the freshman students of the project. The questionnaire was distributed with the assistance of the counselor of the grade. By the time the questionnaire was distributed, two semesters of English teaching mode had been completed.

**3.3.3. Statistics and Analysis of Pre- and Posttest Data.** We collected and analyzed the data in the pre- and posttest experiments. First of all, with the help of the school's educational administration information system, we obtain the English scores of the research subjects in the college entrance examination and use this as the preexperiment test to determine the school's project English majors as the experimental group, and 48 are selected from the second and third classes of English majors. After a student became a control group, SPSS software was used for analysis to determine that there was no significant difference between the experimental group and the control group in English proficiency before the experiment. The experimental group used the teaching method of the mobile terminal system, while the control group used the traditional teaching method of English teaching. Both the experimental group and the control group took part in the College English Test Band 4 (CET4) in the second year. At this time, the distance between the experimental group and the control group was about two semesters. The CET4 test contains questions such as listening,

TABLE 1: Syllabus for the first semester of English majors.

Syllabus		
Course	Course objectives	Evaluation rules
College English course	1. Understand the basic concepts and solve problems 2. Solve related problems in an interactive development environment	Attendance (10%), individual or team work (20%), in-class exams (20%), midterm final exams (20%), and project results (10%)
Writing	1. Cultivate academic critical thinking 2. Improve the reading ability of related professional literature 3. Grasp the essentials of organizational views in writing	Attendance rate (15%), midterm exam (20%), in-class and after-school homework (45%), and final exam (20%)
Speech	1. Master the correct English pronunciation, sentence structure, and expression skills 2. Adapt to different forms of speech	Attendance rate (15%), 5 public speeches (50%), and final oral presentation (35%)

reading, translation, and writing, which are authoritative and professional. Therefore, this topic uses the CET4 test scores as posttest data to analyze the differences in English proficiency between the experimental group and the control group after different English teaching modes. When analyzing the data, we used EXCEL to convert the English college entrance examination scores and CET4 scores of each sample into a hundred-point system (rounded to one decimal place) for calculation.

## 4. Experimental Results and Analysis

### 4.1. Comparison of English Scores before and after the Test

4.1.1. *Pretest.* Through the use of SPSS software, the pretest scores of the experimental group and the control group were statistically analyzed, and the statistical results are shown in Figure 3.

(1). *Detection of Homogeneity of Variance.* Since the experimental group and the control group have no relationship with each other, the Levene test is first used to determine the homogeneity of variance. If the population variances of the two samples are equal, then the assumption that “the population variances of the two independent samples are equal in the pretest” is adopted; otherwise, “the population variances of the two independent samples are not equal in the pretest” is adopted, and the results are shown in Table 2.

It can be seen from the Levene statistics that the Sig. value is 0.537, which is greater than 0.05, so the assumption that the variances are equal cannot be denied. In other words, the population variances of two independent samples are equal.

(2). *T-Test with Equal Mean.* The *t*-test with equal means can reflect whether two independent samples are different when taking the Jiangsu English college entrance examination. The hypothesis of this *t*-test is as follows. The overall averages of two independent samples are equal in the pretest. The overall averages of two independent samples are not equal in the pretest. The test results are shown in Figure 4.

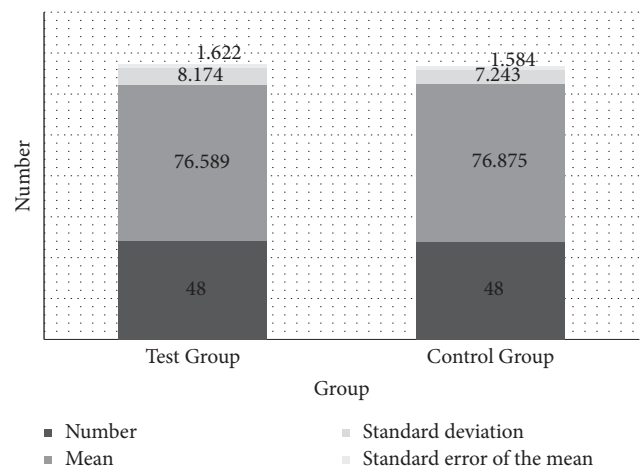


FIGURE 3: Pretest score statistics of each group.

TABLE 2: Levene test results of homogeneity of variance.

Fraction	F	Sig.
Assuming equal variances	0.513	0.537
Assuming that the variances are not equal	—	—

4.1.2. *Posttest.* We use SPSS19.0 software to analyze the CET4 scores of the experimental group and the control group (converted to a percentile system), that is, posttest. The results are shown in Table 3.

It is also analyzed by independent sample *t*-test, and the analysis result is shown in Figure 5.

From the above independent sample *t*-test data, Sig. is 0.267. The results show that there is no significant difference in English performance between the experimental group and the control group. The average score of the experimental group is better than that of the control group. It can be seen that the use of mobile terminal teaching system can improve students' overall English ability and improve their learning efficiency.

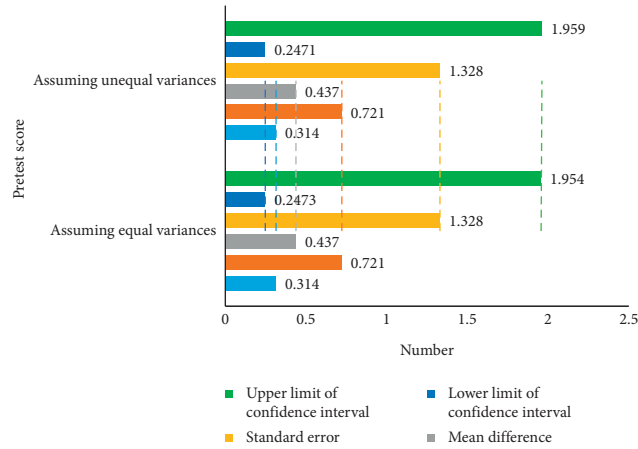


FIGURE 4: The *t*-test for equal means.

TABLE 3: Posttest result analysis.

Group	Number	Mean	Standard deviation	Standard error of the mean
Test group	48	68.525	7.648	1.289
Control group	48	66.816	5.987	1.007

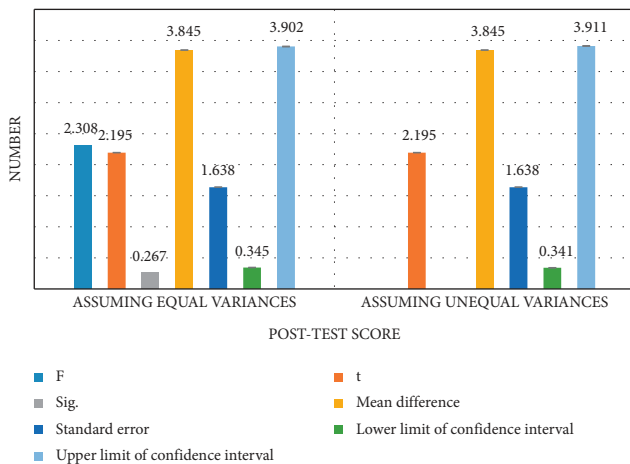


FIGURE 5: Independent sample *t*-test of posttest results.

4.2. *Results of the Questionnaire.* This questionnaire was entrusted to the college English majors’ counselors. A total of 150 copies were distributed, 107 copies were returned, 6 invalid questionnaires were excluded, and a total of 101 valid questionnaires were returned.

*Question 1.* The students have been studying English for several years before entering the school. According to the statistical results of the questionnaire, 53.5% of students have more than 10 years of English classroom learning experience; 38.6% of students have 9-10 years of English learning experience; and 7.9% have 7-8 years of English learning experience. Therefore, more than half of the students in the questionnaire survey began to learn English in the second grade or even earlier, and most of the remaining students also started to learn English in the third grade or after. This shows that these students enter the assisted CBI teaching mode with a certain level of English.

*Question 2.* Whether the student intends to go abroad or work in a foreign company. Since college English majors belong to a Sino-foreign cooperative education program, under normal circumstances, students will choose to study abroad for one year in their senior year. Therefore, in the questionnaire analysis, most of the other students indicated that they have the habit of studying abroad and going to foreign companies. This means that they also have a stronger motivation to learn English.

*Question 3.* Has the student accepted English as the medium of instruction to teach courses in other subjects at the middle school level? In our country, mobile terminal system teaching has not been widely used. According to the results of the questionnaire, only 4.0% of students have ever received content-based language teaching. This shows that for most students, this teaching mode is a new teaching thing that needs to be adapted.

*Questions 4 and 5.* Whether students voluntarily accept mobile terminal system learning and why. It is analyzed that except for one person, the other 100 students study voluntarily, and the reason is that 78% of the students are considering preparing for studying abroad or employment in foreign companies, and 7% of the students are interested in the way of teaching in English. 15% Of students care about improving their English while learning subject knowledge. This shows that the applied English teaching model provides advantages for students’ future study and employment. In addition, this special model also stimulates students’ interest in learning and improves learning efficiency.

*Questions 6 and 7.* The ratio of the initial comprehension to the content of the foreign teacher’s professional courses. After statistics on the questionnaire, we can see from Table 4

TABLE 4: Course comprehension ratio.

Proportion	Initial	Currently
Below 60%	18	2
60%–70%	34	13
70%–80%	32	43
80%–90%	12	34
More than 90%	5	9

the changes in the proportion of students' understanding of professional courses for foreign teachers.

Questions 8 and 9 focus on students' perceptions of the difficulty of English textbooks when they first enrolled and after two semesters of study. In the initial teaching mode of mobile terminal system, 57.4% of students thought that textbooks were difficult or quite difficult, 40.6% of students thought that textbook difficulties were at a medium level, and less than 2% of students thought that textbooks were relatively easy. After nearly two semesters of study, the proportion of students who think that textbooks are very difficult has dropped to 28.7%, while the proportion of students who think that the difficulty of textbooks is average or relatively easy has risen to 65.3% and 6%. The changes in the table indicate that the number of students who think the textbooks are difficult and relatively difficult has decreased, while the number of students who think the textbooks are ordinary or relatively easy has greatly increased. Therefore, after two semesters of study, the students' understanding of the original English textbook has been significantly improved.

*Question 10.* Investigate whether students agree to use English in professional courses to improve their English proficiency and what English proficiency they can (or have) improve (multiple choice). The analysis result of Question 10 shows that the students believe that they have improved their English skills after conducting professional English courses, especially listening, speaking, and reading, while the number of students improving in writing is relatively low.

To sum up, no matter in the analysis of the results of the pretest and posttest or the questionnaire survey, we can see the advantages of the mobile terminal system compared with the traditional English teaching.

## 5. Conclusions

With the development of society and technology, the Internet and smart devices have more and more far-reaching impacts on life education, especially in the field of education. In the current rapid development of science and technology, the combination of modern science and technology teaching and traditional classrooms has become a novel teaching mode, and it is also the trend of future teaching development. The trend of using mobile terminal systems to assist classroom teaching not only conforms to the changes of the times but is also a reform of the traditional education model. In the design process of this system, the necessity and trend of the integration of educational models under the trend of the times were analyzed, the development environment was selected, and the design goals and implementation process were determined according to the needs of classroom

teaching. The development of a mobile terminal system that meets the needs of classroom-assisted teaching users can make full use of valuable time in the classroom, improve the quality of teaching and learning, and enhance students' learning enthusiasm and learning efficiency. Through the classroom conversion of learning pressure and the integration of relevant test homework functional modules, students' interest in learning has been cultivated, students' academic performance has been improved, and the effectiveness of classroom teaching has been effectively improved. Thanks to this system, a closer connection is established between teachers and students, thereby enhancing the communication between teachers and students. The combination of technology and traditional classrooms represented by this system is an exploration and innovation of teaching models and a supplement to online education and distance education. It provides teachers with a creative teaching system, which can further improve the level of classroom learning, effectively improve the school's efficiency and management level, and has the effect of improving the quality of school teaching. This topic is only aimed at the students in the case, and due to the uneven development of economic and educational levels across the country, it is not certain whether this model is feasible when applied to students of different English proficiency and whether it has the same effect. Therefore, for similar research in the future, it is recommended that the number of research samples should be expanded, and the analysis should be stratified according to the initial English level of the research objects, so that more comprehensive and reliable conclusions can be drawn according to different student levels.

## Data Availability

No data were used to support this study.

## Conflicts of Interest

The authors declare that they have no conflicts of interest.

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