Research Article

Integrated Design of College English Teaching Based on Internet and Information Technology

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The rapid development of information technology has brought society into the Internet + era. To break the current teaching dilemma, English teaching in colleges and universities needs to keep pace with the times. Based on the characteristics of the Internet + era, we need to strengthen the awareness of the Internet + era and reconstruct the resource advantages and technological advantages of the Internet + era. The English teaching mode in colleges and universities rejuvenates college English teaching, establishes a mode suitable for English teaching in the new era, and comprehensively improves the effectiveness of college English teaching. This research optimizes the teaching design under the guidance of the Internet and information technology and the concept of curriculum integration and applies it to the teaching practice of a college English listening and speaking course. Design-based research is used as the main research method. Under the guidance of the concept of information technology and curriculum integration, first of all, we measure and evaluate the TPACK level informatization teaching ability of English teachers in colleges and universities. Secondly, we design and optimize the whole process of teaching, especially the design and adjustment of teaching procedures. Finally, the research conclusions are obtained through statistical analysis of the data. It is found that the teaching optimization design under the guidance of the concept of information technology and curriculum integration can improve the English listening and speaking ability of college students to a certain extent.

1. Introduction

"Internet +" is a new model under the social background that vigorously advocates innovation. This model focuses on using the characteristics of the Internet to optimize and integrate the economic production process, allocate production factors more benignly, and use the innovation factors of the Internet to drive the traditional economy [1–3]. Industrial innovation promotes the continuous progress of the social economy and enhances the productivity and creativity of my country's real economy. The Internet is used as an excellent platform to complete industrial upgrading. Under the current educational model of colleges and universities, classroom teaching is still dominated by teachers. Most of the time, teachers impart course

knowledge to students through presentations and dictation on the podium. This teaching method is extremely closed, and the content is limited to the scope of the textbook, lacking novelty, and attractiveness [4–6]. The professor's knowledge is very boring, and the students are not willing to accept it, resulting in unsatisfactory teaching quality. In classroom teaching, it is sometimes difficult for teachers to take into account students with uneven foundations. For students with a good foundation, this kind of classroom teaching cannot meet the learning needs of such students, and students are prone to feeling bored; for students with a poor foundation, they do not understand the content of the teacher's teaching, and they are also unfamiliar with the teaching generating resistance [7]. In addition, students in the classroom carry smartphones with them, and they just

bow their heads and indulge in the entertainment of mobile phones in class, which reduces the efficiency of classroom teaching. Outside of classroom teaching, students do not have the atmosphere and environment to learn English, and they cannot carry out effective self-study. At present, English teaching lacks a good English learning environment, and the English teaching mode in colleges and universities is also behind the times and students' needs. Therefore, it is necessary to explore a new teaching mode to change this situation [8–10].

Based on the domestic and foreign research trends and paths based on the concept of information technology and curriculum integration, exploring the integration of information technology and specific subject content and guiding and optimizing teaching design has formed a certain research trend, and has a certain role and impact on teaching [11–13]. Because teaching design is the core link of teaching, it is also the premise and foundation for teachers to teach effectively. Therefore, teachers should improve teaching based on teaching design, cultivate and develop their own knowledge creation and design capabilities; that is, teachers can be proficient, creative, and design integrated courses tailored to local conditions according to the actual teaching situation. At present, the research trend and path of the concept of information technology and curriculum integration turn to the micro to solve the practical problems of teaching. However, there are still some problems and limitations in domestic research [14–16]. For example, relevant domestic research focuses on pre-service, primary, and secondary school teaching, while research on college teaching has not been widely popularized and deepened. In actual teaching, the integration of information technology and specific subject content is not ideal, and there is a lack of teaching practice with deep integration. Relevant research shows that teachers should plan and design courses that integrate technology, that is, to apply the concept of information technology and course integration to optimize teaching design to improve teaching effects and promote student learning.

Under the guidance of the integration of information technology and curriculum, this research aims to improve the English language listening and speaking ability of college students through the teaching optimization design of the English listening and speaking course in a college [17–19]. In terms of theory, this research draws on the advantages of the teaching design of English listening and speaking courses in the college, removes shortcomings, optimizes teaching by applying the concept of information technology and curriculum integration, and follows the teacher-led-student-subject teaching and learning theory and Butler's theory. The transcendental teaching theory and teaching procedure provide new ideas and directions for the teaching design of English listening and speaking courses in the college.

2. Methods

First of all, in the early stage of the research, we observed the teaching dimension of a college English listening and speaking course. The observation period is four sections of English courses in colleges and universities, and each section is 45 minutes in total for two weeks. Then, an interview survey is conducted with the main teachers of English listening and speaking courses in colleges and universities. Finally, we design and optimize the English listening and speaking courses in colleges and universities, and carry out research and design from the main dimensions of teaching objectives, learning situation analysis, teaching media and course materials, teaching content, teaching procedures, and teaching evaluation. Finally, we focus on the detailed design and analysis of the program of English listening and speaking courses in colleges and universities.

2.1. Observation Method. We obtain a large number of direct perceptual research materials with field observation research methods. We mainly observe the teaching design dimensions of English listening and speaking courses in the college, the application of technical tools, and the integration of technology and course content. We record, organize, and analyze the acquired teaching research materials.

2.2. Interview Method. In this study, the systematic interview method is used to investigate and analyze the English teachers in colleges and universities to obtain the TPACK level, the ability of informatization teaching, the overall situation of the teaching design of English listening and speaking courses, and the actual situation of teaching and learning situation of students.

2.3. Questionnaire Survey Method. We use the form of questionnaire to investigate and analyze the actual situation of English listening and speaking courses in the college and students' learning situation. The questionnaire is designed to analyze the basic situation and characteristics of the students. The research object is a total of 50 freshmen who majored in management in 2021. Among them, there are 27 boys and 23 girls. Through the results of the previous questionnaire survey, it is found that the students' English foundation is weak. Although the public English audio-visual course does not require high English professional level of the students, there are still some difficulties and problems in the practical English section. Among them, students feel unfamiliar with the learning of the English language and culture dimensions, which exceeds the cognitive load of some freshmen. The likert five-point scale is used as a survey and evaluation tool to analyze and evaluate the English listening and speaking ability of college students. The questionnaire design includes five options: strongly agree, agree, moderate, disagree, and strongly disagree. There are 60 items of research questions, including 30 items for English language listening comprehension ability and 30 items for English language oral expression ability. A total of 50 students participate and respond. Through preliminary screening, the data of these responses are screened, and the data fed back are true and reliable.

2.4. Integrated Design Scheme

2.4.1. Set the Context.

English teaching topics and related concepts are introduced through video or PPT technology tools. Among them, the setting methods of situations are flexible and diverse, and the setting methods of teaching situations mainly include the following five methods:

(1) The popular English original music pieces are introduced into the course by video not only to reveal the multielement cultural characteristics of the course but also deepen the students' perceptual understanding.

(2) We bring it into the course in the form of a mind map, and students make a simple overview of the knowledge chain according to the mind map in the PPT. Through different ways of understanding the mind map of PPT, we can do a small oral presentation in English and infer the main content and cultural factors of the course. The mind map in PPT is an abbreviated impression of the course, which allows students to use their imagination and bring them into the specific situation of the course.

(3) We introduce language and cultural phenomena in the course content by video. After watching, we can arouse students' curiosity and interest, inspire students to brainstorm, and analyze and discuss language and cultural phenomena in small groups. If the learning atmosphere is good, there will be debates between groups, which will lead to students' in-depth thinking and heuristic teaching.

(4) We introduce famous sayings and aphorisms of course, culture or viewpoint topics with culture shock through PPT courseware to trigger students to think. And give students 5 minutes to prepare a small speech to make a supporting or arguing statement on the topic. This kind of situational setting method can help to develop students' ability to summarize ideas in English learning and to cultivate the English language and culture.

(5) The main content of the course is divided into role imitation and acting. Through PPT video playback, students can take the initiative to perform and imitate their favorite roles under the condition of preparation in advance. Group performance can stimulate a good teaching atmosphere, mobilize the enthusiasm of students in English learning, and enhance students' interest in learning.

2.4.2. Excite the Engine.

Through technical tools and heuristic teaching methods, questions related to the teaching theme of English courses are raised to trigger students' learning and thinking. The way to stimulate students' motivation and interest in learning is to use technology tools as a guide and to combine teaching methods familiar to teachers. There are mainly two teaching strategies and methods involved:

(1) After the teaching situation is introduced, the teacher will use PPT to ask the students about the actual problems encountered in the actual life or social practice of the students, and the students will think or imagine this unknown or preset problem. Because the questions included in the course are closely related to the students' study and life, it stimulates students' active learning and positive thinking to a large extent, and they are interested and curious about the course. Teachers' preset questions can be structured or semistructured to evoke positive responses and full thinking in students' learning.

(2) The media equipment is used to play the English original sound film clip for 3–5 minutes. The original sound film clip is closely related to the course and can arouse students' motivation and interest in learning. After playing, students will be inspired to ask questions about the theme and content of the English film and inform them of this. The content of English movies is closely related to the curriculum, arousing students' motivation, interest, and awareness of learning.

2.4.3. Teaching New Knowledge.

The teaching method is applied to the teaching of the main English knowledge, and questions and corrections are made in a timely manner. Teachers use concise and incisive methods to teach the main knowledge of the course in a short time, deepen new knowledge with video and PPT, and ask students to get feedback in a timely manner. Then, heuristic teaching is carried out. The voice system is used to ask the main questions of knowledge and inspire students' wisdom and interest. The speed and accuracy of knowledge feedback are mainly measured by means of knowledge competition. This link can highlight the leading role of teachers in teaching. At the same time, the subject view of students has also received attention. The application of the teacher's teaching method makes the students' teaching knowledge more systematic and complete, instead of being separated from the fragmented and fragmented state.

2.4.4. Apply New Knowledge.

The teachers encourage students to apply their new English knowledge to complete the set learning tasks in the class. In teaching, there are three main types of strategies for using new knowledge:

(1) The teachers play the relevant videos of the course materials, and students will state and dub the specific learning content played by the courseware. During the presentation or dubbing, the microvideo is muted and only framed in images. Students tell the story of the courseware based on what they have learned, narrate the predetermined content of the courseware, and explain the learning and social life phenomena reflected in the video.

(2) The teachers play relevant audio of the course material. The types of audio files are English soundtrack movies, classic plays, songs, and other art forms. The

frequency of playback is 3–5 times, and students dictate vocabulary and paragraphs according to the information contained in the audio. After completing the learning task, the students share it with peers or group members, and the teacher will give instant evaluation.

(3) The teachers can apply the new knowledge by applying role-play according to the course materials. Students can prepare in less than 5 minutes in a collaborative manner with peers or group members. Then, in the form of a random check group, they go to the podium to role-play and simulate the content of the course materials. Finally, the teacher evaluates and summarizes.

3. Results and Discussion

In this study, a comparative experiment is adopted, and a total of 50 students are selected as the research sample. Among them, 27 are boys and 23 are girls. In order to ensure the scientificity and accuracy of the research experiments, a scientific front-side questionnaire was conducted before the implementation of this study. 50 questionnaires are distributed and 50 questionnaires are returned. The response rate of the questionnaire is 100%, and the effective rate is 100%. The front-side questionnaire includes a total of 60 items. Among them, there are 30 items for the English oral expression test and 30 items for the English listening comprehension test.

After the research and implementation, the Chinese English Language Listening and Speaking Ability Revised Scale is used as a measuring tool to evaluate the English listening and speaking ability of college students in the early stage, and the research data are obtained through sample analysis. Among them, there are three stages of data collection, which last for three months, namely initial data in the early stage, experimental data in the middle stage, and experimental data in the later stage. The changes in the three sets of experimental data are compared to obtain the research results. Using the data software SPSS22.0 as data statistics and analysis tool, we measure and evaluate whether the English listening and speaking ability of the college students has been improved in the early, middle, and late stage.

First of all, this study uses descriptive statistical analysis and then conducts paired T-test on the research papers. Based on the results of data statistics and analysis, it is used to verify whether the English listening and speaking ability of the college students has been improved in the early, middle, and late stages of the study.

According to the results of descriptive statistical analysis on the research data of the college students, as shown in Table 1, the average value of the early stage is $M = 2.8698$. Among them, the maximum value is 3.1265, and the minimum value is 2.6416. On the whole, the English listening and speaking ability of the students in this college is slightly worse, which is lower than the critical value of 3.0 and needs to be improved.

After a month of research and implementation of English listening and speaking courses in the colleges, a teaching questionnaire survey is conducted on the college students in the middle stage of the study. Through the design, distribution and recovery of student questionnaires in the middle stage of the study and the middle stage data statistics and analysis on the English listening and speaking ability of S college students are carried out. Then, we obtain the overall evaluation and feedback on the teaching activity design by the students of the college and make teaching adjustments in a timely manner.

First, in the middle stage of the study, a total of 50 research papers are distributed and recovered, with a recovery rate and an effective rate of 100%. A descriptive statistical analysis is carried out on the interim research data of the college students. As shown in Table 2, the mean value of the sample M is 2.961, among them, the maximum value is 3.2495, and the minimum value is 2.7896. On the whole, after the implementation of the research, the English listening and speaking ability of college students has not been significantly improved, and it is still lower than the critical value of 3.0, which shows that the research has problems in the teaching procedures in the process of designing teaching activities.

Secondly, by doing research on the students of S colleges and through the statistics and analysis of the questionnaires, it is found that in the process of teaching activities, the students' preferences and acceptance of the teaching forms set in the teaching situation are not the same. Finally, the teaching adjustment in the middle of the research is carried out. According to the students' learning needs and interests, video dubbing and role-playing are used as the main situation setting methods, which improve students' enthusiasm and initiative in learning. The teaching adjustment in the middle of the study is in line with the students' learning needs and interests.

In the late stage of the study, descriptive statistical analysis and paired research T-test are carried out on the back side of college students. A total of 50 questionnaires are distributed. Among them, the recovery rate and the effective rate are 100%. As shown in Table 3, the sample mean M is 3.2456, the maximum value is 3.5965, and the minimum value is 2.9255. On the whole, after the research and practice, the English listening and speaking ability of the college students has been improved to a certain extent, which is slightly higher than the critical value of 3.0. This shows that the research has achieved research results.

The English listening and speaking ability of the college students have a tendency to improve. From the early stage, middle stage to late stage, there is a certain degree of improvement in the maximum value (maximum value, minimum value). From the point of view of the mean value, the scores of listening and speaking ability of college students in the early, middle, and late stages of the study range from 2.8698 to 3.2456, and the standard deviation and variance are within a reasonable range. It shows that the students' English listening and speaking ability has been improved.

In the end, the research obtained data results through data statistics and analysis in the early, middle, and late stages (Figures 1, 2).

TABLE 1: Descriptive statistical analysis of the English listening and speaking ability of students in a college in the early stage.

	N	Minimum	Maximum	Average	Standard deviation
English listening and speaking ability of college students in the early stage	50	2.6416	3.1265	2.8698	0.029
Valid N	50				

TABLE 2: Descriptive statistical analysis of English listening and speaking ability of middle stage college students.

	N	Minimum	Maximum	Average	Standard deviation
English listening and speaking ability of college students in the middle stage	50	2.7896	3.2495	2.9610	0.038
Valid N	50				

TABLE 3: Descriptive statistical analysis of English listening and speaking ability of students in late stage.

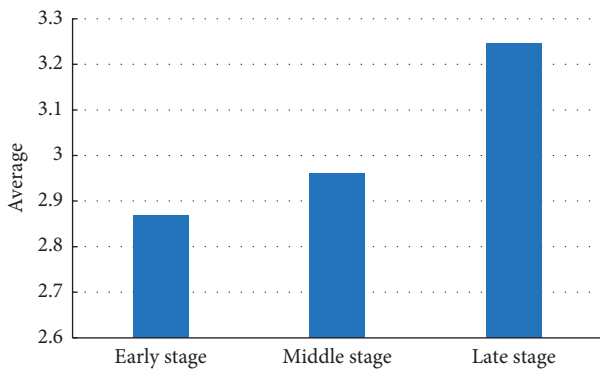|	N	Minimum	Maximum	Average	Standard deviation
English listening and speaking ability of college students in the late stage	50	2.9255	3.5865	3.2456	0.054
Valid N	50				

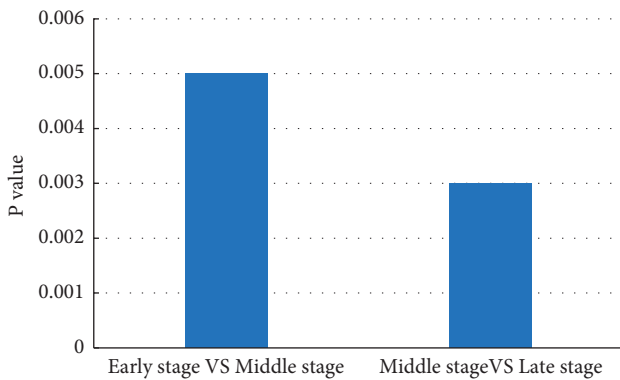FIGURE 1: Paired sample statistics.

FIGURE 2: Sample correlation analysis.

It can be seen that the accompanying probability of the F test is that the Sig value is less than a significant 0.05. It is proved that there are significant differences in the variance of students' English listening and speaking ability in the early stage and the middle stage, and the middle stage and the later stage; that is, the variance is uneven. The significance probability P of the two-sided test is less than 0.05, and the null hypothesis is rejected, indicating that there are significant differences in the level of English language listening and speaking ability in the early stage and the middle stage, and the middle stage and the later stage. The English language listening and speaking ability level in the late stage is better than that in the early stage.

4. Conclusion

(1) The teaching practice under the guidance of the concept of information technology and curriculum integration has optimized and improved the English teaching in colleges in the early stage, produced good teaching effects and improved the English listening and speaking ability of college students. At the same time, it provides an important reference for the design and practice of English listening and speaking courses in colleges in the future.

(2) The results show that the curriculum design of college English teaching from the perspective of technology and curriculum integration can effectively improve college students' English listening and speaking ability. The longer the learning time, the better the effect.

(3) After a month of research and implementation of English listening and speaking courses in the colleges, a teaching questionnaire survey is conducted on the college students in the middle stage of the study. Through the design, distribution and recovery of student questionnaires in the middle stage of the study, and the middle stage data statistics and analysis on the English listening and speaking ability of S college students are carried out. Then, we obtain the overall evaluation and feedback on the teaching activity design by the students of the college and make teaching adjustments in a timely manner.

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.

Acknowledgments

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