

Application of the Blended Teaching Model based on the Open Online Course of Medical English

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Abstract: With the principles of systematicity and openness, academics and fun, and popularization and moral education, the open online course for medical English has been developed, which has greatly expanded students' learning time and space. A blended teaching model has been established with the task-based language teaching method based on the open online course platform. The aim is to guide students to improve their learning methods, facilitate a gradual transition from "passive learning" to "active learning", and enhance their ability to use medical English. The results show that compared with the traditional teaching model, the blended teaching model of medical English helps to stimulate students' motivation and interest to learn, and improves their medical English performance and self-learning effectiveness. Both the students and teachers of the experimental group hold positive attitudes towards the blended teaching model.

Keywords: Open Online Course; Medical English; Blended Teaching Model.

1. Introduction

Since the 21st century, the rapid development of information technology has given rise to a great change in education. Open online courses have triggered a revolution in the field of higher education, promoting the transformation of teaching concepts, methods, techniques and models [1]. Open online courses are characterized by openness, diversity and interactivity, which breaks the time and space boundaries of education, and the walls of the school, subverting the way of teaching and learning in traditional classrooms in universities [2]. Blended Learning, characterized by integrating online learning with traditional face-to-face learning [3], is to utilize different media and approaches of transforming information to the optimal learning outcomes [4]. With the popularity of massive open online courses, the blended teaching method, which combines the advantages of traditional offline learning methods with the open online course learning model, has aroused much attention.

Medical English is a required course for medical students. The aim of the course is to enhance students' ability to use English in their profession, improve their communication skills in an academic way, and help them form sustainable learning abilities in their future careers. To some degree, medical English is of great significance to cultivate senior specialists. However, the effectiveness of medical English teaching in some universities or colleges is still far from satisfaction [4]. As a matter of fact, there are mainly three problems in medical English teaching: first, medical English itself is difficult to understand, resulting in a general lack of interest in learning among students; second, there is insufficient development of high-quality teaching resources for medical English; and third, the teaching model is monotonous, with insufficient on-line and off-line integration. The existence of these problems can neither meet the needs of students' effective learning nor the needs of complex talent cultivation. With the fundamental principle of "Lifelong Learning for Moral Integrity", this study develops the open online course platform of medical English, and constructs the blended teaching model by integrating the concept of morality into the design of the course. The purpose is to promote

the enhancement of students' application ability in medical English.

2. Open Online Course Development of Medical English

2.1. Development Objectives

On the basis of optimizing the medical English teaching program, this course intends to develop a series of medical English resources and build an open online course platform. With the platform, teachers can conduct the blended classroom teaching model online and offline, and serve for the cultivation of high-end academic talents who have both in-depth professional knowledge and a high level of English proficiency, as well as a deep love for the country and a broad international vision.

2.2. Development Principles

Adhering to the principles of combining systematicity and openness, blending academics and fun, and integrating popularization and moral education, we organically integrate information technology and the elements of moral education into the design of the course, and develop the medical English open online course, which is explained in the following.

2.2.1. Combination of Systematicity and Openness

The online course consists of six units, namely, "medical English vocabulary", "medical English reading", "medical English translation", "medical English writing" and "medical English listening and speaking". Each unit is organized in a logical way, which includes several micro-lectures. For example, in the unit of medical English vocabulary, there are six micro-lectures, which contain the basic structure of medical English terms, roots, prefixes, suffixes, abbreviations and amphibious words. Each micro-lecture has the following four parts, "introduction", "illustration", "practice" and "conclusion". Meanwhile, the knowledge points of each unit will be continuously updated with the upgrading of the curriculum, so as to realize the sustainable construction of the curriculum.

2.2.2. Integration of Academics and Fun

The medical English course itself is highly specialized, and

the integration of academics and fun is designed to give full consideration to the cognitive characteristics of students. Suitable linguistic theories are introduced to help students acquire the rules of medical language and master the intrinsic features of medical English. At the same time, the teaching materials are presented in novel ways by integrating text, pictures, animation, audios and videos to stimulate students' motivation to study [1], and let them learn to use what they have learned, and learn by using what they have learned.

2.2.3. Integration of Popularization and Moral Education

Popularization means that the course content is easy for students to understand and learn. With this purpose, the selected teaching materials are commonly used in daily life and work [1]. In terms of teaching objectives, each unit has a clear goal, which is in line with students' cognitive ability and fully reflects the features of the introductory course. For example, the vocabulary unit is to make students initially understand the source and internal structure of medical English words; the reading unit is to make students basically familiarize themselves with the stylistic characteristics and expression patterns of medical English; the translation unit is to make students initially master the translation skills of special structures and sentences; the writing unit is to make students understand the basic writing style of medical English papers, standard format, and writing methods; the listening and speaking unit is to make students master the pronunciation rules of medical English words, and improve their practical skills in presentations at academic conferences.

Meanwhile, the qualities, such as dedication to excellence, and focus on innovation are integrated into the "practice" part of each unit to cultivate students' sentiment to the society. For example, in the exercise of abbreviation lecture, we combine China's anti-epidemic policy with the abbreviation COVID-19, to guide students to pay tribute to the great medical workers to enhance the students' love for the people.

3. Construction of the Blended Teaching Model Based on the Open Online Course of Medical English

3.1. Task-Based Language Teaching

Task-based Language Teaching (TBLT) is a "learner-centered" approach of language teaching, which has been influential since the late 1980s. TBLT emphasizes the importance of engaging learners' natural abilities for acquiring language incidentally through the performance of tasks [6]. Each task should also have a sense of completeness, being in its own right with a beginning, a middle and an end [7]. By accomplishing communicative tasks as the teaching goal, teachers and students accomplish teaching tasks together, students can acquire language naturally and make progress in foreign language learning [8]. The approach highlights the communication and application of the target language, emphasizes the introduction of authentic texts into the learning situation, focuses on the learning process, and pays attention to the enhancement of the learners' personal experiences [7]. Above all, the approach represents the concept of "whole-person education" and the philosophy of "learning by doing", pays attention to the dual role of "input" and "output", and stresses the organization of classroom teaching based on language use [9]. Among many teaching programs, TBLT is effective and far-reaching, which inspired a generation of language teachers [10].

3.2. Construction of the Blended Teaching Model

Under the guidance of task-based language teaching method, we organically integrate the online open course of medical English with traditional classroom teaching, and construct a blended teaching model via Chaoxing Learning APP (see Figure1). This new model should integrate the strengths of the traditional classroom teaching with the advantages of online-learning while fully employing modern information technology, enabling students to have access to learning medical English resources conveniently.

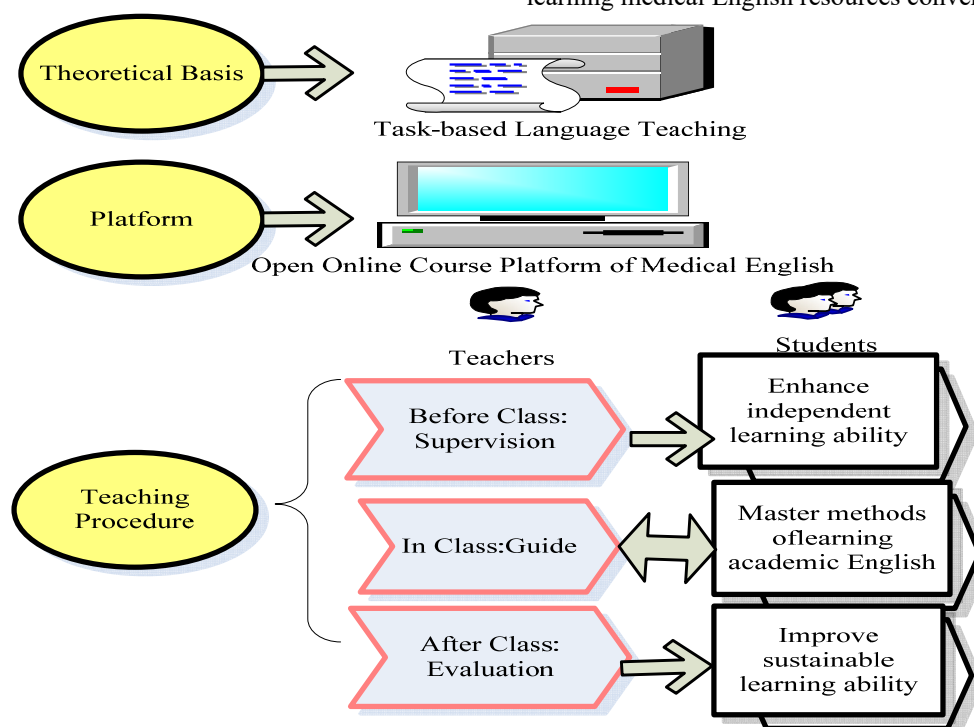


Figure 1. Blended Teaching Model Based on an Open Online Course

As is shown in Figure 1, this model takes the task-based language teaching approach as the theoretical basis. With this model, teachers can not only adopt various teaching methods to enhance the interest of the course, but also design appropriate tasks to help students improve their learning efficiency and interest, and enhance their medical English proficiency. Students can both make the most of the teachers' lectures in the classroom and be assisted by the open online course platform of medical English in choosing the proper content of learning materials according to their own specific needs and arranging self-paced learning guided by teachers. The teaching process consists of supervision before class, guidance in class, and evaluation after class.

3.3. Application of the Blended Teaching Model

An empirical study was conducted in the first term of the 2022-2023 academic year to examine the application of the blended teaching model.

3.3.1. Research Participants

Participants are 130 sophomore students from four classes, majoring in clinical medicine. One is the control group with 64 students, and the other is the experimental group with 66 students. There was no significant difference in terms of students' age, gender and academic achievement between the two groups.

3.3.2. Research Purpose

The purpose was to investigate the differences in academic performance and attitudes between the control group and the experimental one.

3.3.3. Research Instruments

Questionnaires and tests were used to collect data, and SPSS24.0 was used to analyze the data. Before the experiment, one test was conducted to explore the English level of different groups. After the experiment, one test and two questionnaires were conducted to examine the academic performance and attitudes to different teaching models.

3.3.4. Research Procedures

The control group were taught with the traditional teaching approach, while the experimental group were taught with the blended teaching approach. The procedures of the blended teaching approach are explained as follows:

Before class, teachers designed tasks and assigned them to students who make full use of open online course resources carrying out self-regulated learning. Guided by teachers, students finished reading, translation, writing, listening, speaking and other corresponding learning tasks. Teachers logged on the online course platform regularly to supervise the learning process, check the completion of students' tasks, and answer questions timely raised by students.

In class, teachers helped students to know how to fish and prompted students to master the learning method of medical English. Teachers gave full play to the advantages of the traditional classroom. Besides lectures about learning methods of medical English, teachers organized varied activities, such as group discussions, debating, role-playing, and presentations, in order to cultivate students' critical thinking and problem-solving abilities. In the lecture portion, teachers first introduced the topic in a funny way to attract students' attention. Next, teachers illustrated intrinsic characteristics of medical English with proper theories of linguistics and helped students actively acquire new

knowledge, form skills and participate in the whole learning process to cultivate their innovative learning and sustainable learning ability. Then, teachers encouraged students to apply theories to practice to cultivate students' ability of inquiry-based learning. At the same time, it is sublimated by integrating the elements of moral education to cultivate students' ability of rigorous thinking and the benevolence of medical practitioners. At last, teachers let students summarize what they have learned briefly to encourage students to learn by doing and learn by using.

After class, online learning facilitation and evaluation are key to enhancing students' ability for sustainable learning. Teachers used the open online course platform to urge students to study on their own in accordance with the teaching schedule. Subsequently, teachers monitored students' learning behavior data in real time, and utilized Chaoxing Learning APP to perform a multidimensional analysis of the data to assess students' learning outcomes and identify differences in their cognitive habits. Then, personalized learning reports were generated for each student, which reflected their learning behavior characteristics in detail. Teachers used these learning reports to analyse the learning situation and adjust teaching strategies in real time, promptly identifying and solving issues throughout the teaching process. The formative and process evaluations provided by Chaoxing Learning APP meet the current educational standards for deep and refined quality improvement, enabling students to develop sustainable learning abilities.

3.4. Assessment of the Blended Teaching Model

The investigation into the effect of the blended teaching model encompassed three key dimensions: Initially, we examined the disparity in learning outcomes, as reflected by the final examination scores, between the experimental and control groups. Subsequently, we assessed the self-evaluation of learning experiences reported by participants in both groups. Lastly, we incorporated comprehensive evaluations from teachers regarding the daily academic performance of students across the experimental and control groups

3.4.1. Analysis of Students' Learning Outcomes

The experimental group and the control group were mixed and randomly ordered during the final examination, which ensured that the participating teachers conducted blind testing. The final examination was administered in written form, consisting of sections on listening, terminology matching, reading, translation, and writing. Teachers used SPSS24.0 to record and statistically analyze the students' final examination scores (total 100 marks with scores rounded to the nearest whole number), and the results are as follows:

The independent t-test result in Table 1 presents that the mean scores at pretest for the experimental group and the control group were 61.8 and 61.5 respectively, with a p-value more than 0.05, which indicates that there was no significant difference between the experimental and control groups at pretest. However, compared with the control group's mean score of 68.5 at posttest, the experimental group demonstrated a more noticeable improvement, with a mean score of 75.6. The t-value for the posttest is -7.3 with a p-value of 0.001, which is significant at the 1% level, suggesting a substantial and significant difference between the experimental and control groups at posttest. This reveals that the blended learning model based on the open online course is more conducive to improving students' grades and the medical

English learning effect.

Table 1. Independent sample t-test for the pretest scores and posttest scores of the control and experimental group

Group	N	Mean		Standard Deviation		t		df		p	
		Pretest	Post-test	Pretest	Post-test	Pretest	Post-test	Pretest	Post-test	Pretest	Posttest
Experimental group	66	61.8	75.6	9.7	8.0	-0.77	-7.3	182	194	0.448	0.001***
Control group	64	61.5	68.5	7.9	7.4						

Note: *** indicates significance at the 1% level.

3.4.2. Analysis of Student' Self-Evaluation of Learning

According to students' self-evaluation scales, the experimental group had positive feedback on the blended learning model. On the one hand, the open online course effectively expanded the limitations of traditional offline learning, providing students with a more diverse range of learning materials and interactive experiences. On the other hand, under the guidance of teachers, the experimental group students spent more time learning medical English, with greater efficiency and stronger motivation. As a result, their ability to apply medical English had significantly improved, allowing them to read academic articles of a certain difficulty without barriers and to write English abstracts. While most of the students in the control group expressed that there were fewer lessons for medical English, and their greatest gain was learning professional vocabulary from different fields and acquiring some professional knowledge.

3.4.3. Analysis of Comprehensive Assessment by Teachers

The comprehensive evaluations from the teachers revealed that the blended learning model demands more effort from teachers compared with traditional teaching models. A large percentage of teachers believe that it integrates the strengths of both online and traditional offline teaching methods. They pointed out that for the teachers, this model fosters positive interactions with students, making their classes more passionate and fulfilling. For the students, it stimulates initiative and creativity, and cultivates inquiry-based learning skills and self-regulated learning efficacy. These findings are consistent with the research by Garrison, which indicates that blended learning can enhance students' autonomy and sense of efficacy in learning [11].

4. Conclusion

The blended teaching model based on the open online course of medical English integrates task assignment and checking, interactive teaching, assessment, and other corresponding learning tasks throughout the entire online and offline teaching process, which consists of supervision before class, guidance in class, and evaluation after class. This model not only adeptly employs the open online course to conduct remote teaching, compensating for the limited time available for Medical English instruction, but also maximizes the benefits of traditional classroom teaching, transforming expository teaching into a heuristic teaching model. This shift encourages students to change from passive recipients of knowledge to proactive learners, fostering a classroom environment where efficient learning thrives. Moving forward, we will lead with the digital transformation of education. On the one hand, we will empower teaching with digital tools, using curriculum development as our main focus to continuously refine teaching designs. Besides, we will

verify the effectiveness of the blended teaching model based on the open online course of medical English, aiming to create an efficient classroom teaching experience. On the other hand, we will transform students' learning through digital education, extending the reach of online open courses to serve as a model and benefit a greater number of students. This approach will contribute to the cultivation of versatile and advanced specialized talents for the nation.

Notes on Contributors

Guangwei Li is a professor at the School of Languages and Literature, University of South China. His main research interests are translation and applied linguistics. He has published more than 40 articles on translation studies in the past few years.

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