

Research on the Hybrid Teaching Model of College English in the Post-epidemic Era

Sumei Wang^{1,2,a}

¹*School of Education, Philippine Women's University, Manila, Metro Manila, Philippine*

²*School of International Education, Qingdao Hengxing University of Science and Technology, Qingdao, Shandong, China*

^a2021t1276@pwu.edu.ph

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Abstract: The hybrid teaching model is an innovative educational concept whose core is student-centered, teacher-oriented, and combining theory with practice. Compared with traditional knowledge-instilling English classes, hybrid teaching can effectively solve the problems caused by a single, closed and boring learning method. This article discusses the tasks of foreign language bilingual courses in colleges and universities in the post-epidemic era, and focuses on the two aspects of mixed Chinese vocabulary and syntactic structure. This article also proposes an efficient compound talent training model based on the actual situation: teachers choose different language teaching strategies based on students' personality characteristics to achieve the goal of teaching students in accordance with their aptitude. Afterwards, this article tested the operating effect of this model. The test results showed that the stability test performance in the three tests of learning achievement, learning style and learning motivation were all above 90%, and the compatibility was above 0.83.

1. Introduction

With the continuous development of social economy, the hybrid teaching model has become an emerging form in the field of education and has gradually gained widespread recognition. Compared with traditional English teaching methods, the hybrid teaching model has significant differences in knowledge transfer and ability development. Its biggest feature is that these two tasks are integrated into the same module and implemented through division of labor and cooperation. In such a mixed education environment, students can not only learn a single skill, but also improve their ability to deal with complex things and political situations. At the same time, teachers make it easier for students to understand and master the content and theoretical system they have learned through their understanding of the interrelationships between various knowledge points and their overall summary guidance.

Although domestic scholars started researching hybrid teaching models late, in recent years, with the continuous development of China's economy and science and technology, the requirements for college English courses in the post-epidemic era have become increasingly higher. Some scholars believe that the hybrid teaching model is a new, efficient, flexible and practical educational

technology. It requires teachers to pay attention to interaction with students while learning theoretical knowledge in the classroom [1-2]. Some scholars also pointed out that there was a significant difference between the post-epidemic period and the initial stage of the disease turning into an epidemic. They raised the problems existing in blended English teaching, including teachers' lack of innovative awareness and single and boring classroom models [3-4]. Therefore, this article aims to conduct in-depth research and discussion on the hybrid teaching model of college English.

The hybrid teaching model is an emerging educational technology that teaches in a student-led and teacher-guided manner. This model is scientifically and reasonably combined and applied in both in-class and extra-curricular environments. This article mainly discusses the research, application and development trend analysis of the hybrid teaching method in three aspects of college English vocabulary, grammar and syntax, and puts forward strategic suggestions for effectively improving the standard English translation ability of bilingual courses in colleges and universities based on the actual situation. This includes incorporating mixed language communication into the scope of foreign language oral communication to meet the individual needs of students.

2. Discussion on the Hybrid Teaching Model of College English

2.1 Problems and Reasons for Hybrid Teaching of College English in the Post-epidemic Era

In the post-epidemic era, the hybrid teaching model of college English faces some problems and challenges. For some students, adjusting to this hybrid teaching model may be difficult. Different students have different learning abilities, academic backgrounds and learning styles, so the traditional face-to-face teaching model may be more suitable for some students. Hybrid teaching requires students to have higher independent learning and technology application abilities, which may cause trouble to them [5-6]. Hybrid teaching may increase communication barriers between students and teachers. In traditional face-to-face teaching, students can communicate and interact directly with teachers, which helps them better understand and answer questions. However, in hybrid teaching, students need to communicate through online platforms, which is likely to reduce the efficiency and quality of communication between them and teachers. In addition, hybrid teaching also requires a large investment in technical facilities and human resources. Schools need to provide a stable network environment and appropriate technical equipment, and also need to train teachers and students to use relevant technical tools. These problems mainly originate from the following aspects:

(1) Technical equipment and network connections may limit students from obtaining a full learning experience in hybrid instruction. Although the development of technology has brought many conveniences, in some areas, especially remote areas or developing countries, there are still problems such as insufficient network coverage and outdated equipment. This will cause students to be unable to participate in online learning activities stably and affect their learning results.

(2) Hybrid teaching may increase the difficulty of communication between teachers and students [7-8]. Face-to-face teaching can promote communication and understanding between teachers and students through real-time interaction, but online teaching often limits this interaction. Students may face online communication difficulties, such as poor voice and video quality, unclear delivery of information, etc. For teachers, since they cannot directly observe students' expressions and body language, it may be difficult for them to accurately assess students' learning progress and understanding.

(3) Blended teaching may also lead to students' lack of learning motivation. Compared with traditional face-to-face teaching, online learning often requires students to have more self-discipline and self-management abilities [9-10]. However, for some students, without a strict study schedule

and teacher supervision, they may fall into procrastination and lack of motivation. Moreover, without close contact and communication with classmates, learning difficulties and setbacks may make students more likely to lose confidence and motivation.

(4) There is an imbalance of knowledge and skills in hybrid teaching. Different students have different electronic device configurations, network speeds, and usage skills, which may result in some students being better able to master technological tools and resources during online learning, while other students are unable to fully utilize these resources due to various reasons. This may lead to a wider gap between students and affect learning equity.

However, despite these issues, hybrid teaching models also bring some advantages and opportunities. It can provide a more flexible learning method, allowing students to study according to their own time and place, thereby improving learning efficiency. In addition, hybrid teaching can also incorporate a variety of teaching resources, such as online courses, educational videos, etc., to enrich students' learning content. In the post-epidemic era, the hybrid teaching model of college English has certain challenges and opportunities [11-12]. Schools should comprehensively consider teaching resources, student needs, technical support and other factors to design a hybrid teaching plan suitable for student learning and development to achieve better teaching results. In today's educational environment full of changes, hybrid teaching models are gradually becoming an important means to promote educational innovation. Through continuous adjustment and improvement, it is believed that various challenges faced by hybrid teaching will be overcome to better meet students' learning needs and development goals [13-14].

2.2 Blended Teaching Course System

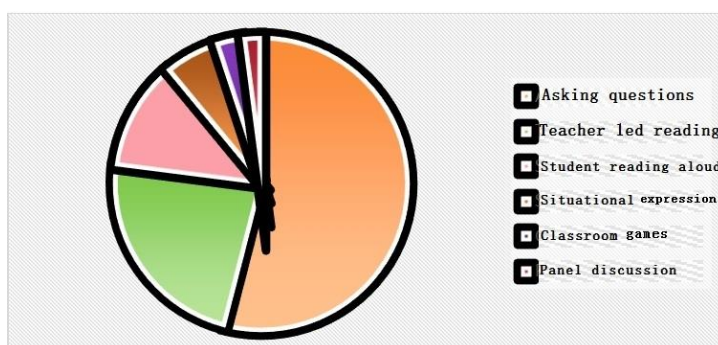


Figure 1: The proportion of classroom interaction mode

The blended teaching curriculum system is a teaching model that integrates the cultivation of knowledge, skills and emotions, aiming to improve students' efficiency in English learning. Figure 1 shows the proportion of classroom interaction methods. Among them, the method of asking questions accounts for 54%; the method of teacher-led reading accounts for 23%; the method of students reading aloud accounts for 12%; the method of situational expression accounts for 6%; the method of classroom games accounts for 3%; the method of group discussion accounts for 2%. Knowledge is the basic element necessary to complete specific tasks, such as understanding diseases and treatment methods, understanding natural disasters, etc. Skills require the proficiency in applying various technologies or tools in specific environments, such as calculation, translation, analysis and prediction. The hybrid teaching curriculum system designs and implements teaching plans with a functional structure based on different educational goals, students' physical and mental development, and knowledge and skill levels [15-16]. In hybrid classrooms, teachers not only need to teach different subject contents and theoretical knowledge, but also organize different types of classes to meet the needs of students. In terms of teaching material analysis, teachers should make

scientific and reasonable material selections, and at the same time understand current social hot issues and students' living conditions by consulting materials. Then, this information is sorted and summarized, and a teaching syllabus and course system structure framework diagram are developed. The hybrid teaching curriculum system is a teaching model that reasonably arranges learning tasks according to students' requirements for knowledge points and skills under the guidance of different educational ideas and theoretical knowledge. In college English education, relevant concepts and ideas are introduced so that students can clearly understand the type of knowledge to be learned in the course and master relevant skills. At the same time, these knowledge and skills can also be applied to other subject areas to improve professional capabilities and form a complete and flexible compound talent training system [17-18]. In terms of teaching material content, teachers should combine the courseware they teach with practical applications, and consider factors such as the characteristics of different majors and differences in students' English proficiency when making selections. It is also necessary to determine the combination of course objectives and content based on the specific teaching environment, and develop a detailed schedule for teachers to refer to. The hybrid teaching curriculum system should organically combine educational objectives and content of different natures, and at the same time penetrate each other in three aspects: knowledge and skills, processes and methods, and emotions, attitudes and values, to ultimately achieve the goal of cultivating students' lifelong learning abilities. In terms of theoretical courses, English teachers should design teaching syllabuses based on teaching materials and choose appropriate theoretical classes based on the actual situation of students. English teachers guide teaching effects through classroom practical activities and further enhance students' mastery of English knowledge and skills [19-20]. The blended teaching curriculum system aims to improve students' English learning efficiency by comprehensively cultivating students' knowledge, skills and emotions. It adopts scientific teaching material analysis and content arrangement to effectively guide students to practice in the classroom, thereby cultivating students' lifelong learning ability.

3. Experimental Process of Hybrid Teaching Model of College English in the Post-epidemic Era

3.1 Basic Framework of College English Blended Teaching Model

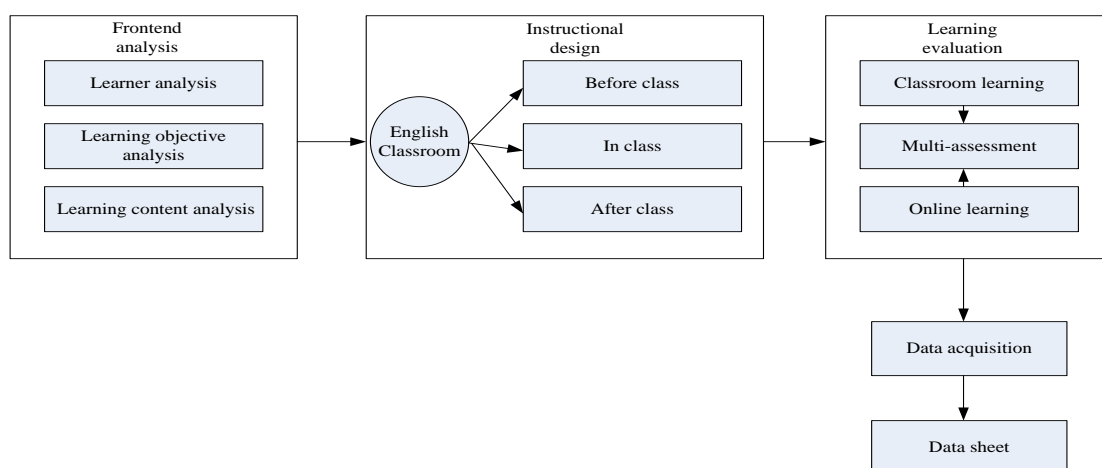


Figure 2: Mixed teaching mode

The basic framework of the hybrid teaching model consists of two main levels: teachers and students, as well as teaching materials and academic situation analysis and other elements. Figure 2 shows the structure of the hybrid teaching model. At the level of setting teaching goals, teachers

should clearly set goals and make personalized settings according to students' individual differences and learning abilities to improve students' concentration and learning effects. In terms of selecting and designing learning resources, the hybrid teaching model emphasizes the use of diverse resources to enrich the learning experience. Teachers can choose appropriate teaching materials, online courses and multimedia materials to construct a complete systematic framework by explaining knowledge points in different subject areas to stimulate students' interest in learning and cultivate their independent learning abilities. In the stage of analysis of teaching materials and academic situation, targeted guidance is also particularly important. The hybrid teaching model combines traditional face-to-face teaching with online learning, so the teaching process needs to be reasonably organized and managed. Teachers can use a combination of online and offline methods to conduct explanations, discussions and interactive activities, and at the same time use online platforms to carry out management work such as homework assignments and student evaluations to improve teaching efficiency and quality. The hybrid teaching model emphasizes the trend of cross-penetration and integration development between different disciplines, and also focuses on applying theoretical research results to practice. When teaching various courses in English classes, students are required to learn according to their own actual conditions. The hybrid teaching model focuses on students' active participation and independent learning, so timely evaluation and feedback are required. Teachers can monitor and evaluate students' learning through real-time online testing, homework evaluation, etc., and provide timely feedback and guidance to help students improve their learning strategies and methods. The rational use of these components can effectively improve the effect and quality of college English teaching and improve students' enthusiasm and initiative in learning. The hybrid teaching model is gradually becoming an important means and path to promote the reform of college English teaching, and is expected to continue to play an important role in the future.

3.2 Teaching Model Technical Support

In the hybrid teaching model, data mining technology is a new type of course that can provide students with personalized needs, and a variety of analysis methods are used to conduct in-depth research in English classes. After sorting and classifying a large amount of information, it can be found that: first, factors such as different types, different personalities, and disciplines must be incorporated into students' daily learning and life; secondly, teachers should choose the appropriate classification pattern based on the actual situation of the students and construct the required knowledge points and competencies in the blended teaching process; then after asking questions to the teacher, scientific reasoning, judgment and conclusion can be made by analyzing and processing a large amount of information. What needs to be noted during the actual application process is: the first point is to make full use of modern information technology means such as multimedia to integrate educational content; the second point is to connect different disciplines to promote knowledge transfer; the third point is that all kinds of data used in the hybrid teaching model can be effectively mined, thereby providing students with better learning environments and conditions, etc. Through the principles of data mining technology, different forms and types of information are transformed into digital features with certain relevance and generality. Assuming that the sum of edge weights within the cluster is eliminated in a minimal truncation manner as the interconnectivity index of the cluster, the interconnectivity of the clusters formed after merging can be compared with the average of the total interconnectivity to define the interconnectivity. Likewise, the proximity of the clusters formed by merging P_s and P_w can be compared with the average of the total internal proximity to define the relative proximity index. The relative interconnectivity is as follows:

$$UO(P_S, P_W) = \frac{|EW_{|P_S, P_W|}|}{\frac{1}{5}(|EW_{P_W}| + |EW_{P_S}|)} \quad (1)$$

The relative approximation is as follows:

$$UI(P_S, P_W) = \frac{\bar{T}_{WS|P_S, P_W|}}{\frac{\|P_S\|}{|P_S| + |P_W|}} \quad (2)$$

Here: $WS|P_S, P_W|$ is the edge cut of the cluster containing P_S and P_W . This algorithm provides teachers with access to relevant content in English teaching, allowing them to gain a deeper understanding of students' learning. The algorithm can also provide reasonable suggestions based on the problems encountered by students and evaluate students' feedback in order to improve key aspects such as students' acceptance of new things and their understanding and acceptance levels.

3.3 Hybrid Teaching Model Operation Effect Test

The operational effectiveness test of the mixed teaching model is mainly designed to evaluate students after learning English knowledge to ensure that there are no major problems when applying the mixed teaching model in college English classes. This assessment method can effectively measure students' performance in accepting and understanding new things. The testing process of the mixed teaching model includes that after the mixed model is implemented in the college English classroom, teachers and students complete tasks together and evaluate the students' performance. Teachers need to determine whether the knowledge content of each academic period meets the requirements based on the knowledge points taught, learning objectives and curriculum standards. Through exchanges and discussions between the experimental group and the control group, we can understand whether students have improved their mastery of a certain theory or skill at different stages. We can also collect relevant information from the classroom so that teachers can adjust and improve the teaching process in a timely manner.

4. Experimental Analysis of Hybrid Teaching Model of College English in the Post-epidemic Era

Table 1: Pressure test parameters

	Concurrent access	Request response time(s)	Throughput capacity(k)
1	657	4	2325
2	583	3	2165
3	645	6	2276
4	750	7	2754
5	732	6	2543
6	694	6	2456
7	689	6	2376
8	779	8	2564
9	694	6	2437
10	754	7	2512

Analyzing the stress test parameters of the English teaching model can help evaluate the effectiveness and applicability of the teaching model. Stress testing is an effective method for testing the performance of teaching models in the face of various stressful situations. This article tests the hybrid English teaching model. Table 1 shows the stress test parameters of the model. This article tested its concurrent access volume, request response time and throughput respectively. Observing the data in Table 1 can help understand the advantages and challenges of the English teaching model. This helps educators and policymakers formulate corresponding teaching strategies and policies to improve the quality and effectiveness of English teaching. At the same time, continuous stress testing can also promote the continuous improvement and innovation of teaching models to adapt to the changing educational environment and student needs.

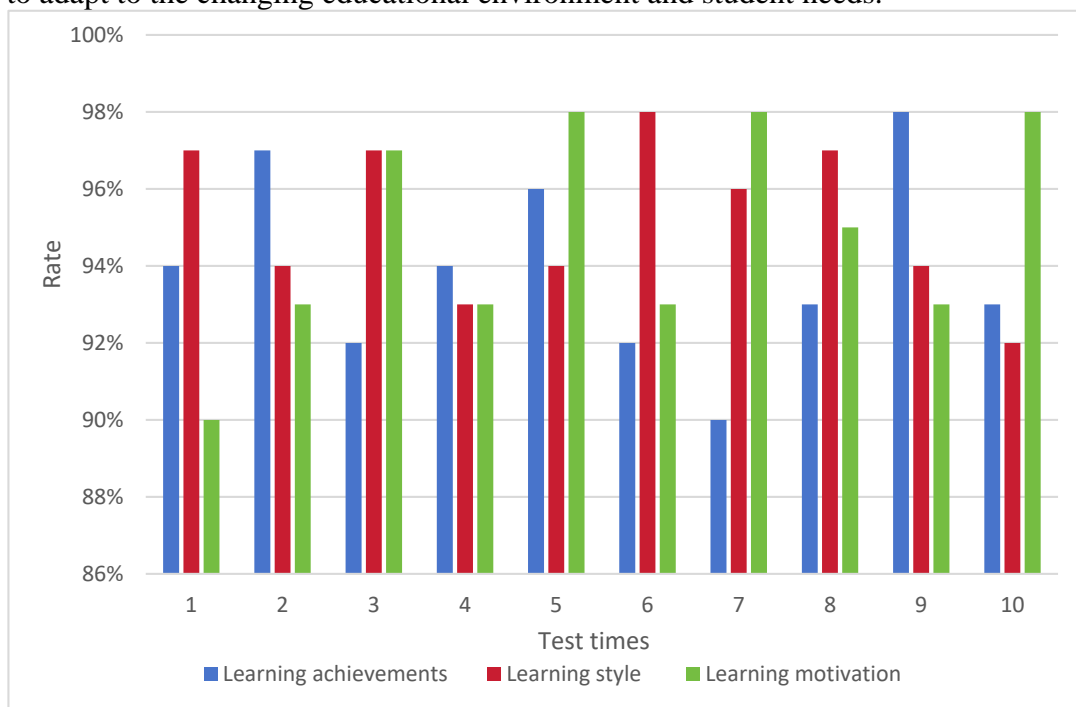


Figure 3: Stability test

Stability testing is a common method for assessing the validity and reliability of teaching models. Through a comprehensive analysis of existing research in this field, the performance of the teaching model in different situations can be revealed, and further suggestions for improvement can be made. In order to ensure the accuracy and reliability of test results, appropriate test design and statistical analysis methods should be used. For example, the test-retest method or parallel testing method can be used to evaluate the stability of the teaching model. For the stability test analysis of the English teaching model, the influence of different variables and situational factors should be considered. This article takes students' learning achievements, learning styles, learning motivation, etc. into the consideration scope of the stability test. Judging from the data in Figure 3, the stability test performance of the first three tests is above 90%. By comprehensively analyzing the relationship between different variables, the stability of the teaching model can be better understood and a scientific basis can be provided for teaching practice.

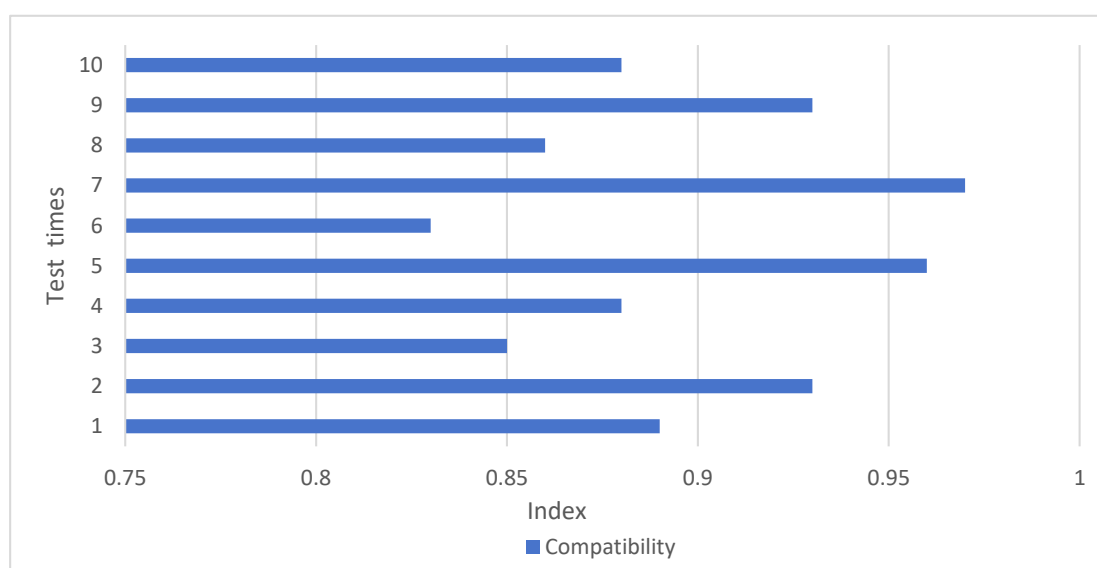


Figure 4: Compatibility test

Compatibility testing of the hybrid English teaching model is used to determine the applicability of the teaching model in different contexts and environments. The test aims to evaluate whether the teaching model can teach effectively under various conditions to ensure its feasibility and sustainability in practice. When conducting compatibility testing, multiple factors such as educational institutions, teachers, students, and course content need to be considered. According to the compatibility test data in Figure 4, the compatibility of this model is above 0.83.

5. Conclusion

Currently, the blended teaching model has been widely used in college English classes and has achieved good results in actual education. Despite this, college English teachers still lack effective blended teaching methods. This article will start from theory and combine the development needs of modern society and student needs to analyze and discuss the new requirements and reform directions for traditional chemistry courses in the post-epidemic period; at the same time, based on the knowledge, ability and skill characteristics of university foreign language majors, a compound talent training program is constructed with the goal of improving the overall quality of students, establishing a new hybrid teaching model, promoting the effective implementation of English classes in colleges and universities, and promoting them to participate in international competition better and faster. However, although research on the hybrid teaching model of college English in the post-epidemic era has many advantages, it also faces some shortcomings. Limitations of technical equipment and network conditions may be factors affecting blended teaching. There are certain challenges in learning motivation and self-discipline. Opportunities for communication and interaction may be reduced under a hybrid teaching model. At the same time, problems such as insufficient professional training and support for teachers and difficulties in evaluation and monitoring also need to be addressed.

In order to solve these problems, educational institutions and educators need to work together to provide better technical support, training and support, and continuously explore and improve hybrid teaching models. By providing more advanced technical equipment and optimizing network conditions, the impact of technical factors on hybrid teaching can be reduced. In addition, stimulating students' learning motivation, strengthening the cultivation of self-discipline, and providing opportunities to encourage interaction and communication can help overcome challenges

in learning motivation and self-discipline. At the same time, strengthening professional training for teachers, providing necessary support and resources, and establishing effective evaluation and monitoring mechanisms will help overcome related shortcomings. By working together, educational institutions and educators can solve the problems faced by the hybrid teaching model of college English in the post-epidemic era, and continuously improve and optimize the model to better meet the needs of students, promote the effective implementation of English classes in colleges and universities, and promote better and faster participation in international competition.

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