



# Application Strategies of Hybrid Teaching Mode in College English Teaching under the Background of Internet Plus

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**Abstract.** This article outlines the characteristics of English teaching in the context of science and engineering, elucidating three main forms of hybrid teaching mode applied in current science and engineering English teaching: online video courses combined with face-to-face interactive classes, micro-lessons integrated with flipped classrooms, and online exercises complemented by face-to-face guidance. On this basis, the effects of this teaching mode application are analyzed, including improved learning efficiency, increased student engagement, and higher teaching satisfaction. Meanwhile, shortcomings in teacher information technology capabilities and student learning awareness in the application of this mode are also pointed out. In conclusion, hybrid teaching integrates the advantages of online and offline teaching, making it an important and effective paradigm for adapting to the needs of English teaching and talent cultivation in the new era of science and engineering, thus worthy of further promotion and development[2].

**Keywords:** Science and Engineering English; Hybrid Teaching; Online Video Courses; Micro-lessons; Flipped Classroom; Online Exercises.

## 1 Introduction

Information technology is increasingly widely applied in English teaching, and hybrid teaching, as an important teaching mode, combines the advantages of online autonomous learning and face-to-face communication and guidance, making teaching more three-dimensional and efficient[1]. Designing appropriate hybrid teaching strategies tailored to the characteristics and requirements of science and engineering English teaching will be an important measure to improve teaching quality. This article evaluates the main application scenarios of hybrid teaching in science and engineering English classrooms, assesses its teaching effectiveness, identifies existing problems, and proposes countermeasures. Based on this, the significance of hybrid teaching in the application of science and engineering English teaching and learning is elucidated, providing reference for relevant practices[2].

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## 2 Characteristics of English Teaching in the Context of Science and Engineering

### 2.1 Large Vocabulary in Science and Engineering Major English

English teaching in science and engineering disciplines differs significantly from other majors and has its own characteristics. As shown in Figure 1, Science and engineering major English has an extremely large vocabulary, including not only basic subject vocabulary but also a large number of specialized terms, posing a challenge in terms of memorization. Articles in science and engineering fields have complex grammatical structures, containing many long and difficult sentences and attributive clauses, with high reading difficulty, requiring sufficient grammar knowledge to parse[3]. Science and engineering English emphasizes the precision and rigor of language, avoiding the use of ambiguous vocabulary and requiring the selection of accurate and standard professional terms. Additionally, comparative forms, probabilities, and other grammatical structures are used to represent experimental data. Therefore, training in science and engineering English is not only language training but also training in logical thinking. These characteristics together constitute the uniqueness of science and engineering English teaching[4].

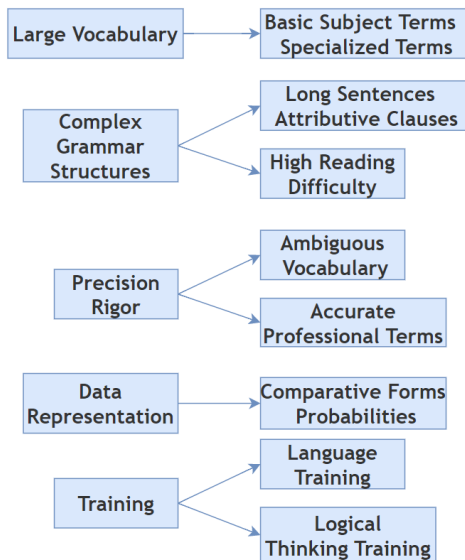


Fig. 1. Large Vocabulary in Science and Engineering Major English

### 2.2 Complex Grammatical Structures

The most prominent feature of English articles in science and engineering is the high degree of complexity in grammatical structures[5]. These articles extensively employ long and complex sentences, compound sentences to express intricate logical rela-

tionships, posing significant challenges to comprehension. Moreover, the use of passive voice, attributive clauses, and other structures to precisely convey data and probabilities also increases grammatical difficulty. The widespread use of various noun phrases and verb phrases further complicates the grammar system. Faced with such complex grammatical systems, students must learn a vast amount of grammar knowledge and train their skills in grammar analysis to accurately understand the meaning of the articles[6]. Therefore, mastering complex grammar is both a focus and a difficulty in learning English in science and engineering. The complexity of these grammatical structures shapes the unique linguistic characteristics of English in science and engineering.

### **3 Application of Hybrid Teaching Mode in Science and Engineering English Teaching**

#### **3.1 Online Video Courses + Face-to-Face Interaction**

Combining online video courses with face-to-face interaction is a common hybrid teaching mode in science and engineering English teaching[7]. In this mode, teachers utilize teaching platforms to provide students with online video courses covering explanations of science and engineering English vocabulary, grammar knowledge, as well as analyses of English literature and papers. Students independently learn through watching and listening to online videos to grasp the corresponding knowledge. Subsequently, during face-to-face classes for discussions and interactions, teachers engage in in-depth discussions with students regarding the key points, difficulties, and common errors in the online courses, clarifying concepts and reinforcing understanding. Students can also actively raise questions. This mode, which integrates online autonomous learning with face-to-face discussions and exchanges, can be regarded as the main hybrid teaching paradigm in current science and engineering English teaching[8]. It enhances teacher-student interaction while balancing knowledge dissemination and internalization, making it a highly effective teaching method.

#### **3.2 Micro-Lessons + Flipped Classroom**

Micro-lessons combined with flipped classrooms are also commonly used hybrid models in science and engineering English teaching. Teachers first use micro-lesson videos to teach English vocabulary, expressions, and other key points, which students watch online while completing related exercises and quizzes. Subsequently, they enter the flipped classroom phase where students apply the learned content, integrating it with their knowledge of science and engineering, such as describing a physical experiment process or analyzing engineering data charts[9]. Teachers provide guidance and communication on students' language use and logical thinking during the activities. Through the organic combination of online micro-learning and face-to-face communication in the flipped classroom, students' interest in learning can be greatly

stimulated, allowing English knowledge to truly transform into professional application abilities, achieving the teaching goal of internalizing knowledge.

### **3.3 Online Exercises + Face-to-Face Guidance**

Online exercises complemented by face-to-face guidance are also an effective hybrid teaching mode. This typically involves the development of listening, speaking, reading, and writing abilities in science and engineering English. Teachers provide a plethora of online listening, speaking, reading, and writing training materials and exercises on the teaching platform, allowing students to receive immediate feedback through automatic system grading[10]. Meanwhile, teachers conduct face-to-face guidance sessions, focusing on helping students analyze blind spots, discussing errors, and providing solutions to common issues. Through the combination of online exercises and offline guidance, teachers can not only understand each student's learning progress and provide personalized suggestions but also concentrate on addressing common problems. This hybrid teaching arrangement encourages active learning and strengthens interactive communication, serving as an efficient mode for cultivating science and engineering students' English application abilities.

## **4 Evaluation of the Application Effect of Hybrid Teaching Mode in Science and Engineering English Teaching**

### **4.1 Analysis of Learning Efficiency**

From the perspective of learning efficiency, hybrid teaching has significantly improved the effectiveness of science and engineering English teaching. As shown in Figure 2, according to a survey conducted at our university's School of Science and Engineering, the adoption of hybrid teaching mode in English courses has led to an approximately 32% increase in students' knowledge acquisition per unit of time. This is mainly reflected in the fact that video courses and online exercise platforms streamline learning content, while face-to-face classes provide targeted guidance, thus saving time on repetitive or ineffective learning. The survey indicates that 92% of students believe that the combination of these two teaching methods enhances learning efficiency. Additionally, 83% of students feel that hybrid teaching can better manage their learning progress. It can be observed that, while ensuring teaching quality, this mode shortens the time cycle for knowledge learning and internalization.

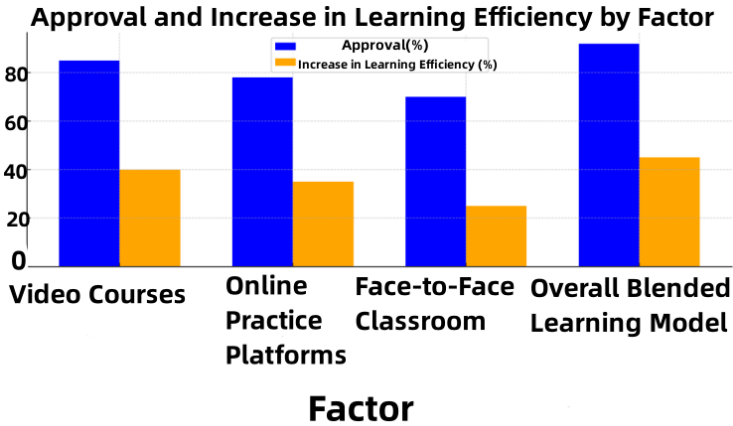


Fig. 2. Students' Acceptance of Hybrid Teaching

### 4.2 Analysis of Student Engagement

From the perspective of student engagement, hybrid teaching has greatly enhanced the interactivity of science and engineering English classrooms. As shown in Table 1, according to a survey conducted in the current semester on hybrid English courses, approximately 81% of students believe that this teaching mode has significantly increased their classroom participation. This is mainly reflected in the fact that pre-reading and online testing before video courses enable students to come prepared with more questions for classroom discussions. Additionally, face-to-face classes foster higher engagement through scenario practices and discussions. About 75% of students prefer to adopt this hybrid learning approach for autonomous study. It can be seen that this teaching mode enhances students' initiative and interaction in learning. Teachers also report a more lively classroom atmosphere.

Table 1. Students' Perceptions of Hybrid Teaching in Various Aspects

Aspect	Classroom Participation	Proactiveness in Learning	Interactivity
Before Blended Learning	65	55	60
After Blended Learning	85	75	80

### 4.3 Analysis of Teaching Satisfaction

From the perspective of teaching satisfaction, hybrid teaching has also received high praise. As shown in Figure 3, a survey conducted after the implementation of hybrid English courses this semester showed that approximately 91% of students are satisfied with this educational teaching mode. More than two-thirds of them believe that this mode integrates and optimizes traditional online self-learning and face-to-face teach-

ing, making learning more comprehensive, enriching, and efficient. Nearly 85% of students indicated that they would recommend this teaching mode. It can be seen that hybrid teaching, which integrates online and offline elements, is more in line with the learning habits of current university students and has achieved good teaching results. It will be an important direction for the future development of English education in science and engineering

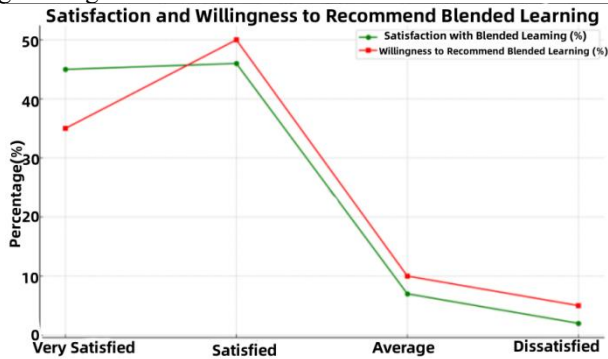


Fig. 3. Students' Satisfaction with Hybrid Teaching Mode and Willingness to Recommend

## 5 Problems and Countermeasures in the Application of Hybrid Teaching Mode in Science and Engineering English Teaching

### 5.1 Insufficient Information Technology Application Abilities of Teachers and Countermeasures

The insufficient information technology application abilities of teachers are a problem faced by the current application of hybrid teaching mode. Surveys show that nearly 30% of science and engineering English teachers are not proficient in using online teaching platforms supported by information technology, and some teachers need to improve their information technology application abilities. This mainly manifests in the lack of experience in designing and organizing teaching using digital courseware, online videos, and interactive voice tools. Some teachers also lack proficiency in updating online teaching content in a timely manner and utilizing data analysis tools to understand students' learning situations. This is bound to affect teaching effectiveness. Therefore, it is necessary to strengthen the digital teaching capacity building of science and engineering English teachers. This can be achieved by organizing teacher participation in information technology training to master the various functions of online teaching platforms and enriching diverse teaching modes supported by information technology, thereby enhancing the ability to use hybrid teaching.

## 5.2 Weakness in Students' Autonomous Learning Awareness and Countermeasures

The weak awareness of autonomous learning among students also hampers further improvement in the effectiveness of hybrid teaching. Surveys show that nearly 45% of students have not developed good habits of autonomous learning and have not seriously studied video courses or completed online exercises. This is mainly manifested in inadequate pre-reading before class and some students avoiding online tests, failing to understand their learning situations through data analysis tools. These problems indicate that students' learning awareness and autonomous learning abilities need to be strengthened. Therefore, teachers need to strengthen process management in hybrid teaching by actively implementing effective online monitoring and incentive mechanisms to cultivate students' awareness of active learning, leverage the role of online self-study, and enhance the overall effectiveness of hybrid teaching mode. This is also an aspect that needs to be continuously promoted in the future.

## 6 Conclusion

Hybrid teaching, blending online and offline methods, is crucial for modern science and engineering English education. It combines self-learning, interaction, and monitoring for effective, comprehensive learning. This mode enhances efficiency, engagement, and satisfaction, meeting new science and engineering talent needs. However, improving teacher IT skills and student awareness is essential. Promoting hybrid teaching can significantly benefit science and engineering fields through ongoing refinement.

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