

# Research on the Reform of English Teaching Models in Higher Education Based on Artificial Intelligence Capabilities

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**Abstract:** Nowadays, humanity has entered the era of “Internet +”. Digital technology has undergone rapid development and widespread application, greatly accelerating the pace of reform and development in the field of education in China. In this situation, college English teachers need to possess certain digital and intelligent education awareness and education capabilities, thereby providing more assistance for the digital transformation of higher education in China. To this end, this paper mainly explores the reform of higher education English teaching mode based on artificial intelligence capabilities, aiming to further promote the reform and development of higher education English teaching. It is for reference only.

**Keywords:** Artificial intelligence capabilities; Higher education; English teaching; Mode reform

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## 1. Introduction

The application of artificial intelligence in higher education English teaching can have various impacts on teachers’ “teaching” and students’ “learning.” In terms of teachers’ “teaching,” the application of artificial intelligence can better assist teachers in developing teaching resources and realize intelligent education and management of students. In terms of students’ “learning,” it can better support students in “ubiquitous” and personalized learning, reducing the difficulty of their learning. However, it should be noted that in the process of applying artificial intelligence to the practice of higher education English teaching, both teachers and students need to possess certain artificial intelligence capabilities to ensure a seamless adoption of AI in English classrooms.

## 2. Advantages of artificial intelligence in enabling the reform of higher education English teaching mode

### 2.1. Advantages for teachers’ “teaching”

In higher education English teaching, the application of artificial intelligence provides many conveniences for

teachers' "teaching." On the one hand, it can assist teachers in the development of teaching resources, which is conducive to providing students with better learning resources. In traditional higher education English teaching, the teaching content is relatively monotonous and cannot meet the individualized and differentiated learning needs of each student <sup>[1]</sup>. With the support of artificial intelligence, teachers can easily access and integrate a large amount of digital teaching resources, thereby providing more new ideas for the development of teaching resources. On the other hand, it can achieve intelligent management of the teaching process, thereby improving the efficiency and quality of teaching. In traditional higher education English teaching practice, teachers usually need to invest more time and energy in daily teaching management <sup>[2]</sup>. With the help of artificial intelligence, teachers can more efficiently complete daily teaching and management tasks, such as analyzing students' learning situations, grading assignments, and generating grade reports. In this way, teachers have more time and energy to focus on the innovation of teaching methods and the optimal design of teaching plans, which is conducive to better promoting the reform and development of English teaching <sup>[3]</sup>.

## **2.2. Advantages for students' "learning"**

In addition to promoting teachers' "teaching", the application of artificial intelligence in higher education English teaching also plays an important role in promoting students' "learning". Firstly, it facilitates students with a "ubiquitous" learning environment and improves their learning efficiency. With the help of artificial intelligence, students' learning of English is no longer limited by time and space, allowing them to engage in autonomous learning according to their progress and plans anytime, anywhere <sup>[4]</sup>. This can greatly improve students' learning efficiency and effectively enhance the flexibility of their learning, in which they are more likely to experience the joy of learning English, thereby motivating them to be more proactive in their studies. Secondly, it can enhance students' learning experience and prompt them to have a more comprehensive understanding of themselves. By utilizing artificial intelligence, students can more conveniently and quickly understand their learning situation, such as the progress of their learning and areas of weakness, which is conducive to providing support for students to develop personalized learning plans <sup>[5]</sup>. Finally, it can motivate students' learning enthusiasm. In English learning, students can use artificial intelligence for simulation dialogues and pronunciation practice, placing themselves in an intelligent, interactive, relaxed, and enjoyable learning atmosphere.

## **3. Forms of artificial intelligence application in higher education English teaching**

### **3.1. Distance education**

Distance education, also known as online education, refers to an educational form that utilizes modern communication technology to enable teaching activities over long distances. It possesses strong interactivity, flexibility, and openness <sup>[6]</sup>. It breaks through the traditional educational restrictions in terms of time and space, providing numerous conveniences for students' learning. Currently, many college English teachers leverage artificial intelligence platforms to conduct online teaching activities and introduce high-quality online teaching resources into the classroom. Sometimes, they also upload their self-made micro-lecture videos and teaching slides to artificial intelligence platforms for students' learning or other teachers' reference, making it possible for the co-construction and sharing of teaching resources.

### **3.2. Video teaching**

Video teaching refers to a teaching form in which teachers produce videos of the knowledge and skills they

intend to impart to students and play them using computers, multimedia, and other technical equipment to complete teaching tasks. This teaching form usually combines sound, text, images, and other elements, making it highly intuitive, easy to disseminate and share, flexible, diverse, and engaging, which can help students better understand and grasp knowledge. Currently, there are many excellent teaching video resources available on online platforms such as National Elite Online Open Courses and NetEase Open Class. In higher education English teaching, teachers can utilize artificial intelligence to select content from numerous video teaching resources that better suit students' learning and development needs, helping students identify and address their knowledge gaps or facilitating their self-improvement, thereby enhancing the effectiveness of teaching.

### **3.3. PPT teaching**

PPT teaching refers to an educational form that utilizes PowerPoint software to create presentation slides for teaching activities. It can include various elements such as text, images, charts, animations, sounds, and videos, and can be presented in slide form or played through projectors or computers. It is a commonly used auxiliary teaching method for teachers at present. In higher education English teaching, teachers can utilize artificial intelligence to display PPTs, helping students intuitively understand key and difficult points. Moreover, PPTs can be uploaded to artificial intelligence platforms for students to view and explore independently, thereby improving the effectiveness of their learning.

## **4. Exploration of reform in higher education English teaching models based on AI capabilities**

### **4.1. Framework of teachers' and students' AI capabilities**

#### **4.1.1. Framework of teachers' AI capabilities**

The framework of teachers' artificial intelligence capabilities mainly consists of the following aspects: First, the people-oriented mindset, which refers to the values and attitude orientations that teachers need to have in the interaction between humans and artificial intelligence. It emphasizes that teachers should always maintain a human-centered value and have a correct understanding that "artificial intelligence is a tool serving humans" <sup>[7]</sup>. Second, artificial intelligence ethics, which emphasizes that teachers should understand, apply and adapt to basic ethical principles, regulations, etc., and be able to apply ethical principles in teaching to guide students to understand and practice artificial intelligence ethics to ensure the safety of the use of artificial intelligence <sup>[8]</sup>. Third, the foundation and application of artificial intelligence, which requires teachers to master the conceptual knowledge and application skills related to artificial intelligence, and be able to select, apply and creatively customize artificial intelligence tools serving students, thereby creating a good "teaching" and "learning" environment with the help of artificial intelligence <sup>[9]</sup>. Fourth, artificial intelligence teaching methods, which refer to the capabilities that teachers should have when using artificial intelligence for teaching, including verifying and selecting appropriate artificial intelligence tools; integrating teaching strategies; supporting course preparation, teaching, learning assessment, etc. <sup>[10]</sup>. Fifth, artificial intelligence promotes professional development, which refers to the ability of teachers to use artificial intelligence to promote their ability and professional development <sup>[11]</sup>.

#### **4.1.2. Framework of students' AI capabilities**

The framework of students' artificial intelligence capabilities mainly consists of the following aspects: First, the people-oriented mindset, which requires students to fully recognize that AI is a tool created by humans and

serves humans. They should have critical thinking when using it and be able to assess whether the design of AI meets human needs and values <sup>[12]</sup>. Second, artificial intelligence ethics requires students to think about “the social and moral impact of using artificial intelligence”, understand the ethical challenges that AI technology may bring, such as data privacy and algorithmic bias, etc. <sup>[13]</sup>. Third, artificial intelligence technology and application, emphasizing that students should master the basic knowledge and skills of AI, including understanding the working principle of artificial intelligence, the role of data, the types of algorithms and their applications in different fields, and be able to complete practical tasks using selected artificial intelligence tools <sup>[14]</sup>.

## **4.2. Integration of AI with teachers’ “teaching”**

### **4.2.1. Optimizing instructional design with intelligent teaching platforms**

In English teaching in higher education, teachers can use intelligent teaching platforms to conduct “precise profiling” of students and optimize teaching design based on this to ensure the effectiveness of teaching. Teachers can track students’ learning behaviors on the platform throughout the process with the help of the intelligent teaching platform, such as students’ browsing of course pages, viewing of micro-lesson videos, and participation in classroom discussions. The intelligent teaching platform can automatically collect and intelligently analyze students’ data and information in learning, and intelligently push personalized learning resources according to students’ learning preferences and habits. It can even predict students’ future learning performance, which is conducive to providing more scientific basis for teachers to optimize the design of teaching plans <sup>[15]</sup>. During this process, the intelligent teaching platform can also provide teachers with some optimization suggestions or automatically generate teaching plans, which can greatly reduce teachers’ workload.

### **4.2.2. Optimizing classroom interaction with AI technology**

In teaching practice, teachers can utilize artificial intelligence technology to optimize classroom interaction, help students to achieve deep learning, and improve their learning effects. For example, in oral English teaching, teachers can use speech recognition technology to help students correct their pronunciation, accurately capture the problems and deficiencies existing in students’ oral expression process, and based on this, assign corresponding oral training tasks to students, allowing them to have conversations with artificial intelligence. During this process, artificial intelligence can easily obtain data information on students’ oral English expression and provide feedback to teachers and students, facilitating teachers to adjust teaching plans promptly and also facilitating students to conduct targeted training. Another example is that in English translation teaching, teachers can use natural language processing technology to provide students with rich translation training materials, such as professional term translation, Chinese-English contrast articles, etc., and assign corresponding translation training tasks to students. During this process, artificial intelligence can promptly grasp the problems that occur in students’ translation processes and the translation habits of each student, introduce some translation skills to students, and also provide targeted teaching optimization suggestions for teachers, which is conducive to laying a solid foundation for the improvement of teaching effects.

## **4.3. Integration of AI with students’ “learning”**

### **4.3.1. Students’ learning experience**

By making use of artificial intelligence, such as intelligent robots and virtual learning assistants, students can carry out continuous interactive learning, which is convenient for them to solve the problems encountered in the learning process promptly and obtain timely learning feedback and educational guidance. This can greatly



increase students' sense of acquisition in learning and improve their learning efficiency and effectiveness. At the same time, artificial intelligence can also intentionally push a rich variety of learning resources to students according to their learning progress and learning ability, thus making the learning process of students richer, interesting and fruitful.

#### **4.3.2. Feedback from intelligent assessment**

After completing oral English practice or writing tasks, students can conduct intelligent evaluations with the aid of artificial intelligence technologies such as natural language processing technology and speech recognition technology, continuously track and receive feedback on their learning situation and progress. Moreover, personalized learning reports can be generated based on the learning data of each stage recorded by artificial intelligence. Doing so can help students recognize their deficiencies and advantages more accurately, objectively, and timely manner, and is conducive to providing more basis for students to adjust their learning plans.

### **5. Conclusion**

In conclusion, under the background of the “Internet +” era, applying artificial intelligence to the practice of English teaching in higher education is an important measure to promote the reform of English teaching. It is also an effective way to improve the teaching quality of teachers and the learning effect of students, which is of great significance. In practice, both teachers and students should focus on the cultivation and application of their artificial intelligence capabilities, and actively use artificial intelligence for “teaching” and “learning,” to lay a more solid foundation for the reform and development of English teaching in higher education.

### **Disclosure statement**

The authors declare no conflict of interest.

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