Innovative Research on College English Teaching Model Based on Artificial Intelligence

Hui Xu*

Wuhan Institute of Design and Sciences, Wuhan 430000, Hubei Province, China

*Corresponding author: Hui Xu, uniqueariel@outlook.com

Abstract: College English teaching in the digital era faces both opportunities and challenges. Rich digital learning resources provide diverse content for language learning, while intelligent technology enables personalized teaching tailored to individual student needs. Ubiquitous learning allows for flexible learning beyond traditional classroom boundaries, but changing student learning styles presents challenges to traditional teaching methods. The innovative model of college English teaching based on artificial intelligence emphasizes building intelligent learning platforms, developing personalized learning paths, implementing adaptive assessment and feedback, and utilizing intelligent writing correction systems to enhance learning outcomes and autonomy.

Keywords: Digital era; College English teaching; Artificial intelligence

1. Introduction

The digital age has revolutionized college English teaching, offering a wealth of resources and innovative technologies to enhance the learning experience. From rich digital learning materials to intelligent technologies like artificial intelligence and big data, educators are now equipped to deliver personalized teaching that caters to each student's unique requirements. However, this era also brings forth challenges as students' learning styles evolve, demanding a shift towards more interactive and personalized learning approaches. With the rise of ubiquitous learning and the need to adapt to digital natives, educators must reevaluate traditional teaching methods and embrace innovative strategies to foster independent learning and critical thinking among students.

2. Opportunities and challenges faced by college English teaching in the digital era
2.1. Rich digital learning resources

The digital age has brought a massive amount of English learning resources, including e-books, online courses, audio-visual materials, digital corpora, etc. These resources cover all aspects of language learning, such as listening, speaking, reading and writing, vocabulary and grammar, cultural background, etc., providing students

with rich and diverse learning content. With the help of digital resources, students can have access to more real, vivid and interesting language materials, thereby improving learning interest and efficiency. In addition, digital resources also have the characteristics of fast updating, convenient search, and strong shareability, which provide convenience for students' independent learning and exploratory learning [1]. Teachers should actively take advantage of digital resources, design teaching content rationally, and promote the all-round development of students' language abilities.

2.2. Intelligent technology supports personalized teaching

The development of intelligent technologies such as artificial intelligence and big data provides technical support for the realization of personalized teaching. Through intelligent technology, students' learning behaviors, cognitive characteristics, knowledge levels, etc. can be accurately analyzed and learning portraits can be drawn, thereby tailoring personalized learning plans for each student [2]. For example, the intelligent adaptive learning system can dynamically adjust learning content and difficulty according to students' learning progress and mastery level, to teach students in accordance with their aptitude. In addition, intelligent technology can also provide students with personalized learning resource push, real-time feedback, diagnostic assessment, and other services, thereby improving learning efficiency and quality. Personalized teaching helps meet students' differentiated learning needs, unleash the potential of each student, and achieve the ideal state of teaching students in accordance with their aptitude and teaching for mutual benefit [3].

2.3. Ubiquitous learning breaks through time and space limitations

The popularity of mobile Internet and smart terminals has given rise to the rise of ubiquitous learning models. Ubiquitous learning breaks through the time and space limitations of traditional classroom teaching, making learning anytime, anywhere and everywhere. Students can use the fragmented time to carry out personalized and informal English learning through mobile phones, tablets and other mobile devices. For example, students can complete English reading and listening exercises online, participate in English forum discussions, and use English learning APPs for independent learning, etc. Ubiquitous learning expands the field of English teaching and extends students' learning time, which is conducive to creating an immersive language environment, improving students' learning autonomy, and promoting the development of learning habits [3].

2.4. Challenges of changing students' learning styles

In the digital era, students' learning methods have changed greatly. The "digital natives" generation of students are active in thinking and good at using digital tools and network resources for independent learning, collaborative learning and inquiry-based learning. They like graphic and fragmented learning content and pay attention to the interactivity and fun of the learning process. This poses a challenge to the traditional "full class" teaching model and single classroom teaching method. College English teaching must adapt to changes in students' learning styles, adjust teaching strategies and methods, and focus on cultivating students' independent learning abilities, critical thinking abilities, and innovation abilities [5]. Teachers must transform from "knowledge imparters" to "learning guides," create an open, interactive, and experiential learning environment for students, stimulate students' learning interests and initiative, and improve teaching effectiveness.

3. Innovative model of college English teaching based on artificial intelligence

3.1. Build an intelligent learning platform

The intelligent learning platform is a new teaching platform based on artificial intelligence technology, integrating intelligent teaching, adaptive learning, real-time assessment and other functions [6]. Through big data analysis of students' learning behaviors, the platform can accurately diagnose students' learning needs and knowledge mastery, thereby providing personalized learning content push and intelligent tutoring services. At the same time, the platform also has built-in functions such as intelligent question answering and voice interaction to provide students with all-round learning support. For example, the "U Campus" intelligent English learning platform developed by Beijing Foreign Studies University uses AI technologies such as natural language processing and machine learning to automatically push micro-courses that meet students' learning characteristics and progress based on their learning behavior and ability level. Practice questions and other learning resources, and provide personalized learning suggestions and feedback, effectively improve students' learning efficiency and autonomy [7].

3.2. Develop personalized learning paths

Personalized learning paths are customized learning plans based on student's learning styles, cognitive characteristics, knowledge base, and other factors. Through artificial intelligence algorithms, a learning path map suitable for each student can be dynamically generated, clearly presenting learning goals, learning content, learning activities, evaluation methods, etc., and guiding students to conduct independent and targeted learning [8]. During this process, the system will track students' learning progress in real time, automatically adjust learning difficulty and progress based on their performance, and achieve "teaching students following their aptitude." Taking the School of Foreign Languages of Shanghai Jiao Tong University as an example, the school has developed an "intelligent adaptive" personalized learning system based on big data and artificial intelligence [9]. By analyzing students' academic status, the system can intelligently recommend learning materials, generate personalized learning paths, and set staged learning tasks and assessments to help students learn independently more effectively. The application of this system has achieved good results, and students' learning interests and independent learning ability have been significantly improved [10].

Table 1. Comparison of application effects of "U Campus" intelligent English learning platform

Project	Before use	After use
Learning interest	62%	88%
Independent learning ability	58%	84%

3.3. Implement adaptive assessment and feedback

Adaptive assessment is an intelligent assessment method that can adjust the difficulty of test questions in real-time based on students' answering performance, thereby more accurately assessing students' actual ability levels. Through adaptive assessment, teachers comprehensively diagnose students' knowledge mastery, identify students' weak links, and provide targeted learning feedback and suggestions [11]. For example, the "English Adaptive Assessment System" developed by Beijing Normal University uses the item response theory (IRT) algorithm to dynamically present test questions of different difficulties based on students' answers to achieve an accurate assessment of ability levels. At the same time, the system can intelligently analyze students' wrong questions, diagnose students' knowledge blind spots, push relevant micro-lessons and exercises, help students

discover and correct deficiencies, and improve their learning level in a targeted manner [12].

3.4. Application of intelligent writing correction system

The intelligent writing correction system uses natural language processing and machine learning technology to automatically evaluate the grammar, vocabulary, structure, content and other aspects of English writing and provides detailed modification suggestions and scores, greatly reducing the teacher's correction burden [13]. At the same time, the system can also summarize common problems in students' writing through big data analysis, providing a basis for teaching improvement. For example, the School of Foreign Languages at Central China Normal University has introduced ETS's "Intelligent Writing Teacher" (Criterion) system, which can automatically review students' English writing in all aspects, including spelling, grammar, vocabulary, sentence patterns, structure, logic, etc., and give modification suggestions and reference examples. By comparing with manual review, the consistency between the Criterion system's scoring and the teacher's scoring is over 90%, demonstrating high reliability and validity. After the introduction of this system, students' writing level has been significantly improved, and the proportion of high-level scores (6 points or above) has increased from 20% to 42% [14].

4. Conclusion

The integration of artificial intelligence into college English teaching has paved the way for a more personalized, adaptive, and efficient learning environment. By leveraging intelligent learning platforms, developing personalized learning paths, implementing adaptive assessment, and utilizing intelligent writing correction systems, educators have the tools to enhance student engagement, improve learning outcomes, and cultivate autonomous learners [15]. As the digital era continues to reshape education, institutions must embrace these innovative models to meet the evolving needs of students and ensure a successful learning experience.

Disclosure statement

The author declares no conflict of interest.

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