

Research on Empowering College English Teaching with Artificial Intelligence

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Abstract

This paper focuses on the empowerment of college English as a Foreign Language teaching with artificial intelligence (AI). It analyzes the changing situation in English teaching and explores the multi-faceted applications of AI in this domain, covering its effects on improving teachers' teaching quality and cultivating students' learning abilities. It also analyzes the application of the man-machine collaborative AI intelligent teaching model, the challenges this presents, and proposed countermeasures. The research shows that AI offers innovative opportunities to college English teaching, but that it brings corresponding issues such as technological dependence and lack of emotional involvement. This paper suggests the careful use of AI technology combined with traditional teaching methods can improve the learner experience and cultivate English-proficient students who are prepared to meet the needs of the times.

Keywords

Artificial Intelligence (AI); College English Teaching; Man-Machine Collaboration; Teaching Reform

1. Introduction

In the current era of rapid technological development, artificial intelligence (AI) has become a crucial force, driving changes in various social fields – and the education sector is no exception. Teaching College English as a Foreign Language, as a vital part of higher education, shoulders the responsibility of cultivating students' comprehensive English application abilities and cross-cultural communication skills. However, traditional teaching models face numerous challenges in the new era. The integration of AI into college English teaching brings new opportunities. With its powerful data-processing capabilities, personalized learning support, and rich teaching resources, AI offers the possibility of solving teaching problems, which is of great significance for improving teaching quality, promoting educational equity, and cultivating innovative talents.

2. Current Situation and Existing Problems in College English Teaching

This section explores the current situation in teaching English at the college level, laying out four common challenges that face teachers and their students.

2.1. Difficulties in Achieving Teaching Objectives

The primary goals of college English teaching is to cultivate students' abilities in applying their knowledge of English, their cross-cultural communication awareness, and their autonomous learning abilities. Current teaching practices fall short of these objectives. Since most evaluation centers on exam scores, students focus most on grades while neglecting the cultivation of practical communication skills. As pointed out by Shan Jinfen (2024), most students study to pass exams. Even those who obtain College English Test Band 4 or Band 6 certificates, often lack proficiency in practical English communication and writing. This leads to a situation where students, although theoretically reaching a certain English level, cannot meet the real-world needs of society and are unable to effectively engage in international exchanges or facilitate cooperative endeavors.

2.2. Limitations of Teaching Content

In terms of teaching content, most colleges and universities rely on textbooks with limited content and scope. Textbooks are updated slowly and cannot keep up with the pace of the times, resulting in a disconnection between teaching content and reality, which is difficult to arouse students' interest. Even those teachers who are willing to seek material beyond their textbooks are restricted by their the quality of online resources and their ability to find relevant materials, These factors combine to make it difficult to provide rich and targeted teaching materials.

2.3. Singularity of Teaching Modes

Common teaching modes, such as the lecture-based mode, discussion-based mode, and flipped classroom, each have their own advantages but still fail to equip English learners with practical communication skills. English learning requires a highly contextualized environment to improve authentic language abilities, and traditional teaching modes fall short of creating real and rich contexts for language skills. Students lack sufficient language practice opportunities in the classroom, leading to the common phenomenon of "high scores but low abilities". In oral expression and writing, students often perform poorly due to a lack of contextual training and are unable to flexibly apply their learned knowledge for effective communication.

2.4. Constraints of the Teaching Environment

The teaching environment also has an important impact on college English teaching. The teaching environments of most colleges and universities have deficiencies, such as limited functions of classroom multimedia equipment, a lack of immersive expe-

riences in online classes, and insufficient numbers of smart classrooms. These problems restrict the development of teaching activities and are not conducive to the cultivation of students' real-world language application abilities. Students learning in an environment lacking real-life language contexts find it difficult to convert their learned knowledge into practical skills.

3. Theoretical Foundations of Empowering College English Teaching with AI

Having laid out some primary challenges with college-level teaching of English, this paper now addresses theoretical considerations in which AI can address these challenges.

3.1. Situated Learning Theory

Situated cognition emphasizes integration of knowledge and action into the cultural construction of learners through activities and applications in appropriate contexts to promote not only learners' cognitive understanding of English but also mastery skills in practical application. The situated learning theory holds that learning is a process in which learners interact with course content in real-life situations to construct knowledge. English learning should focus on improving students' language-using abilities and cross-cultural communication levels. AI, through the cross-coupling of multi-disciplinary technologies, such as the use of virtual reality (VR) and augmented reality (AR) technologies, can simulate the situational scenes described by language. When students learn English in such contexts, they can better understand and employ language knowledge, thus improving their language application abilities. For example, in a virtual English-speaking scenario, students can have conversations with virtual characters, which helps them practice oral expression and communication skills, and enhances their practical language-using and cross-cultural communication abilities.

3.2. Data-Driven Learning Theory

Data-Driven Learning was proposed by Tim Johns (1991) and others based on the research results of the Collins COBUILD research project led by John Sinclair, the founder of corpus linguistics at the University of Birmingham in the UK. Its core intent is to use information technology in teaching. Domestic and foreign scholars have achieved positive results in the research and application of data-driven foreign language learning (Hunston, 2002; Cheng Chunmei, 2007; Yu Yanming, 2009; Zhong Shaochun, 2025, etc.). Data-Driven Learning is an important theoretical foundation for empowering college English teaching with AI. It takes data as the core and provides precise support for teaching through the analysis and mining of a large amount of learning data. In college English teaching, by collecting students' learning data, such as learning progress, assignment completion, and test scores, and using big-data analysis technology, we can gain an in-depth understanding of

students' learning characteristics, including both strengths and weaknesses. Based on these data, personalized learning paths, resource recommendations, and learning suggestions can be provided for students to achieve precise teaching. For example, if students' vocabulary-mastery can be accurately determined, customized vocabulary-learning materials and exercises can be recommended to help students increase their vocabulary and improve their learning outcomes.

4. Practices of Empowering College English Teaching with AI

With the theoretical groundwork laid, the discussion can now move on to suggested practical applications for the college teaching of English with AI.

4.1. Data-Driven Man-Machine Collaborative Preview and Lesson Preparation

The first step in preparing customized language learning materials for students is to have AI formulate personalized preview plans and provide personalized learning resources based on students' unique learning data. An AI-assisted preview which stimulates their thinking and exploration can lead students through solving basic language problems to determine their unique baseline. As Xu Jinghua (2024) has observed, AI can recommend suitable preview materials and set tasks that are challenging without being demoralizing based on students' knowledge backgrounds and learning expectations, cultivating students' autonomous learning abilities and innovative thinking. In this lesson-preparation stage, AI collects students' preview data, helps teachers comprehensively understand the learning situation of students, integrates teaching resources, and designs targeted teaching plans. Teachers continue to play an important role to adjust teaching key points, troubleshoot difficulties, and select appropriate teaching methods and activities. By building on the base of an AI-analysis, teachers can maximize and individualize the teaching syllabus and course content. AI can also provide teaching resource recommendations and teaching-design suggestions, helping teachers improve the efficiency and quality of lesson preparation.

4.2. AI-Empowered Man-Machine Collaborative Teaching and Classroom Teaching Design

In the cultivation of listening, speaking, reading, writing, and translation abilities, AI provides rich learning resources and a personalized learning environment. In listening and speaking training, AI simulates real-life language scenarios and provides one-on-one pronunciation coaching and oral-practice opportunities. Students can improve the fluency and accuracy of their oral expression by having conversations with AI. Research has confirmed that the interactive environment created by generative AI technology helps learners obtain more authentic interactions and improve their language-expressing abilities, providing a new approach for oral English teaching. AI stimulates students' learning interests and enhances their autono-

mous learning abilities through gamified learning and personalized learning-resource recommendations. For example, by combining English learning with games, such as vocabulary-passing games and situational-dialogue games, students can learn English while having fun, which improves their learning enthusiasm. According to students' demonstrated learning and interest preferences, AI can recommend suitable learning resources, such as personalized reading materials and listening exercises, to meet students' differentiated needs and encourage them to more actively participate in their learning. The AI system can select English listening materials in specific fields according to students' academic majors and career expectations, enriching students' knowledge structures and improving their learning efficiency. Similarly, in reading, AI can recommend appropriate reading materials according to students' reading levels and provide auxiliary reading support, such as word explanations and example sentences to help students improve their reading-comprehension abilities. In writing and translation, AI writing tools can check for grammar errors and provide writing ideas, and translation tools can offer multiple translation versions and modification suggestions, enhancing students' writing and translation abilities as it simultaneously reminds the students that their human insight trumps the AI's automated assumptions.

In the cultivation of cross-cultural communication abilities, AI creates cross-cultural situations to help students understand the cultures of English-speaking countries. Through virtual cross-cultural communication scenarios, students can communicate with "virtual characters" from different cultural backgrounds, personally experience cultural differences, and learn to use communication strategies to deal with cultural conflicts. For example, in a simulated international business negotiation scenario, students can understand the business etiquette and communication methods of different countries, improving their cross-cultural communication abilities and preparing for future international exchanges. In classroom teaching, AI can support teachers by taking over mundane tasks such as repetition of fixed knowledge and can improve students' experience by providing personalized learning resources according to students' interests and needs. Furthermore, AI can also provide professional and authoritative explanation videos to meet students' personalized learning needs. When explaining complex grammar knowledge, AI can provide various vivid examples and explanation methods to help students better understand and master the knowledge. At the same time, AI uses multi-modal technology means to monitor and analyze the learning situation in real-time and update and adjust the teaching design.

AI cannot, however, replace teachers. Teachers are needed to monitor and assess data feedback from AI, to build a diversified teaching environment and adjust teaching decisions. Human contact remains important. When AI detects that students have difficulty understanding a certain knowledge point, teachers can provide timely explanations and exercises to ensure the efficient progress of teaching activi-

ties. Additionally, students need to take skills they practice with AI to real-life experience, with teacher assisted conversation with classmates in real time. This man-machine collaborative teaching mode utilizes the advantages of AI to enhance the educational experience of learners under the guidance of teachers, improving teaching effectiveness.

4.3. Personalized and Precise Man-Machine Collaborative Evaluation

In this latest wave of educational innovation, integrating AI deeply into process-based evaluation and organically combining it with teachers' evaluations of students' learning attitudes and support for social and emotional aspects of language learning can create a personalized and precise evaluation system, providing strong support for improving educational quality. AI, with its powerful data-collection and analysis capabilities, can comprehensively capture students' language acquisition data during the learning process, including classroom participation, assignment completion, and online learning duration, and then generate highly targeted comprehensive quality evaluation reports. These reports not only visually present students' learning trajectories but also provide precise data references for teachers' pedagogical decisions, helping teachers support students in accordance with their unique aptitudes. At the same time, teachers, with their rich teaching experience and keen observation skills, incorporate difficult-to-quantify factors such as students' learning attitudes, learning motivations, social abilities, and emotional states into the evaluation, thus achieving a comprehensive analysis of students' progress, helping students clearly understand themselves, and promoting the establishment of a long-term learning mechanism. This innovative evaluation model breaks through the limitations of traditional single-evaluation methods and supports a diversified and comprehensive evaluation of students' learning. Particularly in the realm of performance evaluation, AI's speech-recognition and natural-language-processing technologies play a significant role, greatly enhancing the objectivity and scientific nature of evaluation. In oral-language evaluation, speech-recognition technology can accurately capture the nuances of students' pronunciation and conduct quantitative scoring of pronunciation accuracy, fluency, and intonation richness, effectively avoiding the subjective biases inherent in manual evaluation. In writing evaluation, AI can not only quickly detect grammar errors and inappropriate vocabulary usage but also provide targeted modification suggestions based on big-data analysis, providing students with immediate and precise feedback, helping students continuously improve their learning strategies and enhance their language skills.

5. Challenges and Countermeasures in Empowering College English Teaching with AI

Although AI offers many powerful supports for the teaching of college English, AI does not offer a perfect solution. This section explores challenges and solutions.

5.1. Existing Challenges

Although AI offers obvious advantages in college English teaching, there are also some challenges. On the one hand, AI technology has limitations in the ways it can impart knowledge, which may lead to educational alienation in students. AI lacks the capacity for emotional response and value-orientation guidance and, therefore cannot cultivate students' humanistic spirit and sense of social responsibility. Students using AI still need teachers' emotional, social, and creative educational support. During the learning process, emotional communication and modeling of human responses are crucial to students' growth. These can only be artificially generated by AI, so a human teacher remains necessary in the learning process. In addition, AI's current mode of immediately providing answers and pointing out mistakes is not conducive to cultivating students' independent thinking and creative-thinking abilities. Long-term or over-reliance on AI will result in students who lack the ability to actively explore and solve human problems.

5.2. Countermeasures

To solve the above problems, we need human teachers to implement the educational principle of integrating learning together with value shaping. Teachers should give full play to their own advantages, provide students with emotional care and guidance, and cultivate students' social skills and innovative spirit. Given freedom from the need to navigate some of the more mundane classroom tasks, teachers can focus instead on organizing group discussions, role-playing, and other activities to promote authentic communication and cooperation among students, and on cultivating students' teamwork and interpersonal communication abilities.

Teachers should focus on cultivating students' independent thinking and creative-thinking abilities and guide students to conduct autonomous learning and exploration with the assistance of AI. Teachers can maximize students' learning with AI by designing open-ended questions to get them started with each AI session and encouraging students to first find answers through consulting an AI in English then comparing their findings in group discussions with classmates, cultivating students' innovative thinking and problem-solving abilities. Care must be taken to avoid students' over-reliance on AI and to strengthen interpersonal exercises and practices that utilize and maximize AI assistance while keeping the human element strong.

AI technology provides an excellent opportunity to collect and analyze students' learning data, to provide objective and accurate bases for evaluation, and to comprehensively and objectively evaluate students' learning achievements. Using AI to customize mundane tasks and to target students' unique learning needs, the current evaluation system can enable educational reform, allowing teachers to focus on students' performance in thinking abilities and learning attitudes together with their cultural, social and emotional communication abilities. The teacher's

role can now focus on the human-driven elements of incorporating classroom communication performances, group-cooperation practice, and innovative thinking into the evaluation system to encourage students' all-around development.

6. Conclusion

AI brings innovative opportunities to college English teaching. Empowering teaching practices and constructing a man-machine collaborative AI intelligent teaching model can effectively improve teaching efficiency and quality while simultaneously cultivating the human aspects of students' comprehensive English application abilities and cross-cultural communication abilities. Key challenges include the avoidance of technological dependence and emotional deficiency. To address these problems, college English teachers in universities should actively embrace AI technology, deeply integrate it with traditional teaching methods, and give full play to their uniquely human capacities. Teachers should, based on their professional knowledge and teaching experience, guide students in cultural application, emotional communication, and critical thinking, and at the same time, leverage the powerful functions of AI to achieve personalized teaching and meet the unique learning needs of different students. Education departments and universities should increase training and support for teachers to improve teachers' AI literacy, enabling them to skillfully use AI tools in teaching activities.

Looking to the future, with the continuous progress and improvement of AI technology, its application in college English teaching will become more in-depth and extensive. This will not replace human teachers but will enhance college English teaching, bringing teaching levels to greater heights. By using AI to orchestrate repetitive and learner specific training of language fundamentals, it will be possible to cultivate high-quality English-proficient talents who meet the authentic real-world communicative needs of our increasing global world, providing strong talent with students who are prepared for international exchanges and facilitating cooperative endeavors.

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