An Exploratory Study on the Application of Artificial Intelligence in College English Teaching

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Abstract: Artificial intelligence (AI) technology has brought unprecedented opportunities and challenges for innovation to college English teaching. This study focuses on the application of AI in digital college English teaching at the university level, analyzing the advantages of AI technology in personalized instruction, intelligent assessment and feedback, and immersive learning experience. It also examines pressing issues such as the integration of technology and pedagogy, as well as data privacy and security. Based on this analysis, the study proposes strategies to promote the innovative development AI-empowered English teaching, including constructing a new blended teaching model of "AI + Teacher", enhancing digital literacy of teachers, and improving AI teaching management systems, so as to provide enlightenment for exploring the reform of college English teaching in the era of artificial intelligence.

Keywords: Artificial intelligence; AI empowerment; College English; Teaching innovation

1. Introduction

With the rapid development of artificial intelligence technology, the application of AI in college English teaching becomes more extensive. It has created new possibilities for enhancing instructional quality and optimizing resource allocation as well as innovating talent cultivation models. However, the deep integration of AI technology into college English teaching faces numerous challenges which need to be analyzed and solved. Grounded in Krashen's Input Hypothesis and Bloom's Taxonomy of Educational Objectives, this study tries to investigate practical pathways for the innovative improvement of AI-empowered college English teaching. The findings aim to provide practical guidance for the reform of college English education in the digital era.

2. Application status of artificial intelligence technology in college English teaching
2.1. AI-enabled intelligent and personalized teaching

According to Krashen's "i+1" input hypothesis, in order to effectively promote the acquisition of a second

language, acquirers can understand the input that is slightly beyond his or her current competence, making it challenging yet comprehensible through context or other means [1]. The emergence of AI can better apply this theory. Because AI can accurately assess students' current English proficiency, then adjust the learning content and difficulty dynamically based on their progress and interests. And provide students with more suitable learning materials. At the same time, the intelligent teaching platforms collect and analyze data of students' learning behavior to identify individual learning characteristics and weaknesses. Then tailor personalized learning plans for students to meet their diverse learning needs.

2.2. AI intelligent assessment and feedback

Teaching tasks can be categorized into creative work (e.g., instructional design and emotional engagement) and mechanical repetitive work (e.g., grading and feedback) [2]. AI excels in learning the rules of mechanical repetitive activities based on data, and then processes these tasks efficiently and accurately. So AI grading systems can be used to complete mechanical repetitive work in order to engage teachers in creative work.

For oral proficiency assessment, intelligent speech recognition technology enables AI to accurately analyze students' oral output from aspects of accuracy, fluency, intonation, and other characteristics of pronunciation, and then give quantitative scores. At the same time, AI systems can highlight mispronunciations and offer standard demonstrations, so as to help students improve their pronunciation.

In writing instruction, AI platforms like iWrite can assess students' work from aspects of vocabulary level, content relevance, structure, and technical norms through corpus comparison and text complexity analysis. Then it can give students comprehensive comments and personalized feedback.

3. Challenges of artificial intelligence technology in college English teaching

3.1. Deep integration of AI technology and pedagogy

Despite its benefits, AI technology faces significant challenges in college English teaching. First, there is a misalignment between AI capabilities and the discipline's emphasis on communication, humanity, creativity, and contextual language use. However, the current AI technology still has limitations in semantic understanding, pragmatic analysis, creative language generation, and other aspects. So it is difficult to fully meet the teaching requirements of English discipline. At the same time, the widespread application of AIGC may hinder the creativity of learners' autonomous learning, which conflicts with language learning objectives of language discipline [3].

Secondly, the transformation mechanism of AI teaching achievements is imperfect. A large number of reports and feedback from AI systems often lack actionable recommendations, making it difficult for teachers to apply this data effectively to the optimization of teaching practice.

3.2. Data privacy and security concerns

The operation of AI needs the support of massive data, including students' personal information, learning behaviors, homework, etc. However, colleges and universities often lack robust data governance and it is difficult to guarantee students' control of their personal data. So a strict data classification and grading management mechanism is needed.

The intellectual property issue is also worthy of attention. AI platforms rely on training data from teaching materials, while some platforms may use teachers' lecture notes, teaching plans, and other resources for commercial development without authorization, resulting in violating the legal rights and interests of teachers. In addition, the ownership of AI-generated content, such as test questions or teaching auxiliary materials,

remains legally ambiguous.

Technical vulnerabilities in AI systems pose additional threats to the security of teaching data, such as leakage of user information or cyberattacks, which may pose a hidden danger of being tampered with or destroyed to the databases.

4. Pathways for artificial intelligence to drive the innovative development of college English teaching

4.1. Constructing a new blended teaching model of "AI + Teacher"

In the new blended "AI + teacher" teaching model, teachers and AI systems collaborate to achieve educational goals (**Figure 1**). Drawing on Bloom's Taxonomy of Educational Objectives, AI handles the goals of knowledge, comprehension, and application, while teachers focus on the high-level goals of analysis, synthesis, and evaluation [4]. For example, teachers can build online learning communities through intelligent teaching platforms such as Xuexitong or WeLearn for collaborative tasks. AI can be used to provide personalized support, such as generating vocabulary exercises in the pre-class autonomous learning part. For the after-class consolidation part, AI can be used to serve suitable reading materials to students of different levels.

Cooper G proposed that with the powerful natural language understanding and generation ability of AIGC, it can assist teachers in creating differentiated problems, thus saving teachers' time in designing guided questions [5]. For the in-class part, with their rich teaching experience and emotional communication ability, teachers can create an attractive learning atmosphere in the classroom through guided questions generated by AIGC. With the help of AI, teachers can dedicate themselves to cultivating students' critical and innovative thinking. By this, a complementary reinforcing teaching synergy can be formed to jointly promote the optimization and innovation of college English teaching.
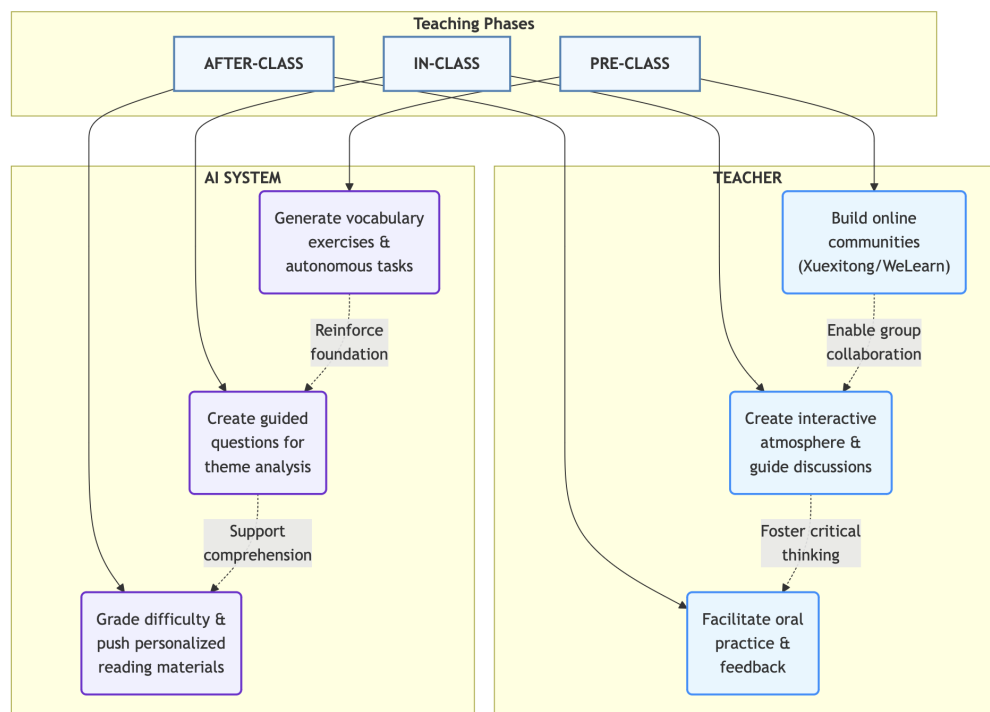

Figure 1. A blended teaching model of "AI + Teacher"

4.2. Enhancing digital literacy of teachers, improving their application ability
4.2.1. Organizing training sessions of AI education
According to the industry standard document: Digital Literacy of Teachers released by the Ministry of Education in 2022, teachers' professional development includes learning and research of digital technologies. At the regional/school level, teachers' training system should be improved, and a regional professional support service team should be formed. Teachers' training should be improved with the times to provide support for pre-service teachers and in-service teachers [6]. The training content should give consideration to both theoretical learning and practical operation with case analysis, experience sharing, etc., equipping teachers with AI tools and critical thinking skills to address emerging challenges. The provision of these training contents can undoubtedly pave the way for teachers to successfully realize role transformation in the "AI" era [6].

4.2.2. Integrating AI-themed teaching to enhance students' AI cognition
Integrating AI-related themes in college English teaching can help students understand the development status of AI. Teachers can organize a group discussion on the topic of "Do not Fear Artificial Intelligence" (New Progressive College English Integrated Course 4) to deepen students' understanding and interest toward AI. Through language practice activities to guide students to master professional vocabulary and expressions related to AI, then guide students to think about the impact of AI development on social issues and ethics.

4.2.3. Building an AI education innovation community to facilitate experience sharing
Cross-disciplinary communities can build a platform for English teachers to share and utilize the achievements of AI education reform from other institutions, while discussing the application models, paths, and strategies of AI technology in college English education. Community members can collaborate to develop teaching resources of AI-empowered classes, such as online learning platforms and intelligent teaching auxiliary materials, so as to enhance teachers' innovation ability of AI-empowered teaching.

4.3. Strengthening system construction to ensure the healthy development of AI teaching
4.3.1. Formulating AI teaching application norms and standards
Implementation rules and management measures for AI use in teaching should be formulated to guide and standardize teachers' AI teaching practice from the institutional level [7]. Meanwhile, guidelines for AI use should be built to proactively address underlying concerns in ethics, and data security, ensuring compliance with intellectual property and privacy laws.

4.3.2. Improving the teaching quality monitoring and evaluation system
In the era of AI, colleges and universities should, in combination with the characteristics of disciplines and the requirements of talent training, innovate their evaluation mode of teaching quality. The effectiveness evaluation of AI-empowered teaching should be incorporated into the whole process of teaching supervision and assessment.

The department of educational administration management can rely on the AI platforms to collect implementation data on classroom teaching, in order to conduct all-around analysis on the dimensions of teachers' preparation quality for lessons, teaching activity organization, teacher-student interaction in class, etc., forming an objective and dynamic evaluation of teaching quality.

AI emotional recognition and semantic analysis technology can be employed to multi-dimensionally

analyze students' satisfaction with teaching. Teaching supervisors can use AI tools to assist in listening to and evaluating classes, checking classes, and giving feedback.

5. Conclusion

To sum up, artificial intelligence technology has injected new momentum into the reform of college English teaching. College English teachers should embrace the concept of "AI + Teacher" to innovate the teaching model, fostering synergy while addressing limitations. Students should enhance their AI literacy to harness smart tools effectively and improve their integrated language skills. Through collaborative efforts, the challenges of college English teaching in the AI era can be solved, paving the way for an intelligent educational ecology.

Disclosure statement

The author declares no conflict of interest.

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