

The Reform of College English Teaching in the Context of AI

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Abstract: With the rapid development of artificial intelligence (AI) technology, college English teaching faces unprecedented challenges and opportunities. This study deeply analyzes how AI technology can be integrated into college English teaching and proposes a series of reform strategies. Firstly, an intelligent teaching platform design framework is constructed, which uses intelligent analysis of student learning data to provide precise delivery of personalized learning resources and real-time feedback on teaching effectiveness. Secondly, innovative teaching models such as blended learning and flipped classrooms are introduced, effectively integrating online and offline teaching resources to enhance students' self-learning ability and classroom participation. Additionally, the study emphasizes the transformation and enhancement of the teacher's role, encouraging teachers to shift from knowledge transmitters to learning guides and facilitators, continuously improving their information literacy and teaching abilities. The implementation of these strategies aims to promote the overall improvement of college English teaching quality and cultivate high-quality talents with international perspectives and cross-cultural communication abilities.

Keywords: Artificial intelligence; College English; educational reform; intelligent teaching platform; innovative teaching models; teacher role transformation.

I. INTRODUCTION

The rapid advancement of AI technology has demonstrated significant potential and broad influence across various fields, particularly in education. AI technology, by simulating human intelligence, not only enables efficient data processing but also provides robust support for automation and intelligent decision-making, injecting new vitality into innovative developments in various industries (Wei, 2023). In college English teaching, despite improvements in teaching models and methods over the years, several issues persist. Current college English teaching often employs a relatively uniform teaching model, limiting students' learning enthusiasm and creativity. Additionally, the scarcity of teaching resources hampers teachers' ability to provide diverse learning materials, affecting students' learning outcomes. More importantly, the increasing demand for personalized learning experiences highlights the inadequacy of traditional teaching models in meeting these needs (Sun, 2021).

A. Research Background and Significance

The rapid advancement of AI technology has demonstrated significant potential and broad influence across various fields, particularly in education. AI technology, by simulating human intelligence, not only enables efficient data processing but also provides robust support for automation and intelligent decision-making, injecting new vitality into innovative developments in various industries (Wei, 2023). In college English teaching, despite improvements in teaching models and methods over the years, several issues persist. Current college English teaching often employs a relatively uniform teaching model, limiting students' learning enthusiasm and creativity. Additionally, the scarcity of teaching resources hampers teachers' ability to provide diverse learning materials, affecting students' learning outcomes. More importantly, the increasing demand for personalized learning experiences highlights the inadequacy of traditional teaching models in meeting these needs (Sun, 2021).

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The integration of AI technology into college English teaching presents new avenues for addressing these issues. Through intelligent analysis, teachers can gain a more accurate understanding of students' learning statuses and needs, enabling the development of more tailored teaching plans. AI's personalized recommendation function can push suitable learning resources to students based on their learning characteristics and interests, significantly enhancing their learning interest and efficiency. Furthermore, AI's automatic evaluation function provides real-time feedback on students' learning outcomes, assisting teachers in timely adjustments of teaching strategies to optimize teaching effectiveness (Zhu, 2018; Zhao, 2019). As AI continues to evolve, its applications in education will likely become even more sophisticated, further revolutionizing the learning experience and potentially addressing long-standing challenges in educational systems worldwide. The potential for AI to provide continuous, adaptive learning experiences that cater to individual student needs represents a significant shift from the one-size-fits-all approach of traditional education.

B. The Necessity of College English Teaching Reform

Facing the challenges and problems in current college English teaching, the necessity of teaching reform is increasingly evident. With the acceleration of globalization and frequent international exchanges, the importance of English as an international language is undeniable. Therefore, improving the quality and efficiency of college English teaching to cultivate high-quality talents with international perspectives and cross-cultural communication abilities has become an urgent demand in the education field. Traditional college English teaching models often focus on the transmission of language knowledge and training in exam techniques, neglecting the cultivation of students' language application abilities and comprehensive qualities. This leads to the phenomenon of "high scores but low ability," where students achieve high scores in exams but struggle in real-life English communication (Cao, 2004). To change this situation, reform in college English teaching is imperative.

Reforming traditional teaching models and introducing advanced teaching concepts and technologies are key to stimulating students' learning interest and improving their enthusiasm. By adopting diverse teaching methods and techniques, such as situational teaching, task-based teaching, and cooperative learning, students can actively participate in classroom teaching, enhancing their learning enthusiasm and outcomes. Modern information technology, such as multimedia teaching and online teaching, can break the constraints of time and space, providing students with diverse learning resources and methods (Du, 2006). Such an approach not only democratizes access to quality education but also addresses individual learning preferences and paces, fostering a more inclusive and effective educational environment. Additionally, these innovative methods can create a more engaging and interactive learning experience, helping students develop practical language skills and critical thinking abilities that are essential in today's interconnected world.

The core goal of college English teaching reform is to improve students' language application abilities and comprehensive qualities. Strengthening listening and speaking training, increasing teaching in practical application scenarios, and conducting various extracurricular activities can help students better master English and enhance their oral expression and cross-cultural communication abilities. Moreover, cultivating students' self-learning abilities, critical thinking skills, and teamwork spirit are also essential tasks in college English teaching reform (Guo, 2010). These reforms are not merely adjustments to current practices but a reimagining of educational paradigms to better align with the needs of a rapidly changing world. By fostering a more holistic approach to language education, these reforms aim to produce graduates who are not only proficient in English but also capable of thinking critically and collaborating effectively in diverse cultural contexts.

C. Significance of the Study

In the era of rapid AI development, exploring the theoretical basis and practical strategies for college English teaching reform is particularly important. This study not only provides strong theoretical support for college English teaching reform but also offers clear practical guidance, significantly contributing to the improvement of college English teaching quality. By deeply studying the application of AI technology in college English teaching, we can further understand and grasp the integration of technology and teaching, enriching and developing the theoretical system of college English teaching reform. This improved theoretical system helps us better recognize the potential and role of AI technology in teaching and provides scientific guidance for future teaching practices.

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This study also proposes specific practical strategies to guide the implementation of college English teaching reform. These strategies fully consider the characteristics of AI technology and the actual needs of college English teaching, aiming to enhance teaching efficiency, stimulate students' learning interest, and cultivate their language application abilities and comprehensive qualities. The application of these strategies can be expected to lead to a comprehensive improvement in the quality of college English teaching, thus cultivating more high-quality talents with international perspectives and cross-cultural communication abilities. Furthermore, by implementing these strategies, educational institutions can create a more dynamic and responsive learning environment that is better equipped to prepare students for the demands of the globalized workforce.

Moreover, this study provides empirical support and policy suggestions for college English teaching reform. Through in-depth analysis and summary of reform practices, we can provide targeted policy recommendations to the government and educational institutions, promoting the further deepening and development of college English teaching reform. Such policy recommendations are essential for ensuring that the proposed reforms are sustainable and scalable, allowing them to have a lasting impact on the educational landscape. Additionally, the study's findings can inform future research and development in educational technology, encouraging ongoing innovation and improvement in teaching practices.

II. OVERVIEW OF AI TECHNOLOGY

AI represents a technological science aiming to simulate, extend, and expand human intelligence. This technology, through in-depth research and development, strives to construct theoretical, methodological, and technical systems capable of simulating human intelligent behaviors, thereby endowing machines with certain intelligent features (Xiao, 2021). The essence of AI lies in its ability to perform tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, solving problems, and making decisions. As a multidisciplinary field, AI encompasses various subfields, including machine learning, neural networks, natural language processing, robotics, and computer vision. These subfields contribute to the overall goal of creating intelligent systems that can adapt, learn, and operate autonomously.

A. Development History

The development of AI technology has undergone several stages. Initially, symbolic AI dominated, advocating that artificial intelligence stemmed from research on human thinking, especially on language and logic. Symbolic AI, also known as classical AI, focused on high-level symbolic (human-readable) representations of problems, logic, and search. Subsequently, connectionism emerged, positing that artificial intelligence derived from bionics, particularly from studies on brain models. Connectionism, often associated with neural networks, emphasized learning from experience and modeled artificial neurons to simulate the human brain's structure and function. In recent years, with the advent of deep learning technologies, AI technology has entered a new phase, driving its extensive application in various fields, including education, healthcare, transportation, and finance (Xie, 2019; Yue, 2020). Deep learning, a subset of machine learning, uses layered neural networks to learn from vast amounts of data, enabling significant advancements in image and speech recognition, natural language processing, and autonomous systems. These developments have transformed AI from a theoretical concept into a practical tool with wide-ranging applications.

B. Main Application Areas

AI technology is ubiquitous in modern society. In education, AI introduces possibilities for personalized teaching by analyzing student learning data and behaviors, allowing teachers to meet individualized student needs more accurately. AI also supports intelligent evaluation, providing objective assessments of student learning outcomes through big data analysis. Additionally, AI plays a crucial role in learning analytics, helping educators understand students' learning processes to optimize teaching strategies (Chen, 2023). These applications not only enhance teaching efficiency but also create a more engaging and effective learning experience for students. For example, AI-driven platforms can adapt content and pacing to each student's abilities, providing a customized learning journey that promotes better understanding and retention.

In healthcare, AI assists in disease diagnosis, leveraging deep learning and image processing technologies to enhance diagnostic accuracy and efficiency. AI also contributes to drug development and patient management, supporting the realization of precision medicine. These advancements improve patient outcomes and streamline healthcare operations.

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For instance, AI algorithms can analyze medical images to detect abnormalities with high precision, aiding doctors in making faster and more accurate diagnoses. Additionally, AI can monitor patient data in real-time, providing early warnings of potential health issues and enabling timely interventions.

In transportation and finance, AI technology significantly enhances efficiency and service quality. In transportation, AI optimizes traffic flow management, reduces congestion, and supports the development of autonomous driving technologies. AI-driven traffic management systems can predict and mitigate traffic bottlenecks, improving urban mobility and reducing emissions. In finance, AI is widely used in risk assessment, investment decision-making, and customer service, boosting the sector's intelligence level and service quality. AI algorithms analyze vast amounts of financial data to identify trends, detect fraud, and make investment recommendations, providing valuable insights and improving decision-making processes. These applications demonstrate AI's transformative potential across various industries, driving innovation and efficiency. The ability of AI to process and analyze large datasets quickly and accurately is a key factor in its growing adoption in these sectors.

III. THEORIES OF COLLEGE ENGLISH TEACHING REFORM

Internationally, many universities and educational institutions focus on cultivating students' language communication and cross-cultural skills. They innovate teaching models, such as project-based learning and situational teaching, enabling students to practice in real or simulated language environments, thereby enhancing their language application and problem-solving abilities. Moreover, international institutions emphasize utilizing modern educational technologies, such as online learning platforms and intelligent teaching systems, to provide personalized and autonomous learning experiences, yielding significant results (Ai, 2017; Zhu, 2018). These reforms have led to more engaging and effective learning environments, better preparing students for global communication and collaboration. For example, project-based learning allows students to work on real-world projects, applying their language skills in practical contexts, which enhances their ability to use English in diverse professional settings.

A. Domestic and International Reform Practices

Internationally, many universities and educational institutions focus on cultivating students' language communication and cross-cultural skills. They innovate teaching models, such as project-based learning and situational teaching, enabling students to practice in real or simulated language environments, thereby enhancing their language application and problem-solving abilities. Moreover, international institutions emphasize utilizing modern educational technologies, such as online learning platforms and intelligent teaching systems, to provide personalized and autonomous learning experiences, yielding significant results (Ai, 2017; Zhu, 2018). These reforms have led to more engaging and effective learning environments, better preparing students for global communication and collaboration. For example, project-based learning allows students to work on real-world projects, applying their language skills in practical contexts, which enhances their ability to use English in diverse professional settings.

Domestically, college English teaching reform has also made positive progress. Recently, Chinese universities have emphasized the comprehensive cultivation of listening, speaking, reading, and writing skills, integrating English teaching with practical application. For instance, some universities offer practical courses in English speaking and writing to improve students' English application abilities. Additionally, exam-oriented teaching reforms, such as the College English Test (CET) reforms, aim to evaluate students' English proficiency through standardized tests. Despite these efforts, challenges such as inadequate teaching resources and uniform teaching models persist, necessitating further deepening and improvement (Yu, 2001; Wu, 2009). To address these challenges, continuous innovation in teaching methodologies and the incorporation of advanced technologies are essential. Furthermore, fostering collaboration between educational institutions and industry can help align curriculum with the evolving demands of the global job market, ensuring that graduates are well-prepared for their future careers.

B. Theoretical Foundations

The theoretical foundations for college English teaching reform include language learning theories, teaching theories, and educational technology theories. Language learning theories, such as second language acquisition theory, highlight the importance of language input and output and the learner's active role in the language learning process. These theories guide English teaching practices significantly (Wu, 2009). For example, Stephen Krashen's input hypothesis emphasizes

the need for comprehensible input slightly above the learner's current level to facilitate language acquisition. Teaching theories focus on effectively organizing and implementing teaching activities to achieve desired educational goals. Modern teaching theories increasingly recognize student-centered, practice-oriented teaching concepts, emphasizing the importance of stimulating students' learning interests and activities and developing their self-learning abilities and innovation spirits. These theories strongly support English teaching reform (Chen, 2010). Constructivist theories, such as those proposed by Jean Piaget and Lev Vygotsky, stress the importance of active learning and social interaction in the construction of knowledge. These theories advocate for learning environments where students actively engage with content and collaborate with peers to construct understanding.

Educational technology theories investigate how modern information technology optimizes teaching processes and enhances teaching outcomes. Theories on multimedia teaching, online teaching, and more explore utilizing multimedia and network technologies to enrich teaching content, innovate teaching models, and improve teaching efficiency. These theories offer new ideas and methods for English teaching reform (Wang, 2023; Zhao, 2021; Pang, 2022). For instance, Mayer's cognitive theory of multimedia learning provides principles for designing effective multimedia instructional materials that enhance learning by integrating visual and auditory information. By combining insights from these various theoretical frameworks, educators can develop comprehensive and effective strategies for English teaching reform. Additionally, incorporating insights from cognitive science and educational psychology can further enhance the effectiveness of AI-integrated teaching approaches.

IV. INTEGRATION OF AI TECHNOLOGY WITH ENGLISH TEACHING

As educational concepts evolve, personalized learning has become a crucial trend. AI technology can provide precise learning resources and pathways based on students' learning habits and levels, meeting their personalized needs. By intelligently analyzing student learning data, AI systems can recommend suitable learning materials, exercises, and learning paths, helping students master knowledge more efficiently. Additionally, AI technology continuously adjusts and optimizes learning plans based on student feedback and performance, ensuring each student receives tailored learning experiences (Kang, 2021; Chen, 2022; Ye, 2021; Yang, 2019). This adaptive learning approach not only addresses individual learning gaps but also enhances student engagement and motivation by providing relevant and challenging content. By providing a customized learning experience, AI can help students progress at their own pace, ensuring they fully understand each concept before moving on.

A. Intelligent Evaluation

Traditional English teaching evaluations are often time-consuming and subjective. The introduction of AI technology enables intelligent evaluations. Using natural language processing and machine learning technologies, AI systems can automatically evaluate and provide feedback on students' writing and speaking performances. This method not only enhances evaluation efficiency and objectivity but also offers timely teaching feedback for teachers to better understand students' learning statuses and adjust teaching strategies accordingly. Moreover, intelligent evaluations can provide personalized learning suggestions for students, guiding them in targeted improvements in English proficiency (Tang, 2020; Wang, 2022; Yang, 2019). By leveraging AI-driven assessments, educators can gain deeper insights into student performance and learning processes, enabling more informed instructional decisions and interventions. Additionally, AI can help identify common misconceptions and areas where students struggle, allowing for targeted remediation and support.

B. Interactive Teaching

Interactive teaching is a crucial method to boost students' learning interest and engagement. AI technology supports interactive learning experiences through virtual teachers and intelligent assistants. With AI support, students can engage in conversational practice with virtual teachers, enhancing their speaking abilities. Intelligent assistants provide real-time answers to students' questions, offering instant learning support. AI technology also creates immersive, interactive learning environments, allowing students to practice English in simulated real-life scenarios, fostering practical language application skills (Kang, 2021; Chen, 2022; Ye, 2021). These interactive learning experiences not only make learning more engaging and enjoyable but also help students develop essential communication skills and cultural competencies. By simulating real-life situations, AI can help students practice and improve their language skills in a low-pressure environment, building their confidence and fluency.

V. REFORM STRATEGIES IN AI-ENHANCED COLLEGE ENGLISH TEACHING

An intelligent teaching platform revolutionizes college English teaching by integrating and optimizing teaching resources, facilitating real-time tracking of student progress and performance, and providing precise learning paths. This platform enhances teaching efficiency and motivates student learning interest and activity by offering a personalized and interactive learning environment. For example, the platform can deliver tailored content and assessments based on individual student profiles, enabling a more focused and effective learning experience. Additionally, the platform can facilitate collaborative learning by providing virtual spaces for group discussions, projects, and peer feedback, fostering a sense of community and shared learning among students. By enabling seamless communication and collaboration, the platform can support a more interactive and engaging learning environment.

A. Platform Optimization and Iteration

Building an effective intelligent teaching platform requires continuous optimization and iteration based on user feedback. Enhancements might include refining personalized learning recommendation algorithms, improving user interface design for ease of use, and ensuring system stability and data security. Regular updates to the teaching resource library, introducing high-quality content and interactive elements, and collaborations with educational institutions or experts can maintain the platform's dynamism and appeal. Furthermore, incorporating advanced analytics and machine learning techniques can enhance the platform's ability to predict and address students' learning needs, ensuring a more responsive and adaptive educational experience. By continuously improving the platform, educators can ensure it remains relevant and effective, meeting the evolving needs of students and teachers.

B. Innovative Teaching Models

AI supports collaborative learning by creating virtual collaborative environments where students can engage in group discussions and project collaborations online. This model fosters student interaction, cooperation, and mutual learning, enhancing teamwork skills. Teachers can monitor learning processes in real-time, providing timely guidance and feedback to ensure effective collaborative learning outcomes. Additionally, AI can facilitate the formation of diverse and balanced teams, matching students with complementary skills and learning styles to maximize collaborative potential and learning outcomes. By encouraging collaboration, this model helps students develop essential communication and teamwork skills that are valuable in both academic and professional settings.

C. Project-Based Learning Model

Project-based learning, centered on student-led research and project completion, benefits from AI support through resource provision and tool support, such as data analysis and literature retrieval. This model enhances students' research efficiency, innovation abilities, and practical skills, preparing them for future career development. AI tools can assist students in identifying relevant research questions, sourcing and analyzing data, and presenting their findings, thereby fostering critical thinking, problem-solving, and communication skills. By engaging in meaningful, real-world projects, students can develop a deeper understanding of the subject matter and its practical applications. This hands-on approach not only reinforces theoretical knowledge but also helps students build a portfolio of practical experience.

D. Contextual Teaching Model

Contextual teaching involves creating realistic learning scenarios for students to practice language skills. AI technologies, like virtual reality (VR), offer immersive learning environments, helping students experience English-speaking cultures and improving language communication skills. AI also simulates real-life scenarios, such as business negotiations or travel inquiries, providing students with practical language application practice. These immersive experiences enable students to apply their language skills in authentic contexts, enhancing their ability to communicate effectively and confidently in diverse situations. By placing students in realistic scenarios, contextual teaching helps bridge the gap between classroom learning and real-world application, making language learning more relevant and engaging.

E. Transforming and Enhancing Teacher Roles

In the AI era, college English teachers shift from knowledge transmitters to learning guides and facilitators, requiring a broader range of interdisciplinary knowledge and integration skills. Teachers must guide students in problem-solving,

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stimulate learning interests, and integrate high-quality teaching resources using AI technology. This shift necessitates a rethinking of traditional teaching roles and practices, emphasizing mentorship, coaching, and personalized support to help students achieve their learning goals. By adopting a more student-centered approach, teachers can create a more engaging and supportive learning environment that fosters autonomy, creativity, and lifelong learning. Additionally, teachers must become adept at using AI tools to analyze student data, providing targeted feedback and support to enhance individual learning outcomes.

F. Improving Skills and Qualifications

Teachers must enhance their information literacy, mastering various technological tools for teaching. This includes online teaching platforms and intelligent teaching software to improve teaching efficiency and quality. Additionally, teachers need to enhance their teaching design and evaluation capabilities, using AI to create innovative and effective teaching plans and conduct comprehensive student assessments. Continuous professional development and adopting new technologies and methods are essential for adapting to AI-enhanced teaching demands. By staying current with advancements in educational technology and pedagogy, teachers can effectively integrate AI tools into their teaching practices, enhancing both their instructional effectiveness and their students' learning experiences. Furthermore, fostering a culture of continuous learning and professional growth among educators is crucial for ensuring that teaching practices remain innovative and effective.

VI. CONCLUSION AND PROSPECTS

This study provides practical guidance for AI-integrated college English teaching reform, emphasizing the construction of intelligent teaching platforms, innovative teaching models, and transforming teacher roles. These strategies aim to improve teaching quality and efficiency, fostering high-quality talents with international perspectives and cross-cultural communication abilities. Implementing these strategies is expected to revolutionize college English teaching, making it more efficient and engaging. By leveraging AI technology, educators can create more dynamic and personalized learning environments that address the diverse needs and interests of students, ultimately enhancing their academic performance and overall learning experience. Additionally, these reforms can help bridge the gap between theoretical knowledge and practical application, preparing students for success in an increasingly globalized and interconnected world.

Future research should focus on the specific application effects of AI technology in college English teaching, using big data and machine learning to analyze student learning behaviors and outcomes. This can reveal how AI meets personalized learning needs and enhances learning efficiency. Comparative studies on AI's impact across different teaching models can provide empirical support for optimizing AI applications in English teaching. Additionally, investigating the long-term effects of AI-enhanced teaching on student outcomes, such as language proficiency, critical thinking skills, and cross-cultural competencies, can provide valuable insights for further refining and improving AI-driven educational strategies. By continuously evaluating and refining AI applications in education, researchers and educators can ensure that these technologies are used effectively and ethically to enhance student learning.

Additionally, future research should address ethical and legal issues arising from AI applications in education, ensuring fairness, transparency, and security, and preventing data misuse and privacy breaches. Exploring the integration of emerging technologies, such as VR and augmented reality (AR), with English teaching can offer new innovative models for enhancing language skills in immersive environments. These technologies can provide students with realistic and engaging learning experiences, helping them develop practical language skills and cultural understanding in a safe and controlled setting. By addressing these challenges and exploring new frontiers in educational technology, researchers can help shape the future of education in ways that promote equity, inclusion, and excellence.

Continued exploration and innovation in AI-integrated teaching methods are essential for adapting to the evolving educational landscape and meeting societal demands for high-quality talents. By staying at the forefront of technological advancements and pedagogical best practices, educators can ensure that their teaching methods remain relevant and effective, ultimately contributing to the ongoing improvement of educational outcomes for students worldwide. By fostering a collaborative and innovative approach to educational research and practice, the field of college English teaching can continue to evolve and thrive in the age of AI.

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