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Research on the Optimization Path of College English Teaching Mode with Artificial Intelligence Assistance

Qi Liu
Cangzhou Institute of Transportation, Cangzhou 061199, Hebei, China

Abstract: To further explore the optimization pathways for integrating artificial intelligence (AI) technology into university English teaching, this study proposed specific strategies by leveraging AI's advantages while addressing the limitations of traditional teaching models. These include innovating instructional methods through intelligent tools, optimizing teaching evaluations via data analysis, and expanding educational resources through online platforms. This research has demonstrated that AI-assisted teaching has effectively overcome the conventional pedagogical constraints, facilitating a paradigm shift from one-way knowledge transmission to interactive learning, from summative assessments to formative diagnostics, and from closed resource systems to open sharing platforms. This has provided a practical solution for enhancing the quality of university English education.

Keywords: Artificial intelligence; College English; Teaching optimization

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1. Introduction

The deepening of globalization has established English as the core tool for international communication, with university English education shouldering the crucial mission of cultivating talents with cross-cultural communication competence. However, traditional teaching models face numerous challenges in the information age, while the rapid development of AI technology offers new possibilities to address these difficulties. In this context, researching optimization pathways for AI-assisted university English teaching models hold significant theoretical and practical value, providing feasible solutions to advance English education reform.

2. The advantages of AI technology in college English teaching

2.1. Helps achieve personalized learning customization

AI creates personalized learning paths for students through precise analysis of their language proficiency, cognitive characteristics, and learning preferences. The intelligent system dynamically adjusts the difficulty level and presentation format of learning materials based on performance data from vocabulary tests, grammar exercises, oral dialogues, and other domains. Students with weaker foundations receive enhanced foundational grammar training and vocabulary

reinforcement, while those with stronger skills access advanced content like academic writing and critical reading. Additionally, the system identifies weaknesses in listening, speaking, reading, and writing skills and provides corresponding practice modules. For students with hearing impairments, it automatically increases speech recognition training sessions, adjusts audio playback speed, and offers supplementary background information to improve comprehension. This nuanced approach breaks free from the rigid "one-size-fits-all" teaching model of traditional classrooms, enabling each student to progress at their optimal pace and truly achieve personalized educational goals [1].

2.2. It helps to enhance the fun of teaching interaction

By integrating gamification elements into English learning through AI technology, students' interest would be significantly boosted. Through virtual reality, an immersive English language environment is created where students feel as if they are in a real English-speaking country. They can order meals in virtual cafes or simulate airport check-in procedures, where these scenario-based interactive exercises are far more engaging than traditional textbook dialogues. Intelligent chatbots can assume various roles to facilitate instant communication among students, allowing them to ask questions anytime without worrying about embarrassing mistakes. This low-pressure practice environment encourages students to speak up confidently. Moreover, the system features incentive mechanisms like point rewards and level progression, with achievement badges earned after completing tasks satisfying their need for accomplishment. Additionally, augmented reality technology overlays word explanations on physical objects in classrooms. By scanning classroom items, students can see corresponding English expressions and pronunciation demonstrations. This innovative approach transforms monotonous vocabulary memorization into highly entertaining interactive experiences, turning learning into a pleasure rather than a burden.

2.3. Helps improve the richness of learning resources

AI-powered learning platforms integrate vast multimodal resources, transcending traditional textbook limitations. Students no longer confine themselves to single-source knowledge frameworks but gain access to diverse authentic language materials including news reports, academic lectures, video clips, and podcast content. Smart recommendation algorithms automatically curate supplementary materials aligned with learners' current themes: Business English students instantly access cutting-edge international case studies, while literature enthusiasts explore multi-perspective interpretations of classic works. Natural language processing technology converts complex texts into tiered reading materials, generating beginner, intermediate, and advanced versions of the same text to meet diverse learning needs. Voice synthesis technology provides standard pronunciation readings for text resources, enabling accessible learning for visually impaired students and commuters. Additionally, AI continuously updates content with real-time international current affairs, ensuring students always access language expressions that keep pace with contemporary developments while maintaining fundamental timeliness in learning materials.

3. The predicament of traditional college English teaching mode

3.1. The single teaching method cannot meet the diverse needs

Traditional English classrooms predominantly rely on teacher-led instruction, following rigid textbook content in chapter-based sequences. This approach struggles to accommodate varying student proficiency levels: academically strong learners often find repetitive material tedious, losing motivation for deeper exploration, while those with weaker foundations face learning anxiety due to accelerated pacing. Moreover, constrained by class schedules, teachers cannot provide differentiated instruction tailored to diverse needs, resorting instead to compromise solutions designed for average students. This uniform teaching model overlooks significant differences in learners' cognitive styles, interests, and career aspirations. Essential skills like academic paper writing required by STEM students fundamentally differ from literary appreciation abilities pursued by foreign language majors. A single teaching method fails to address the increasingly

diverse learning demands [2].

3.2. One-sided teaching evaluation cannot reflect the true level

The current evaluation system overemphasizes final written exams, reducing language proficiency to mere memorization of vocabulary and grammar while neglecting core competencies like oral communication, practical interaction, and critical thinking. Students obsess over drilling answers to test scores, mastering exam techniques but failing to communicate fluently in real-world contexts, which is a phenomenon, where high scores mask weak skills. With assessments concentrated at semester ends, teachers miss opportunities to identify learning gaps and provide timely guidance, leaving students unable to adjust strategies based on feedback. Furthermore, subjective components like writing and speaking evaluations are conducted infrequently due to teacher constraints, leading to inconsistent grading standards and significant variations in assessments from different teachers for the same assignments. This single-dimensional, end-of-term evaluation approach fails to comprehensively demonstrate students' integrated language application abilities and provides insufficient data to inform instructional improvements.

3.3. Limited teaching resources are difficult to stimulate learning interest

Traditional teaching materials remain predominantly paper-based, with content updates taking years to reflect linguistic developments. Students encounter examples and cases that often lack relevance to modern contexts. Classroom instruction relies heavily on teachers 'verbal explanations and PowerPoint presentations, lacking multisensory engagement through audiovisual integration. Prolonged passive learning in this environment leads to fatigue. Teachers' instructional capabilities determine the depth and breadth of resource development, yet many are constrained by time and energy, resorting to outdated materials and failing to provide diverse extracurricular resources. Post-class assignments still predominantly consist of paper-based exercises, where repetitive fill-in-the-blank and multiple-choice questions diminish enthusiasm while lacking authentic communication scenario simulations. The scarcity of resources results in monotonous learning experiences, making it difficult for students to connect English studies with real-life applications or future careers, ultimately weakening their motivation [3].

4. The optimization path of college English teaching mode with AI assistance

4.1. Integrate intelligent tools to innovate teaching methods

Teachers should deeply integrate AI tools into every phase of instructional design to transform classroom organization. During pre-class preparation, smart platforms deliver self-guided materials that automatically match reading materials or video explanations based on students 'historical learning data. After completing preview assessments, the platform generates personalized reports highlighting knowledge gaps for teachers' reference. In class, teachers transition into designing and guiding learning activities, compressing lectures to one-third of total time while organizing collaborative inquiry sessions. AI writing assistants provide real-time grammar corrections and vocabulary suggestions, enabling students to complete English report drafts during group discussions with instant linguistic support. Teachers focus on cultivating critical thinking depth and logical structures. For example, in business English negotiation courses, students form groups using AI role-playing tools to simulate cross-border M&A negotiations. The system acts as a hypothetical opposing company representative, posing specialized questions while students apply learned business terminology and negotiation strategies. Post-class, the system generates data reports analyzing each student's expression fluency and professional vocabulary usage frequency. Teachers then address common issues in subsequent lessons based on these insights, achieving precise alignment between teaching content and students' actual needs. The integration of intelligent tools shifts instruction from one-way delivery to interactive co-creation, transforming traditional teaching methods.

4.2. Optimize teaching evaluation by relying on data analysis

Educators can leverage AI to continuously track students 'behavioral data across all learning phases, thereby establishing a comprehensive and multi-dimensional evaluation system. The system meticulously records detailed information such as students' login times on the platform, exercise accuracy rates, number of revisions made, and participation enthusiasm in discussions, synthesizing this process-oriented data into visualized learning curve diagrams. Teachers can clearly identify which knowledge points students repeatedly struggle with and when their learning efficiency drops significantly, allowing them to adjust teaching priorities and tutoring methods accordingly. Intelligent speech analysis technology also provides holistic evaluations for students 'oral assignments, not only assessing pronunciation accuracy but also analyzing speech rate, intonation, and other elements, ultimately generating detailed diagnostic reports. For instance, if a student's speech contains no grammatical or lexical errors but is flagged by the system for excessive speaking speed and lack of sentence pauses, both of which impair clarity, as teachers can instruct students to control their speaking pace accordingly. Evaluation has evolved beyond mere final score assessments into diagnostic feedback integrated throughout the learning process. This data-driven approach precisely identifies students' learning challenges, providing reliable evidence to enhance teaching quality [4].

4.3. Expand teaching resources with the help of network platforms

Educators should proactively leverage global educational resources through online platforms to break down campus barriers and create open, diverse learning environments. By selecting English course videos from prestigious institutions like Harvard and Oxford through international open education platforms, teachers can supplement classroom materials, exposing students to diverse teaching styles and academic perspectives. Additionally, subscribing to English academic journals and media databases allows teachers to regularly update course materials, ensuring students stay current with disciplinary developments. Collaborative tools enable cross-temporal interactions: teachers can annotate student assignments in shared cloud documents, while students review feedback and refine their work asynchronously. For example, in academic writing courses, teachers using real-world research papers as case studies might select well-structured, rigorously argued articles from international journals published within the past three years. Students analyze these cutting-edge research outputs to learn how to structure literature reviews, present methodologies, and discuss findings. Teachers simultaneously upload accompanying writing templates and academic sentence banks, enabling students to reference these resources when completing their papers. This teaching design, grounded in authentic academic discourse, equips students with writing skills that meet international academic standards. The resource integration ability of the network platform makes the teaching content from closed to open, from static to dynamic, students have a broader vision and more rich learning opportunities, resource expansion has become the key support to improve the teaching quality.

4.4. Use virtual scenarios to strengthen practical training

Virtual reality (VR) technology creates a low-risk, highly immersive language practice environment for students, addressing the limitation of classroom teaching in providing authentic communication scenarios. Teachers can utilize established VR teaching software, allowing students to wear devices and enter a 3D simulated space to complete various communication tasks in an immersive setting. The system features dozens of scenarios including airport inquiries, hotel check-ins, business negotiations, and academic defenses. Each scenario is equipped with intelligent virtual characters that respond naturally to student answers, simulating real dialogue interactions like questioning, confirmation, and rebuttal. Students can repeatedly practice in the virtual environment, restarting immediately after mistakes without embarrassment. This low-cost trial-and-error approach encourages students to boldly express themselves.

For instance, in comprehensive English courses, when teaching job interview units, instructors need students to master English expression techniques for application scenarios. Students enter a virtual company office and face a simulated HR manager during job interviews. The examiner asks common questions like "Could you tell me about your educational

background?" in English. Students must organize fluent English responses to demonstrate their capabilities. The system evaluates them in real-time based on grammar accuracy, vocabulary richness, and completeness of answers. When students make grammatical errors like "I very like this job," the system provides instant prompts. After the interview, a detailed language proficiency diagnostic report identifies shortcomings in using workplace expressions such as "responsible for". Post-practice, students can review dialogue recordings and compare their performance with standard examples like "I graduated from...with a major in..." to identify weak areas. Virtual scenario training transforms abstract English language knowledge into concrete communication skills. Through simulated real-world practice, students accumulate practical English application experience, laying a solid foundation for fluent communication in authentic situations [5].

4.5. Adjust teaching strategies based on intelligent feedback

The intelligent teaching system generates real-time feedback data, providing teachers with scientific evidence to dynamically adjust instructional strategies, transforming the previous crude approach of relying on experience. The system automatically aggregates students 'learning behavior data weekly, including mastery rates of key knowledge points, assignment quality, and online interaction frequency, forming visualized class performance analysis reports. When teachers reviewed these reports over the weekend and discovered that a class's average accuracy rate in a specific grammar point was only 60%, significantly lower than other subjects, they decided to add a dedicated grammar lecture in the following week's class and push relevant micro-lecture videos and targeted exercises through the platform. The system can also identify individual students' learning difficulties.

When a student fails to submit assignments three times in a row or experiences a significant drop in test scores, the platform automatically sends alerts to teachers. Teachers then communicate with the student promptly to understand the reasons and provide personalized tutoring. For instance, when a teacher noticed a student's reading comprehension scores remained consistently low despite normal vocabulary test results, the system analysis revealed excessive time spent on complex sentence analysis. Based on this, the teacher developed a specialized syntactic structure training plan for the student. After two weeks, the student's reading speed improved significantly. Intelligent feedback establishes teaching decisions based on objective data, enabling teachers to accurately identify instructional blind spots, timely adjust teaching plans, and achieve continuous optimization and quality improvement in the teaching process.

5. Conclusion

In conclusion, AI technology provides technical support and practical pathways for systematic transformation of university English teaching models. Optimization strategies have established a comprehensive application framework across dimensions including teaching methodologies, evaluation mechanisms, and resource development. The deep integration of intelligent technologies not only resolves structural limitations of traditional models but also reshapes teacher-student roles: educators transition from knowledge transmitters to learning designers, while students evolve from passive recipients to active explorers. This fundamentally transforms teaching processes from standardized to personalized, and from one-way to interactive. Future efforts should focus on monitoring ethical implications of AI in educational contexts, addressing potential humanistic neglect caused by technological dependency, and establishing mechanisms to balance technical rationality with pedagogical warmth. These measures will ensure AI becomes a powerful tool for enhancing English teaching quality in higher education institutions.

Disclosure statement

The author declares no conflict of interest.

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