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A Study on Artificial Intelligence-Assisted Teaching Models in College English Education

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Abstract: This article explores the auxiliary applications of artificial intelligence in college English teaching, aiming to optimize existing teaching models and enhance educational quality. First, it outlines the development and basic principles of artificial intelligence technology. Then, it analyzes the problems and challenges present in current college English teaching models, including uneven distribution of teaching resources and the difficulty in meeting personalized learning needs. Next, it focuses on the application scenarios of artificial intelligence technology in teaching, such as intelligent tutoring systems, interactive teaching platforms, and personalized learning recommendation systems, and evaluates their effectiveness and potential. Finally, the article summarizes possible ways to improve the effectiveness of college English teaching through artificial intelligence technology, highlighting its practical significance in enhancing teaching efficiency and student learning outcomes.

1. Introduction

In the context of rapid development of information technology today, the application of artificial intelligence (AI) in the field of education is becoming increasingly widespread, and it has also shown great potential in college English teaching. Many current teaching models still rely on traditional classrooms. Although college English has undergone more than 20 years of multimedia assisted teaching, there are still many phenomena in practice that emphasize teacher centered instruction and passive student acceptance. In recent years, the rapid development of artificial intelligence technology has brought new opportunities for the innovation of college English teaching[1].With more and more students actively utilizing artificial intelligence in their learning, how to effectively integrate AI technology with English teaching, build a new intelligent teaching model, and improve teaching quality has become an urgent issue faced by English educators.

2. The significance of artificial intelligence technology in optimizing the teaching mode of college English

2.1 Existing Problems in College English Teaching

Currently, while college English teaching is developing rapidly, it still faces many challenges, among which the lack of personalized teaching, a single evaluation system, and a lack of

cross-cultural practice are particularly prominent. These issues not only constrain the development of students' language abilities, but also affect the actual effectiveness and social adaptability of English education

The college English classroom generally adopts a large class teaching mode, which makes it difficult for teachers to provide precise teaching based on the language foundation, learning style, and cognitive characteristics of different students. For example, some students struggle with academic reading and writing due to their weak foundation in high school English, while others feel tired of repetitive grammar training due to their higher level of proficiency. Although some universities have attempted to introduce graded teaching, personalized guidance is still insufficient due to limitations in faculty and curriculum systems. Although existing multimedia assisted learning tools can provide some help, most of them still remain at the level of standardized exercises and have not truly achieved "teaching according to individual needs".

At present, the assessment of college English still mainly relies on summative evaluation, such as the CET-4 and CET-6 exams, final written exams, etc., while the proportion of formative evaluation (such as classroom performance and project-based learning) is insufficient. This' one test determines ability 'model leads students to fall into exam oriented learning and neglect the practical application of language. Many students are proficient in handling reading comprehension multiple-choice questions, but find it difficult to express themselves fluently in real-life communication scenarios. In addition, the evaluation criteria overly focus on language accuracy and overlook core competencies such as critical thinking and cross-cultural communication skills. For example, writing grading often focuses on grammar and vocabulary rather than logical reasoning or cultural sensitivity. This single dimensional evaluation method has gradually deviated from the original intention of "cultivating global competence" in English education, evolving into mechanized skills training.

In addition, the lack of authentic cross-cultural communication opportunities in college English teaching classrooms limits students' international perspectives. Although some universities offer courses on "intercultural communication", the practical aspects often become mere formalities. For example, online international exchange programs are often limited by technology or funding, while offline simulation activities have high participation barriers and are difficult to benefit ordinary students. As a result, many students are unable to effectively communicate in cross-border collaborations or international conferences even if they pass the CET-4 and CET-6 exams.

2.2 Advantages of Artificial Intelligence in College English Teaching

Moulieswaran and Ns found that adaptive learning systems can dynamically adjust teaching content based on students' learning data, construct personalized learning paths, and thus improve learning efficiency and learner satisfaction. Their experiment showed that the dynamically adjusted teaching mode significantly reduced the forgetting rate of knowledge points [2].A learning system based on machine learning algorithms can construct dynamic student ability profiles. The system continuously tracks students' online learning behavior (such as answer accuracy, duration of stay, repeated errors, etc.), and combines natural language processing technology to conduct multidimensional evaluations of their language abilities, thus providing personalized learning materials for individuals. At the level of learning feedback, the intelligent writing review system can mark surface problems such as vocabulary collocation errors and tense confusion, as well as point out deeper problems in argumentation logic. In oral training, speech recognition engines can identify students' pronunciation defects and generate correction plans that include tongue animations. AI can also provide matching learning resources. For example, automatically selecting selected papers from journals as reading materials for engineering students, while matching relevant

terminology explanation videos. The system will also monitor learning fatigue and switch training modes in a timely manner, such as switching to interactive gamified exercises for students with decreased attention.

Secondly, artificial intelligence technology can significantly improve the efficiency of college English teaching. The automated processes, precise analysis, and intelligent assistance provided by AI can greatly reduce the repetitive and mechanical work of teachers in grading and grading. Teachers can also use data feedback provided by artificial intelligence to promptly identify students' difficulties and adjust teaching priorities. And the AI lesson preparation assistant can automatically generate a complete lesson plan framework that includes teaching objectives, analysis of key and difficult points, and classroom activities. Teachers can make adjustments based on this, greatly reducing the time spent searching and organizing teaching materials in massive data.

Artificial intelligence can play a significant role in addressing the weakness of lacking an international communication environment in college English classrooms. Intelligent systems can provide training based on real contexts and push customized cultural learning content. For example, students can practice dialogue with AI simulated "cultural agents" to familiarize themselves with communication rules of different cultures in low-risk environments. This situational learning can effectively reduce cultural shock and enhance cultural adaptability. Artificial intelligence can provide real-time feedback on subtle differences in text expression that students often overlook in cross-cultural communication, helping them pay attention to the cultural significance behind words that they often fail to realize in one-sided reading and listening to documents.

3. The Construction of Teaching Mode of Artificial Intelligence in College English Teaching

3.1 Intelligent preview and personalized task push

In traditional teaching, preparation before class often lacks specificity, making it difficult for students to choose appropriate materials based on their own level. The application of AI technology can solve this problem and achieve precise and personalized preview guidance. AI assisted platforms can analyze students' English proficiency through pre-test analysis, and recommend suitable preview content based on big data. For example, for students with weaker foundations, AI can push videos explaining basic vocabulary and grammar; For advanced learners, more challenging materials such as original news and TED talks can be provided. In addition, artificial intelligence can also supplement cultural background intelligence. In teaching units involving cross-cultural communication, such as business English and academic exchange, AI can automatically associate relevant cultural background knowledge. For example, when learning Western dining etiquette, AI can push short videos, 3D virtual scenes, or interactive Q&A to help students establish cultural awareness in advance. At the same time, artificial intelligence can provide unit related speech recognition assisted pronunciation training in memorizing new words. Students can use AI speech evaluation tools to follow words and sentences, and the system can correct pronunciation errors in real time to ensure the accuracy of pre class speech input.

3.2 AI Enhanced Interaction and Immersive Learning

Traditional classrooms are limited by time and teacher-student ratio, making it difficult to achieve sufficient personalized interaction. The introduction of AI can enhance classroom interaction and increase student engagement through intelligent assistive tools. Teachers can use computers to allow students to simulate scenarios, engage in group discussions, imitate film and television clips, and learn English songs, which can truly exercise students' skills [3]. In terms of student interaction, intelligent grouping tools can automatically group students based on their

characteristics, allowing students at different levels to engage in collaborative learning and complement each other's strengths [4]. For example, in the "debate competition" activity, AI can provide argument suggestions, language templates, and even real-time evaluation of group performance to ensure that every student can effectively participate. Intelligent systems can analyze students' classroom performance in real time, provide feedback to teachers on each student's participation and understanding level, and facilitate teachers to adjust teaching strategies in a timely manner. The moderate use of artificial intelligence in the classroom stage can help shift the classroom from "teacher led" to "student-centered", improving the interactivity and fun of teaching.

3.3 Intelligent Review and Precise Consolidation

Traditional homework often lacks specificity, while AI can provide personalized review plans based on students' classroom performance and achieve long-term learning tracking. The writing or speaking assignments submitted by students can be automatically graded through AI (such as grading websites), which not only points out grammar errors, but also analyzes logical structure, vocabulary richness, and even provides optimization suggestions. For example, AI can compare students' compositions with the expression differences of native speakers, helping them improve their language authenticity. AI will push customized review content based on students' error records and classroom performance. For example, if a student frequently uses incorrect tenses in virtual debates, AI will push relevant grammar exercises after class until they master them. AI can recommend English movies, podcasts, or social media content that is suitable for students' level, and guide them to conduct cultural comparative analysis. Teachers can adjust subsequent teaching strategies and provide targeted guidance to students with learning difficulties through AI generated learning reports, such as progress curves and common error statistics.

4. The Challenges Faced by Artificial Intelligence in College English Teaching Practice

Although the application of artificial intelligence in college English teaching has brought many advantages, it still faces multiple challenges in the actual implementation process. For example, students may overuse AI tools to complete translation, writing, and reading tasks, leading to a decline in language output ability and even cognitive inertia. Moreover, AI systems need to collect a large amount of student data, including speech, writing content, and learning behavior. If stored or transmitted improperly, it may pose a risk of privacy breaches.

And teachers may face even more daunting challenges, such as how to transition from their traditional role as authoritative transmitters of language knowledge to being "learning designers" in the context of the deep integration of artificial intelligence technology into university English teaching. This transformation is not only an inevitable result driven by technology, but also a key path for the evolution of educational philosophy from "teacher centered" to "learner centered". Teachers need to transition from one-way teaching to being able to complete personalized learning designs. In traditional classrooms, teachers mainly complete teaching by uniformly explaining grammar rules and vocabulary knowledge, while AI technology (such as intelligent graded reading systems and adaptive learning platforms) can diagnose language proficiency differences in students in real time. As learning designers, teachers need to use AI generated data analysis reports to customize learning paths for different students. At the same time, teachers should regularly provide personalized feedback to students, including not only evaluations of learning outcomes, but also suggestions on learning methods, attitudes, and other aspects, to help students have a more comprehensive understanding of their learning situation and adjust their learning strategies more effectively [5].

Teachers need to go beyond the simple transmission of textbook content and instead integrate AI

tools, social resources, and real contexts to build a multidimensional learning ecosystem. Specific practices include but are not limited to the ability to integrate technology: combining AI translation tools with cross-cultural case analysis to cultivate students' critical use of technology; Scenario based design ability: Utilizing virtual English corners, AI simulations of international conferences, and other scenarios to address the shortcomings of traditional classrooms that lack real-life contexts; And how to cultivate students' metal cognition from a macro perspective: through AI learning log analysis, students can identify their own learning strategy deficiencies, and teachers can then design targeted metal cognitive training modules.

In addition, the lack of face-to-face emotional communication is a weakness that AI finds difficult to overcome. Although AI can simulate dialogue and communication, its mechanical feedback currently cannot replace personalized guidance from teachers. Although AI's automatic scoring system can quickly detect language errors, teachers as designers need to pay attention to cognitive and emotional changes during the learning process. For example, it is not possible to completely entrust the design and detection of teaching exercises to artificial intelligence. Teachers need to adjust task difficulty in a timely manner based on the student attention data provided by AI. For example, in terms of practice grading, the assessment of students' level needs to be combined with the qualitative evaluation of students' communication strategies by teachers, forming a multidimensional feedback system to ensure that face-to-face guidance between teachers and students cannot be ignored, and the emotional influence and communication between people cannot be ignored just because of technology. Traditional face-to-face tutoring needs to be embedded in the learning process.

These higher requirements in teaching enable teachers to possess higher professional qualities. Teachers need to transform from 'wise men on stage' to 'architects behind the scenes'. Teachers need to maintain technological rationality while promoting AI applications, establish a hybrid teaching model of "teacher led, AI assisted", clarify the boundaries of human-machine collaboration, strengthen data security protection, and enhance their digital literacy and technology integration capabilities through training, in order to ensure that AI serves as an auxiliary tool for teaching.

5. Conclusion

The application of artificial intelligence technology in college English classroom teaching has shown great potential and prospects. College English teaching is actively exploring new teaching models under the background of artificial intelligence, by establishing intelligent teaching platforms, integrating online and offline teaching methods, and using data feedback to promote teaching in a timely manner, constantly exploring new paths and improving teaching effectiveness. With the continuous advancement of artificial intelligence technology, its application in the field of teaching will be further expanded, providing great assistance in forming teaching models that are more in line with the needs of the times.

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