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Research on the Strategies of College English Teaching Empowered by AI Language Models

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Abstract: As the digital wave sweeps across the globe, artificial intelligence (AI) is reshaping all walks of life at an unprecedented speed, and the field of education is no exception. Against the backdrop of the rapid development of generative AI language models such as ChatGPT, they have significant application value in the fields of language processing, intelligent interaction, and personalized services, which can inject new vitality into the implementation of educational work. As an important course in higher education, College English plays a crucial role in cultivating students' language communication skills and broadening their horizons. However, there are still a series of problems in current English teaching. In this context, it is necessary for teachers to leverage the technological advantages of AI language models to solve problems, construct a more intelligent teaching model, and further improve the quality and effectiveness of education. Based on this, this paper conducts an in-depth analysis and research on the strategies of College English teaching empowered by AI language models, for reference.

Keywords: AI language models; College English; Teaching model

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1. Introduction

In the era of big data and artificial intelligence, digital teaching has become an important development trend in foreign language teaching. As a discipline focused on language output, College English has long faced many problems, including students' weak ability in writing conception and monotonous language expression. With the emergence and application of large language models, the English discipline should focus on teaching reform and introduce new technological means to improve the quality and effectiveness of teaching, enabling students to learn and develop better.

2. The value of AI language models in empowering college English teaching

2.1. Making up for the shortcomings of traditional teaching

Restricted by teaching efficiency and the linear knowledge transfer mechanism, traditional teaching models struggle to address the issue of insufficient interactivity. AI language models can leverage natural language processing technology and deep learning patterns to build intelligent systems that adjust and correct problems in texts. This teaching model facilitates better teaching feedback and avoids delays in evaluation. By utilizing massive language databases, AI can establish more accurate analytical models to conduct precise assessments of students' learning. The application of this intelligent technology helps resolve the shortage of teaching resources, thereby improving the quality and effectiveness of education and constructing a more dynamic teaching system [1].

2.2. Meeting students' individualized needs

Generative AI language models utilize deep learning patterns to construct educational systems, thereby providing more technical pathways for teaching innovation. Restricted by a single knowledge-based teaching system, traditional standardized teaching struggles to evaluate students in aspects such as language cognition and rhetorical use [2]. AI systems can analyze and diagnose problems encountered by students during their learning process using natural language processing technology, and then generate corresponding improvement mechanisms. This intelligent teaching intervention method enables targeted instruction, which is conducive to students' personalized learning and development. This technology ensures the systematicness of language norms while providing support for the initiative of creative subjects, thereby helping to promote the innovative development of English teaching.

2.3. Aligning with the digital transformation of education

Integrating AI language models into college English teaching is conducive to the digital transformation of education. Against the backdrop of intelligent technology reshaping the educational ecosystem, the form of educational practice is undergoing transformation—by building a multi-modal resource integration platform, a human-computer interactive educational model is constructed. The specific manifestations are as follows: at the technical level, the mechanisms of natural language processing and educational theories are utilized; at the process level, the coordinated development of personalized learning trajectories and intelligent evolution is realized [3]; at the goal level, emphasis is placed on the reshaping of the subject's cognitive structure. In this process, teachers can adjust parameters to ensure the effectiveness of intelligent teaching. Students, on the other hand, can develop sound English language thinking through human-computer dialogue. This in-depth technological integration can provide more operable methods for the construction of educational systems, thereby reflecting the educational characteristics in the context of digital transformation.

3. Principles of empowering college English teaching with AI language models

3.1. Human-machine collaboration principle

The human-machine collaboration principle emphasizes that in the context of technology-empowered education, teachers' subjectivity and AI's instrumentality form a dialectical relationship. AI language models undertake language-level output, while teachers are responsible for cultivating students' thinking abilities and values. This requires teachers to effectively use AI language models as teaching aids in the teaching process:

through dynamic intervention in teaching, they should leverage AI language generation models to construct a training model for cross-cultural thinking abilities. This model helps maximize human-machine efficiency, build feedback mechanisms, and continuously optimize human-machine collaboration paths through teaching reflection, thereby ensuring the effective application of technical tools. This principle focuses more on building an intelligent educational ecology to avoid other problems and further improve the quality and effectiveness of English teaching [4].

3.2. Data-driven principle

The data-driven principle focuses on using dynamic data generated during the teaching process as the core basis to achieve precision and personalization in teaching decisions. AI language models can real-time collect students' learning data in multiple dimensions, such as vocabulary accumulation, grammar application, and listening, speaking, reading, and writing training. Through algorithmic analysis, they generate learner profiles, accurately identifying students' knowledge weaknesses, learning habit preferences, and capacity development bottlenecks. This requires teachers to adjust teaching strategies based on data insights: optimizing key points of in-class explanation for common problems, and pushing customized learning resources and practice tasks based on individual differences.

3.3. Dynamic adjustment principle

The dynamic adjustment principle emphasizes the construction of a dynamic teaching mechanism and the effective integration of AI tools with teaching work through technological evolution, the law of logical ability development, and the construction of teaching objective systems. This principle requires teachers to break through the linear transmission teaching paradigm, build early warning mechanisms to prevent cognitive deviation problems that may occur when using AI tools, and thus establish a dynamically adjusted teaching model [5]. This dynamic teaching mechanism helps ensure the effective application of AI technology, avoids ability solidification caused by over-reliance on technology, and further activates the creative potential of human-machine collaboration.

4. Potential risks and challenges of AI language models empowering college English teaching

4.1. Technology dependence and data security

The application of AI in teaching may lead students to become more dependent on technology, which is not conducive to the development of their ability to solve problems independently. If students rely solely on AI technology, they may gradually lose the ability to think independently and engage in innovative practice. In English learning, this could result in difficulties in conducting in-depth text analysis and over-reliance on AI-generated answers to questions, outcomes that are detrimental to students' learning and development. Once they become accustomed to using AI, they may struggle to adapt without technological support and fail to identify and correct their own mistakes. Furthermore, students tend to accept AI-generated content uncritically, which may cause them to acquire incorrect knowledge during the learning process. However, the value of AI technology cannot be completely denied. Teachers need to guide students to use AI correctly and design appropriate learning activities that require students to utilize AI to solve problems, thereby fostering their thinking skills in the process.

AI systems require large amounts of data for analysis, which may lead to the leakage of students' privacy and data. In the digital age, data has become a vital resource. On one hand, the leakage of students' personal information and other data may pose a series of risks. On the other hand, data security issues may also undermine students' trust in AI technology, thereby reducing their enthusiasm for using it.

4.2. Intelligent divide and unequal educational resources

Against the backdrop of the 21st century, the intelligent divide is shifting at the level of users' skills. With the rapid development of artificial intelligence technology, the digital divide is constantly widening. The application of AI technology requires infrastructure support, which may be difficult for institutions with weak educational resources to achieve full technical coverage. From a social perspective, digital technologies represented by generative artificial intelligence and their social resource allocation systems may lead to significant disparities in the access and utilization of digital resources among countries, regions, and individuals, forming a new form of inequality known as the "intelligent divide." This imbalance is reflected not only in hardware infrastructure but also in aspects such as teaching staff and educational philosophy. In schools with insufficient teaching resources, teachers may lack understanding of AI technology, making it difficult to integrate it into teaching. Therefore, during the application of AI technology, teachers should always pay attention to the issue of educational equity, narrow the gap in educational resources, thereby mitigating the impact of the intelligent divide and ensuring that all students have greater access to learning and development opportunities.

4.3. Balance between AI technology and teachers' roles

The application of AI language models in teaching requires teachers to continuously improve their ability to use AI technology. To this end, teachers should strengthen their own learning to adapt to the application of new technologies, identify suitable links in classroom teaching to introduce AI, and thereby maintain the effective conduct of teaching. They should avoid over-reliance on AI and ensure that AI serves as a supporting tool rather than a dominant one in teaching. English teachers should become designers of AI-integrated teaching, continuously enriching teaching content and resources to further improve teaching effectiveness.

5. Attributes of AI language models empowering college English teaching

5.1. Cultural attribute of AI-enabled reading teaching

In college English teaching, educators should not only focus on its instrumental attribute but also bring into play its cultural attribute, enabling students to develop sound humanistic literacy in the process of language learning. Therefore, in the implementation of AI-enabled reading instruction, the cultural attribute empowered by AI should be flexibly utilized. The main forms are as follows:

Firstly, presenting multimodal cultural content. AI visual generation technology is used to display vivid and diverse pictures, videos, and dynamic scenes, thereby integrating reading content with the development of the times, further enhancing students' learning enthusiasm and helping them form cultural identity. AI technology can transform abstract cultural knowledge concepts into multimodal content, thus constructing an immersive learning experience. At the same time, the cultural data resources generated by AI can cover literary works, social practices, and historical events from different regions, allowing students to learn and experience more cultural content and develop good learning qualities.

Secondly, expanding dynamic cultural backgrounds. In traditional reading instruction, the introduction of

cultural backgrounds is more limited to textbook resources, while AI-enabled teaching can expand the scope of cultural knowledge, thereby supplementing more cultural information and providing resource recommendations. The use of AI can provide richer cultural backgrounds according to students' reading needs, and in practical application, teachers need to explore the integration points of AI collaboration. On the one hand, teachers need to use AI technology to design more diverse reading activities; on the other hand, they should pay attention to the accuracy of AI-generated content to avoid other problems.

5.2. Instrumental attribute of AI-enabled writing teaching

AI technology possesses powerful data processing capabilities and a certain level of intelligent processing ability, which can also provide more support for the implementation of teaching. The construction of a personalized writing corpus helps students better engage in writing learning, thereby mastering key writing vocabulary and sentence patterns. Teachers can integrate the instrumental attribute of AI technology in teaching to carry out personalized instructional guidance:

Firstly, the collection and analysis of dynamic data. Teachers construct portraits of English learners and analyze students' writing data through AI to generate personalized writing teaching plans for them. Personalized English writing portraits can help AI accurately recommend corpus resources, including high-quality model essays, academic expression models, etc., allowing students to gain more inspiration from learning these materials.

Secondly, the construction of interactive corpora enables the development of personalized corpora. The introduction of teacher-student interaction is essential to enrich the corpus. Students tend to use certain materials relatively frequently in the writing process and show obvious preferences for specific materials. For this reason, AI can dynamically adjust the content of the corpus to ensure it aligns with the actual needs of learners. At the same time, such a dynamically adjusted corpus helps to arouse students' learning enthusiasm, further improve teachers' teaching capabilities, promote students' autonomous participation, and ensure the effective implementation of teaching work.

5.3. The emotional attributes of AI-enabled reading and writing instruction

The rapid development of artificial intelligence technology requires teachers to continuously enhance their capabilities, transforming from knowledge imparters to instructional guides. Teachers should focus on playing a supportive role in the learning process, guiding learners to develop a positive emotional state, and designing engaging teaching activities. With the application of AI technology, teachers should prioritize emotional teaching objectives and emphasize the guidance of learners' psychological processes. They need to leverage AI agents to provide learners with greater assistance and support through sentiment analysis and data interaction, thereby helping them overcome problems encountered in learning and maintain positive emotional engagement in language learning.

6. Strategies for empowering college English teaching with AI language models

6.1. Constructing a personalized teaching model

Firstly, conduct a thorough analysis and investigation of students' learning situations. Teachers should make full use of AI language models to gain an in-depth understanding and analysis of students' learning data, which mainly includes students' daily academic performance, study time, and mastery of knowledge [6]. By

understanding students' learning foundations and situations through data analysis, teachers can formulate more reasonable teaching plans. They can identify students' weak areas based on their test scores and thus provide targeted learning tasks for them.

Secondly, develop personalized learning goals and plans. Teachers should set specific learning goals according to students' learning situations and characteristics. These goals should be clearer, more definite, and highly operable. For example, for students with a weak foundation in English learning, the learning goals can be set to master basic vocabulary and grammar knowledge, and the learning plans can include basic exercises and corresponding tutoring. For students with a good English foundation, the learning goals can focus on enhancing their comprehensive abilities in listening, speaking, reading, and writing, with a series of practical tasks designed [7].

Thirdly, provide personalized learning resources and tutoring. Teachers should develop personalized learning programs based on students' learning situations. Learning resources should be selected according to students' characteristics and needs, and tutoring methods can include one-on-one tutoring and online Q&A. For instance, teachers can recommend suitable reading materials for students and provide them with vocabulary notes and corresponding explanations [8]. Additionally, teachers need to recommend appropriate reading materials based on students' learning situations and characteristics, offer vocabulary explanations and sentence analysis, and analyze problems arising in students' oral practice to conduct expression training accordingly.

6.2. Innovating teaching content and methods

Firstly, develop intelligent teaching resources. Teachers can utilize AI language models to develop relevant teaching resources, including interactive courseware, virtual simulation courses, and intelligent question banks. These teaching resources can be presented in the form of animations, videos, and audios, thereby enhancing the interest of teaching. Virtual simulation courses can provide students with more realistic learning scenarios, enabling them to improve their language application abilities through practical learning. In addition, intelligent question banks should generate corresponding practice questions based on students' learning situations and characteristics, and provide functions of marking and feedback [9].

Secondly, adopt blended teaching methods. Teaching is carried out by combining AI language models with traditional teaching modes. Teachers can use AI language models for teaching, conducting teaching demonstrations, and case analyses to encourage students to think and explore in depth. During the after-class learning stage, students can use AI language models for autonomous learning, understanding, and applying knowledge through online learning to achieve good learning results [10].

Thirdly, carry out situational teaching activities. Teachers should use AI language models to construct authentic language contexts and conduct corresponding teaching activities. They can leverage AI language models to simulate daily life scenarios and learning scenarios, allowing students to immerse themselves in the scenarios for interactive communication. In this process, students can take on different roles and perform dialogue exercises in various environments and scenarios, further improving their practical language application abilities and intercultural communication skills.

6.3. Establishing a dynamic teaching resource library

Resource collection should be conducted from multiple aspects, and a dual-track dynamic capture mechanism should be established to ensure the effective integration of academic cutting-edge and applicability. In this process, AI and teaching wisdom should be effectively combined to build a three-dimensional network system.

In addition, the corpus annotation system needs to establish a multi-dimensional explanation mechanism for dynamically annotating the historical and cultural context of texts, thereby constructing multiple spaces for thinking training. In this regard, colleges and universities also need to establish a resource update mechanism to realize the update and iteration of information resources, and build an intelligent evolution model oriented to teaching needs. Colleges and universities should dynamically monitor the teaching effectiveness of corpora through a multi-dimensional evaluation system and establish a regular update mechanism. At the same time, they should introduce an intelligent gap response system, so that when there is a corpus shortage in specific teaching scenarios, the blended collection channel can be automatically activated, and dual-track supplementary measures of real corpus selection and AI-generated compensation can be implemented simultaneously [11–13].

6.4. Optimizing the teaching evaluation system

Firstly, adopt diverse teaching evaluation methods. Move away from a single evaluation approach and implement a diversified evaluation. Evaluation subjects include not only teachers but also students themselves, peers, and AI language models. Evaluation content should cover not only students' academic performance but also their learning attitude, learning ability, and innovative qualities. Formative evaluation and summative evaluation can be employed, and their effective combination ensures the rationality and scientificity of the evaluation. For example, teachers can use AI language models to evaluate students' daily performance, including homework completion and class participation, and conduct an overall assessment of students' learning outcomes through final exams [14].

Secondly, emphasize the evaluation of students' learning processes. Teachers should focus on evaluating students' learning processes, using AI language models to effectively track and record these processes, and further collect students' learning data, such as study time, learning progress, and specific mastery of knowledge. In-depth analysis of this data can help identify problems students encounter during their learning, thereby providing corresponding assistance and guidance. Process-oriented evaluation helps teachers better adjust learning strategies based on evaluation results, further improving teaching effectiveness.

Thirdly, achieve immediacy in evaluation feedback. Teachers should use AI language models to provide feedback, ensuring their effectiveness. In the feedback process, AI language models can be utilized to gain a thorough understanding of students' homework completion and test performance, and provide detailed evaluation comments, including analysis of the causes of errors and suggestions for correction. At the same time, teachers can provide targeted learning advice and plans for students based on their learning situations and characteristics, helping them address shortcomings in the learning process [15].

7. Conclusion

In summary, the application of AI language models can provide greater support for college English teaching, thereby building a personalized and interactive classroom environment. The use of AI agents helps optimize effective teaching and cultivate students' global perspectives and national sentiments. At the same time, the challenges it brings cannot be ignored. This requires changing fixed mindsets, continuously innovating teaching practices, effectively applying language model technologies, promoting educational digitalization, and thus achieving updates in teaching concepts and methods.

Disclosure statement

The author declares no conflict of interest.

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