Frontiers in Education Technology
Vol. 7, No.1, 2024
www.scholink.org/ojs/index.php/fet
ISSN 2576-1846 (Print) ISSN 2576-1854 (Online)

Original Paper

Research on the Innovation of English Teaching Mode Based on Artificial Intelligence

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Received: October 30, 2023 Accepted: November 22, 2023 Online Published: March 24, 2024

doi:10.22158/fet.v7n1p85 URL: http://dx.doi.org/10.22158/fet.v7n1p85

Abstract

This article presents a research on innovative approaches in English language teaching through the application of Artificial Intelligence (AI). The aim is to address the issues found in traditional English language teaching methods by utilizing AI technology. The article begins by identifying the problems in traditional English language teaching and exploring the current applications of AI in education. Then, it specifically discusses the application of AI technology in English language teaching, such as interactive listening training, intelligent error correction and personalized post-class guidance, and cloud-based intelligent English translation teaching. Subsequently, a proposal is put forward to construct a new English language teaching system based on AI technology, including modules for engaging explanations, interactive English assignments, and creating scenarios for cross-cultural communication oral training. Lastly, an evaluation method for assessing the innovation of English language teaching models based on AI is introduced, which includes feedback and perceptions from both teachers and students, as well as an assessment of teaching outcomes. The research findings of this article can provide a more intelligent, personalized, and effective English language teaching approach, thus positively impacting the quality of English language teaching and enhancing students' interest in learning.

Keywords

Artificial Intelligence, English Language Teaching Model, Innovation

1. Introduction

In the era of rapid development of information technology, artificial intelligence is widely applied in various fields, including education. As English serves as an important international communication language, its teaching mode also needs to keep up with the times. However, traditional English teaching methods are faced with a series of problems, such as lack of personalized teaching and low student engagement. With the maturity of artificial intelligence technology, it brings new opportunities and

challenges for English teaching. Therefore, this study aims to explore the innovation of the English teaching mode based on artificial intelligence, providing more personalized, interactive and effective teaching methods for English teaching through the application of artificial intelligence technology. This article will introduce in detail the specific application modes of artificial intelligence in English teaching, and evaluate the innovation of the English teaching mode based on artificial intelligence. This will help to improve the quality of English teaching and stimulate students' interest and enthusiasm for learning.

2. Problems of Traditional English Teaching

Traditional English teaching methods face challenges and issues in the current educational environment. Firstly, due to the diverse learning needs and backgrounds of students, traditional one-size-fits-all teaching approaches often fail to meet the needs of all students. Each student has different learning abilities, styles, and interests, requiring personalized teaching methods to help them better understand and grasp English knowledge. Secondly, traditional English teaching lacks real-time feedback and monitoring of students' learning processes. Teachers typically can only assess students' learning progress through quizzes and assignments, failing to promptly understand their doubts and issues during the actual learning process. This lag in feedback not only affects students' learning outcomes but also limits teachers' ability to adjust and optimize teaching content and methods. Additionally, students' motivation in traditional English teaching is often not high. Traditional teaching methods typically revolve around the teacher, with students passively receiving knowledge and lacking active participation and interaction. This teaching approach easily leads to a decrease in students' interest and motivation in learning, affecting their initiative and persistence in English language learning. Another issue is that traditional English teaching lacks contextual and practical teaching environments. The language knowledge students learn in the classroom often cannot be effectively applied in practical situations, lacking opportunities and environments for actual communication. This detachment from real-life language environments limits the development and improvement of students' language abilities. Therefore, we need to explore new English teaching models, leveraging artificial intelligence technology to address these issues and achieve more personalized, interactive, and practical English teaching methods. By applying artificial intelligence technology, we can provide students with personalized learning paths and real-time learning feedback, stimulating their interest and motivation in learning, and improving their English language skills and application abilities (Jing et al., 2023).

3. State of the Artificial Intelligence in Education

With the continuous development of Artificial Intelligence (AI) technology, its applications in the field of education are becoming increasingly widespread. Currently, AI is mainly applied in three areas: teaching support, teaching management, and educational assessment, of which teaching support is one of the most extensively used and promising areas. In terms of teaching support, AI applications can

help teachers provide more personalized and accurate teaching aids and resources to enhance teaching efficiency and effectiveness. For instance, AI technology can analyze students' learning situations and habits to offer them customized learning plans and teaching resources, thereby stimulating their learning interests and motivation and ultimately improving learning outcomes. AI can also provide teachers with relevant teaching aids and resources, such as natural language processing, intelligent question banks, and virtual simulation platforms, to diversify and enhance teaching support. In terms of teaching management, AI technology can optimize teaching management mode and improve management efficiency by analyzing and mining large amounts of student learning data and information. Based on students' grades, learning behavior records, and other data, AI technology can offer comprehensive assessments and analyses of students' learning situations, learning paths, and learning outcomes, helping teachers gain better insight into students' learning situations and results and perform timely adjustments and improvements to teaching content and methods. Furthermore, AI can also provide corresponding support and solutions for classroom management, student evaluation, student archives, and teacher teaching evaluations. Regarding educational assessment, AI technology can provide more accurate and objective educational assessment results for students and teachers by analyzing and comparing student learning data and information. For instance, essay evaluation systems based on natural language processing technology can provide accurate evaluations of grammar, logic, and vocabulary usage by comparing students' writing pieces with excellent examples using deep learning and machine learning techniques, thus providing more comprehensive evaluations of students' writing abilities. Moreover, AI can also be used for the evaluation of course quality, teacher teaching effectiveness, and student comprehensive qualities. In conclusion, the applications of AI technology in the field of education are extensive and diverse, with teaching support showing the most widespread and promising prospects. In English teaching, the application of AI technology can provide teachers with more personalized and accurate teaching support and resources to help students better master language knowledge and improve language abilities.

4. Specific Models for the Application of Artificial Intelligence Technology in English Language Teaching

4.1 Interactive Listening Training Model

Interactive listening training mode is a specific application of artificial intelligence technology in English language teaching. Traditional listening training usually involves teachers playing recordings or combining them with questions, but due to the large number of students, it is difficult for teachers to provide personalized guidance and feedback to each student. In contrast, the interactive listening training mode utilizes artificial intelligence technology to provide students with personalized and autonomous listening training. In this mode, students can engage in listening exercises anytime and anywhere using devices equipped with AI-assisted systems, such as smartphones or tablets (Chernysh et al., 2023). The system offers different levels and types of listening materials, such as news, dialogues,

and speeches, based on the students' proficiency and needs. Students can autonomously choose the listening materials and practice their listening skills through the system at their own pace and according to their needs. During the listening practice, the AI-assisted system monitors and assesses the students' listening performance in real-time. Through speech recognition technology, it automatically recognizes the students' listening answers and provides feedback. For example, in multiple-choice listening exercises, students can select the heard content or answer questions, and the system instantly judges the correctness of their answers, providing the correct answer and explanation. In fill-in-the-blank listening exercises, students can input their answers through speech, which the system will automatically recognize and evaluate. Through this approach, students can promptly understand their listening scores and identify any issues, enabling targeted training and improvement. The interactive listening training mode not only provides personalized learning content and real-time feedback but also offers various auxiliary functions and learning resources. For instance, the system can provide subtitles, vocabulary explanations, and voice readings to help students better understand and master the listening materials. Additionally, based on the students' needs, the system can recommend relevant learning resources such as related reading materials, grammar explanations, and exercises to further reinforce and expand their listening skills. The application of interactive listening training mode can enhance students' listening skills and their ability to cope with real-life language environments. Through personalized training and real-time feedback, students can effectively improve their listening comprehension and dictation abilities, and confidently and fluently utilize their learned English knowledge in practical communication. Furthermore, due to the flexibility of training anytime and anywhere, students can choose suitable listening exercises according to their own time and location, enhancing the convenience and efficiency of their learning. In summary, the application of interactive listening training mode provides a more personalized, flexible, and effective teaching approach in English language education.

4.2 Intelligent Correction and Humanized after-school Guidance Model

The application of artificial intelligence technology in English teaching also includes the intelligent error correction and personalized after-class guidance mode. Traditional essay correction is usually done by teachers, but their time and energy are limited, and they cannot provide detailed correction and guidance for every student's essay. However, the intelligent error correction and personalized after-class guidance mode, utilizing artificial intelligence technology, can offer students personalized essay correction and guidance, thereby improving their writing skills and language proficiency. In this mode, students can submit their essays through an intelligent writing platform, and the system will automatically check and correct aspects such as grammar, spelling, and punctuation. Through natural language processing technology, the system can identify and correct errors in students' essays and provide corresponding explanations and demonstrations. Students can learn about their mistakes and make revisions based on the system's feedback, thereby not only enhancing language accuracy but also deepening their understanding of grammar rules and writing techniques. Unlike traditional essay correction, the intelligent error correction and personalized after-class guidance mode also provides

more personalized and humanized after-class guidance services. The system can provide targeted suggestions and guidance for essay improvement based on students' essay characteristics and needs. It can analyze the problems and shortcomings in students' essays and offer tailored writing techniques and suggestions. The system can also adjust the difficulty and content based on students' levels and progress, providing them with stage-specific tasks and training. The intelligent error correction and personalized after-class guidance mode can not only enhance students' essay writing skills but also stimulate their interest and enthusiasm for writing. Through timely feedback and personalized guidance, students can better understand their writing problems and make improvements. Additionally, the system can share excellent sample essays and writing techniques, inspiring students' creativity and thinking abilities. Furthermore, the intelligent error correction and personalized after-class guidance mode can provide online guidance and assistance from teachers (Ren, 2022). Teachers can track and analyze students' essays through the system, understand their writing levels and progress, and provide personalized guidance and feedback. The system also offers evaluation tools for teachers to grade and evaluate students' essays, helping them better understand students' writing abilities and issues and develop corresponding teaching strategies and plans. In conclusion, the intelligent error correction and personalized after-class guidance mode provides a more personalized and effective approach to essay training and guidance in English teaching. Through intelligent error correction and personalized writing guidance, students can enhance language accuracy and writing skills while also stimulating their interest and thinking abilities in writing. This mode not only offers convenience and flexibility for students' learning but also provides better essay teaching management and guidance tools for teachers.

4.3 Intelligent English Translation Teaching Model Based on Cloud Platform

The cloud-based intelligent English translation teaching model is another significant application of artificial intelligence technology in English education. Traditional English translation teaching often relies on paper dictionaries or translation software, requiring students to constantly search for words and phrases in dictionaries or on computers, wasting valuable study time. However, the cloud-based intelligent English translation teaching model utilizes cloud computing and artificial intelligence technology, providing more convenient, real-time, and accurate translation tools and aids. In this model, students can perform real-time English translation through translation applications or web interfaces on smart phones, tablets, and other devices connected to the cloud platform. They can not only input words, sentences, or paragraphs that need to be translated but also utilize speech recognition technology for oral translation. The AI translation system on the cloud platform can instantly translate the input English content into the target language and provide accurate translations along with contextual explanations. Students can flexibly use this tool for translation practice and language application according to their own needs and progress. In addition to providing real-time translation tools, the cloud-based intelligent English translation teaching model can also offer personalized learning resources and auxiliary functions. Based on the students' learning needs and levels, the system can recommend relevant vocabulary, grammar explanations, as well as provide related examples and

exercises. The system can also provide deeper word associations and explanations of word meanings to help students better understand and use the translated text. At the same time, the system can offer auxiliary functions such as voice reading and pronunciation correction to help students improve their speaking and listening skills. The cloud-based intelligent English translation teaching model not only provides students with convenient translation tools and personalized learning resources but also offers teachers better teaching management and assessment methods. Through the system, teachers can track and analyze students' translation content, understand their translation abilities and problems, and provide appropriate guidance and feedback. Teachers can also utilize the evaluation tools provided by the system to score and assess students' translation quality, helping them better understand students' translation levels and issues and develop corresponding teaching strategies and plans. In conclusion, the cloud-based intelligent English translation teaching model provides English learners with more convenient, real-time, and personalized translation tools and learning resources. Through the use of intelligent translation systems and auxiliary functions, students can improve translation accuracy and language application abilities. This model not only saves study time and effort but also provides teachers with better teaching management and guidance methods.

5. Building a New English Teaching System Based on Artificial Intelligence Technology

5.1 Interesting Explanation Module for English Vocabulary and Grammar

The innovative English language teaching system, founded on artificial intelligence technology, offers students a more enjoyable and interactive learning experience in the fascinating modules of vocabulary and grammar explanations. Traditional methods of teaching vocabulary and grammar often emphasize rote memorization and mechanical exercises, leading to dull and tedious learning. In contrast, the AI-based teaching system, with its creative teaching methods and engaging learning content, stimulates students' interest and motivation to learn. Within these modules, the AI system utilizes multimedia technologies such as images, animations, audio, and videos to present English vocabulary and grammar concepts to the students. Through immersive visual and auditory effects, the system captivates students' attention and makes the learning content more vivid and interesting. For example, the system can animate vocabulary concepts, transforming abstract words into entertaining images or characters, aiding students in deeper memorization and comprehension. The system can also simulate real-life contexts and incorporate interactive games, enabling students to practice grammar rules and turning learning into an enjoyable experience. Beyond its entertainment value, the AI-powered English teaching system can also provide personalized learning content and progress arrangements tailored to students' needs and proficiency levels. By analyzing students' learning history and performance, the system identifies their weaknesses in vocabulary and grammar and offers targeted explanations and exercises. Through intelligent recommendations and adaptive learning features, the system provides students with appropriate learning resources and difficulty levels, enhancing the efficiency and effectiveness of their studies. Furthermore, the AI-based English teaching system offers instant

feedback and assessment. As students engage in the learning process, the system can evaluate their answers or oral expressions in real-time, providing corresponding feedback and suggestions. Students can promptly adjust their learning strategies based on the system's assessment results and further strengthen and improve their skills. In conclusion, the AI-based English teaching system, with its captivating and interactive modules for vocabulary and grammar explanations, offers a more charming and engaging learning experience. Through its innovative teaching methods and captivating learning content presented through multimedia technologies, students can enhance their interest and learning outcomes. These modules not only ignite students' passion for learning but also help them master English vocabulary and grammar knowledge, ultimately improving their language proficiency (Belhassena, 2022).

5.2 Designing English Assignments with High Interactivity

Designing highly interactive English assignments is one of the important modules in constructing a new AI-based English teaching system. Traditional English assignments often focus on delivering knowledge points and mechanical exercises, lacking sufficient interactivity and practicality. However, with the application of AI technology, we can design English assignments that are more interactive and allow students to learn and apply the knowledge they have mastered through practical exercises. Such interactive English assignments can leverage AI technologies such as speech recognition, natural language processing, and speech synthesis to provide oral and listening practice. For example, the assignment system can set oral questions, requiring students to answer questions or converse in English, and the system can convert the students' answers into text through speech recognition technology and provide immediate feedback and evaluation. At the same time, the system can also use speech synthesis technology to play standard English pronunciation for students, helping them correct pronunciation errors and improve their oral expression skills. In addition, interactive English assignments can also incorporate the human-machine dialogue function in AI systems for conversational practice. The system can generate corresponding questions based on the students' answers, provide multiple options or prompts, guide students to answer and communicate. Through interaction with the system, students can practice language expression and comprehension skills. The system can analyze and evaluate the students' answers based on natural language processing technology, provide appropriate encouragement and guidance, and help students further improve their language skills. In addition to oral and listening practice, interactive English assignments can also include writing and reading comprehension exercises. The system can check grammar and vocabulary based on the students' writing, and provide correction and suggestions. In terms of reading comprehension, the system can provide relevant questions and answer analysis based on the students' reading content, helping students better understand and apply the information they have read. By designing highly interactive English assignments, we can stimulate students' learning interest and participation, making learning more interesting and practical. Students can improve their language skills through interaction with AI systems and better apply the knowledge they have learned. This interactive assignment module not only helps students improve their English

proficiency but also provides timely feedback and personalized learning advice, promoting the realization of learning effectiveness.

5.3 Creating Oral Training Scenarios for Intercultural Communication

Creating cross-cultural communication training scenarios is one of the key elements in building a new English teaching system based on artificial intelligence technology. In the context of globalization, cross-cultural communication skills have become increasingly important for students. By creating cross-cultural communication training scenarios, students can practice their language expression and cross-cultural communication skills in simulated situations, enhancing their communication abilities and cultural adaptability. These scenarios can simulate real-life situations in different countries and regions, such as tourism, business, and social situations. Through speech recognition and natural language processing in artificial intelligence technology, the system can interact with students in real-time, simulating authentic cross-cultural communication scenarios. For example, the system can act as a foreign tour guide, a business partner, or a friend in a social setting, engaging in spoken dialogue with the students. Students can answer questions, offer suggestions, or engage in social activities based on the system's dialogue or questions, simulating a genuine spoken exchange. In this training scenario, the artificial intelligence system can analyze the student's spoken language expression such as syntax, vocabulary, and pronunciation through natural language processing technology and provide instant feedback and corrections. The system can point out inaccuracies and lack of fluency in spoken language, offer appropriate advice and improvement plans, and continually improve students' spoken expression skills by interacting with the system. Additionally, to better simulate authentic cross-cultural communication scenarios, the training scenario can be combined with real cultural backgrounds. The system can provide diverse cultural background elements such as festivals, cuisine culture, and etiquette customs to help students understand differences and characteristics between different cultures and to develop their cultural adaptability and cross-cultural communication skills. Through creating cross-cultural communication training scenarios, students can exercise their language expression and cross-cultural communication skills in a virtual environment, enhancing their communication abilities and cultural adaptability. This training scenario not only provides students with the opportunity to practice oral language but also allows them to better understand and appreciate communication rules and etiquette in different cultural contexts, promoting effective cross-cultural communication.

6. Evaluation of Artificial Intelligence-based English Teaching Model Innovation

The innovation of AI-based English teaching models holds great promise and potential. Initially, it can provide personalized learning plans and resources tailored to students' needs and proficiency levels. Moreover, AI systems can promptly offer targeted feedback and suggestions to help students better understand and master English knowledge. Furthermore, AI-based English teaching models can enhance students' practical skills. By creating diverse learning scenarios, students can apply their

learned knowledge in practice, thereby improving their speaking, listening, and writing abilities. Simultaneously, the intelligent functions of AI systems can promptly correct students' language errors, aiding them in improving grammar and pronunciation accuracy, ultimately making the learning process more efficient and effective. Lastly, AI-based English teaching models can promote the development and progress of global education, providing a stronger foundation for transcending linguistic and cultural barriers and facilitating wider communication and collaborative efforts. It contributes to cultivating English learners with intercultural communication abilities and enhancing their competitiveness, thereby driving global education forward. In conclusion, the application prospects of AI-based English teaching model innovation are vast and can bring new opportunities and challenges to English education. However, it is crucial to address potential issues such as the value orientation and privacy concerns related to AI systems. Therefore, strict management and guidance are necessary during promotion and implementation to ensure the quality and effectiveness of teaching (Wei, 2022).

7. Conclusion

The adoption of artificial intelligence technology in the field of English education is bringing about a series of exciting innovations and opportunities. Through intelligent teaching systems, students can experience a more personalized, interactive, and practical learning environment. This innovative research not only stimulates students' interest in learning but also enhances their language application skills. A.I. systems can provide customized learning resources and plans based on students' learning needs and abilities, making learning more targeted and efficient. Moreover, the system can provide targeted feedback and suggestions in real-time, helping students better understand and grasp English knowledge. Moreover, innovation research based on the A.I. English teaching model can also enhance students' practical language skills and strengthen their language application skills. By creating a rich and diverse learning environment, such as simulated dialogues in virtual situations, role-playing, and simulated real-life scenarios, students can apply what they have learned to practical situations, improving their oral expression, listening comprehension, and writing skills. The intelligent functions of A.I. systems can timely correct students' language errors, helping them improve the accuracy of grammar and pronunciation, making the learning process more effective and efficient. Overall, innovation research based on A.I. English teaching model has brought new development prospects to English education. With continuous innovation and improvement, we hope to build a more intelligent, personalized, and efficient English education system, cultivating English learners with a broad cross-cultural communication ability. This will promote the progress and development of global education, and create a more powerful foundation for crossing language and cultural barriers, achieving wider communication and cooperation.

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