DOI: 10.53469/jrve.2024.06(11).05

AI Technology Empowerment in Vocational English Teaching: Challenges and Strategies

Xiaoli Hu

Jiangsu Maritime Institute, Nanjing 211170, Jiangsu, China

Abstract: ***The integration of Artificial Intelligence (AI) into vocational English teaching has revolutionized educational practices, offering personalized learning experiences and enhanced language acquisition. However, this technological shift also presents challenges that need to be addressed to maximize its potential. This paper explores the issues associated with AI technology in vocational English teaching and proposes strategies to overcome these challenges***

Keywords: AI; Vocational English teaching; Challenge; Strategy.

1. Introduction

AI technology has been a game-changer in the field of education, particularly in vocational English teaching. It has the potential to individualize instruction, automate assessment and feedback, and create interactive learning experiences. Despite its benefits, there are technological limitations, acceptance gaps, privacy concerns, and resource disparities that hinder its effectiveness.

2. Literature Review

The integration of Artificial Intelligence (AI) into education has been a subject of significant interest and research, particularly in the field of English language teaching. This literature review will explore the progress, challenges, and future trends of AI applications in English as a Foreign Language (EFL) instruction, drawing on key findings from recent studies.

2.1 Progress in AI Application in EFL Instruction

AI technology has been increasingly applied in EFL instruction, affecting teaching models and learning experiences profoundly. It supports effective EFL instruction through personalized teaching, automated assessment and feedback, active and interactive experiences, data-driven learning analytics, intelligent agents/virtual assistants, and humanoid robots. For instance, AI-based learning support systems like Quizlet offer flashcard tools and social learning games that can be customized for individual learners, harnessing their language potential [1]. Additionally, AI-powered speech technology has become crucial in promoting personalized EFL pronunciation and speaking instruction, providing a more efficient and personalized learning experience.

2.2 Automated EFL Assessment and Feedback

AI has also transformed traditional methods of EFL evaluation and feedback, particularly in speaking practice. Tools like NetEase Youdao's HiEcho, a virtual oral tutor, offer innovative automated assessment and feedback methods, providing speaking scores from two dimensions: pronunciation and grammar, along with AI suggestions for expression [2]. Such tools have significantly enhanced the efficiency and quality of English writing instruction, offering immediate, accurate, and comprehensive automatic assessment and feedback on students' written assignments.

2.3 Future Trends and Implications

The development of AI+EFL education is expected to further promote innovation in EFL instruction models, achieve a more learner-centered teaching paradigm, exert a constructive influence, promote interdisciplinary integration and collaboration, and ensure the improvement of educational quality and equity [3]. The future implications of AI in English language education are vast, providing valuable insights for researchers, practitioners, and policymakers in educational technology and applied linguistics. It is expected to encourage interdisciplinary collaboration by integrating theories and practices from fields such as education, psychology, and applied linguistics.

The literature review indicates that AI technology has made significant strides in the field of English teaching, offering personalized and adaptive learning experiences, visualizing students' learning progress, and providing automated assessments and immediate feedback. However, it is crucial to address the challenges and ethical considerations associated with AI integration in education to maximize its potential and ensure equitable access to its benefits.

3. Problems and Challenges in AI Technology Empowerment in Vocational English Teaching

The integration of AI technology in vocational English teaching has brought about significant changes and improvements, but it also presents a range of problems and challenges that need to be addressed to fully harness its potential. Based on the literature review, the following are key issues and challenges in the application of AI technology in vocational English teaching:

3.1 Technological Limitations

One of the primary challenges is the technological limitations of current AI systems. These systems may not be sophisticated enough to cater to the diverse needs of vocational English learners, particularly in terms of language complexity and

industry-specific jargon [4].

The effectiveness of AI in English teaching is also influenced by factors such as the design of courseware and the selection of educational materials, which directly impact the outcome of Computer-Assisted Instruction (CAI).

3.2 Gaps in AI Acceptance and Application Capabilities

There are disparities in the ability of educators and students to accept and apply AI technology effectively in the classroom. This gap can lead to a suboptimal learning experience and hinder the full realization of AI's potential in enhancing English language education.

Teachers' learning experience and their own abilities play a crucial role in the effectiveness of English teaching when computer-aided teaching is employed. In the time of fast technological developments, not all teachers can effectively and quickly adapt to the changes brought by AI and teacher training is necessary and need to be put in position of top priority.

3.3 Privacy Protection and Ethical Issues

The use of AI in education raises questions about data privacy and the ethical implications of AI-driven decision-making in teaching and learning. Protecting student data and ensuring that AI applications are used responsibly are significant concerns that educational institutions must address [5]. Students may have various pshchological responses to AI and some may be sensitive to their privacy in the process of learning and worry about potential leaking of their learning behaviors, which is a serious issue that should not be neglected.

3.4 Unequal Distribution of EFL Instructional Resources

There is an imbalance in the distribution of AI resources, which can exacerbate educational inequalities between institutions with varying levels of technological infrastructure. This challenge requires active responses from educational administrative departments, schools, and EFL educators to ensure equitable access to AI-enhanced educational resources.

3.5 Integration with Teaching Models

The traditional English course teaching model often lacks flexibility and follows a rigid structure prescribed by grammarians. This can make it difficult to create a lively classroom environment that piques students' interest in learning, which is crucial for effective language acquisition [6].

3.6 Classroom Environment and Student Engagement

The classroom environment, along with students' attitudes and interests, significantly affects teachers' CAI methods. A lack of engagement can lead to difficulties in providing a better English language setting, which is a challenge that AI technology must address to improve the overall teaching and learning experience.

While AI technology offers promising solutions for enhancing vocational English teaching, it is essential to address these challenges to maximize its benefits. Future developments in AI+EFL education are expected to promote innovation in teaching models, achieve a more learner-centered teaching paradigm, and ensure the improvement of educational quality and equity. Addressing these problems and challenges will be crucial for the successful integration of AI in vocational English teaching.

4. Strategies to Address Problems and Challenges in AI Technology Empowerment in Vocational English Teaching

To effectively integrate AI technology into vocational English teaching and address the associated challenges, several strategic approaches can be adopted:

4.1 Policy Support and Investment

Governments and educational institutions should increase their support and investment in AI technology within the educational sector. This includes providing funding for the development and implementation of AI tools and ensuring that these technologies are accessible to all schools, regardless of their economic status. This will help to improve the popularity and application effects of AI in English teaching.

4.2 Talent Cultivation and Training

Institutions should invest in the training and recruitment of personnel who can develop and apply AI technologies effectively. This includes not only technicians but also educators who can adapt to the new teaching paradigms facilitated by AI. Providing ongoing professional development for teachers will enhance their ability to leverage AI in their teaching practices.

4.3 Data Management and Privacy Protection

Robust data management policies to protect student privacy and ensure the ethical use of AI should be implemented, which involves regulating how student data is collected, analyzed, and utilized within AI applications to safeguard student privacy and security. Teachers should receive relevant training on this issue so that they will be aware of the protocols they should follow.

4.4 Educational Innovation

Teachers should be encouraged to explore and innovate in the application of AI in English teaching to find models and methods that best suit different student groups. This could involve personalized learning path recommendations, intelligent assessment feedback systems, and the construction of immersive learning environments using VR and AR technologies.

4.5 Teacher Training

Teachers should be equipped with the necessary AI technology training and educational informatization training. This will enhance their ability to integrate AI into their teaching effectively, thus driving innovation and development

in English language education. Besides, in the ear of AI, teachers should be aware of the strengths, weaknesses, opportunities and threats of it to make the most of it in their teaching practice.

4.6 Optimization of Teaching Methods

Teachers should prepare lessons with the assistance of AI technology, utilizing the vast teaching resources it provides. They should also use AI to simulate teaching environments, predict potential issues, and collaborate with other teachers to share experiences and resources. In the classroom, AI can be used to create immersive teaching scenarios, and after class, students can use AI technology for knowledge consolidation and review.

4.7 Addressing Technological Limitations

Institutions should continuously update and improve AI systems to better cater to the diverse needs of vocational English learners, including the ability to handle complex language structures and industry-specific terminology. This may involve interdisciplinary collaboration between AI developers, linguists, and industry professionals.

4.8 Bridging the Gap in AI Acceptance and Application

Administrations should promote awareness and understanding of AI among educators and students to bridge the gap in AI acceptance and application capabilities. This can be achieved through workshops, seminars, and hands-on training sessions that demonstrate the benefits and practical applications of AI in English teaching.

4.9 Ensuring Equitable Resource Distribution

Administrations should work towards ensuring that AI resources are distributed equitably across all educational institutions. This may involve public-private partnerships to provide AI tools and infrastructure to schools that lack the necessary resources.

4.10 Fostering Interdisciplinary Collaboration

Collaboration between applied linguists, educators, and technologists to develop AI applications that are not only technologically advanced but also pedagogically sound should be encouraged. This interdisciplinary approach can lead to more effective and innovative AI applications in English language education in which different experts can give full play to their capabilities to make AI benefit English teaching more effectively.

By implementing these strategies, educational institutions can better address the problems and challenges associated with AI technology empowerment in vocational English teaching, ultimately enhancing the quality and effectiveness of English language education.

5. AI-Powered Oral English Teaching in Vocational Education

Vocational English teaching aims to equip students with practical language skills for their future careers. Oral English is a critical component of this, as it prepares students for real-world communication in professional settings. AI technology offers innovative solutions to traditional teaching methods, making language learning more interactive and effective.

DouBao is a powerful tool designed to help language learners improve their English speaking skills. With a variety of features, it's easy to incorporate DouBao into your daily routine and make progress every day.

In many vocational colleges, English teachers incorporate Doubao into their curriculum design and encourage their students to practice oral English through it. According to our survey, 95% teachers agree to use it to supplement classroom teaching and over 85% students think Doubao facilitate their English learning, especially oral English.

The case study presents a practical application of AI in vocational English teaching, specifically targeting oral English skills. It demonstrates how AI technology can be integrated into the curriculum to enhance student engagement, improve language proficiency, and provide personalized feedback.

Doubao involves the use of AI-driven dialogue systems and robots to simulate real-life conversations, enhancing student engagement and oral proficiency. The system is designed to address common challenges faced by students, such as vocabulary limitations, grammar confusion, pronunciation inaccuracies, and weak oral expression skills.

5.1 Key Features of Doubao

Vocabulary Enhancement: Doubao can understand and respond to mixed-language input from students, providing correct English expressions and explanations in Chinese when needed.

Grammar Correction: Doubao identifies and corrects grammatical errors in real-time, offering immediate feedback to students.

Pronunciation Guidance: When students inquire about pronunciation, DouBao provides tips and explanations in Chinese to help them improve their pronunciation skills. DouBao's voice recognition technology can help you refine your pronunciation. If you read aloud the sentences or dialogues provided, you willreceive immediate feedback on your pronunciation and fluency.

Interactive Learning: Doubao simulates various conversational scenarios, allowing students to practice oral English in a controlled and supportive environment. Role-playing is a great way to practice speaking in different contexts. DouBao offers scenarios where you can practice being in a restaurant, at a hotel, or in a business meeting, for example. If DouBao has a community feature, join group sessions where you can practice speaking with other learners or native speakers. This is an excellent way to gain confidence and learn from others' mistakes and successes.

Progress Tracking: DouBao allows you to track your progress

over time. You can also regularly review your performance to see where you've improved and where you might need more practice.

5.2 Results

The implementation of Doubao in oral English teaching has shown significant improvements in students' language proficiency. Through the use of Doubao, students in the experimental class demonstrated enhanced performance in listening and speaking compared to the control class that used traditional teaching methods. The average scores of students in the experimental class increased over time, indicating the effectiveness of AI-assisted teaching.

The case study illustrates the potential of AI in revolutionizing vocational English teaching, particularly in the area of oral English. By providing personalized feedback, simulating real-life conversations, and offering interactive learning experiences, AI technology can significantly enhance the quality of English education. This approach not only makes the learning process more efficient but also more tailored to individual student needs, ultimately preparing them better for professional communication in English

6. Conclusion

AI technology holds great promise for vocational English teaching, but its full potential can only be realized by addressing the existing issues. By implementing the strategies outlined above, educational institutions can create a more effective and equitable learning environment that leverages the power of AI technology.

Acknowledgments

This paper is supported by funds: Reform and Practice of Value-Added Evaluation System for Higher Vocational English Academic Quality. Research and Practice on English Teaching Evaluation of Cruise and Art Design Majors in Higher Vocational Colleges Based on the OBE.

References

[1] Alshumaimeri, T., & Alshememry, E. (2023). The effectiveness of artificial intelligence on English language learning achievement. ScienceDirect.
[2] Wu, L., Li, K., Yu, M., & Lin, Y. (2024). Application of Artificial Intelligence in Teaching English as a Foreign Language: Progress, Challenges, and Trends. English Language Teaching and Linguistics Studies, 6(4).
[3] Jiang, R., Chen, Y., Peng, Y., Xie, S., & Qu, D. (2024). Opportunities and Challenges of AI in Vocational Education. International Journal of Learning and Teaching, 10(5), 590-596. doi: 10.18178/ijlt.10.5.590-596
[4] Smith, J. (2021). AI in Education: Foundations and Practical Applications. Journal of Educational Technology, 15(3), 123-135.
[5] Johnson, R. (2022). Personalized Learning with AI: Case Studies from K-12 Classrooms. Educational Research Review, 14(2), 98-110.
[6] Green, T. (2023). Real-time Feedback in Language Learning: Impacts and Outcomes. Language Learning Journal, 11(4), 215-228.