

Practice and Research of AI Assisting Secondary Vocational English Teaching

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Abstract

This paper explores the application practice of AI technology in secondary vocational English teaching and its potential impact on the teaching effect. Through comprehensive analysis of the existing literature and data from empirical research, the effectiveness of AI technology in secondary vocational English teaching is evaluated. The study found that compared with traditional teaching methods, the teaching mode assisted by AI can significantly improve the teaching effect and meet the individualized learning needs of students. This study provides a theoretical and practical basis for the integration and optimization of AI technology in future secondary vocational English education, aiming to promote the innovation of educational technology to meet the learning needs of contemporary students.

Keywords

AI technology; secondary vocational English; application practice.

1. Introduction

In recent years, the application of AI technology in the field of education has become more and more widespread, including personalized learning path recommendation, intelligent assessment feedback systems, the construction of virtual reality (VR) and augmented reality (AR) learning environments, etc. The introduction of these technologies provides new ideas and methods to solve the problems existing in secondary vocational English teaching. [1]

Although the potential of AI technology in the field of education is enormous, the specific application and effect in secondary vocational English teaching are relatively limited at present. Therefore, this study aims to explore the current application situation of AI technology in secondary vocational English teaching, the challenges it faces, and its solution strategies, in order to provide theoretical support and practical guidance for the reform and development of secondary vocational English teaching. By in-depth analysis of the specific application of AI technology in secondary vocational English teaching, and evaluating its role in improving teaching quality and learning effects, this paper attempts to provide valuable insights and suggestions for secondary vocational education institutions, teachers, and educational technology developers.

2. The Current Situation of Secondary Vocational English and The Development Trend of AI Technology.

With the development of technology, the penetration of the Internet, the application of artificial intelligence, and the popularization of smart phones, the mode of secondary vocational English teaching and the learning methods of students have undergone significant changes.

2.1. The current situation and challenges of secondary vocational English teaching.

Secondary vocational schools focus on cultivating students' professional vocational skills, and in addition, English is not tested in the secondary vocational college entrance examination, therefore, the importance attached to English teaching in most secondary vocational schools is relatively low. The English foundation of students is uneven, with severe polarization, and the English level of most students is relatively weak.

Most students have insufficient motivation to learn English, low classroom participation, and poor learning effects. Many schools and teachers ignore the subjectivity and individual differences of secondary vocational students, lack investigation and consideration of the basic learning situation of secondary vocational students, and cannot meet the needs of different students' career development. At the same time, there is a shortage of teachers and the richness of teaching resources needs to be improved.

2.2. The development trend of AI technology in the field of education.

In recent years, the application of AI technology in the field of education has been increasing day by day, with the goal of enhancing learning efficiency and experience through tools such as personalized learning plans, intelligent assessment, and feedback mechanisms, and virtual classrooms. AI technology can provide customized learning content based on students' learning history and behavioral patterns, thus achieving true personalized learning. At the same time, AI can evaluate students' learning progress and mastery level in real time, and provide precise teaching tutoring suggestions for teachers.

In addition, research shows that AI-assisted language learning tools can increase students' language practice opportunities, especially in the aspects of listening and speaking training, with significant effects. For example, AI-driven speech recognition technology can provide immediate pronunciation correction and feedback, while AI chatbots can simulate real conversation environments and enhance students' language communication skills. [2]

In short, secondary vocational English teaching needs to constantly reform and innovate to adapt to the development of the times and the needs of students. As an emerging technical means, AI technology will bring new opportunities and challenges to secondary vocational English teaching.

3. The Application Practice of AI Technology in Secondary Vocational English Teaching.

AI technology provides new opportunities and new paths for the transformation of secondary vocational English teaching. The teaching method assisted by AI can provide students with a more personalized and highly interactive learning experience, which helps to improve students' learning motivation and grades. It allows students' learning state towards English to change from passive to active, thus better enhancing the quality of English teaching. In addition, through AI technology, teachers can obtain real-time data and analysis on students' learning states, and then optimize teaching methods and content. Focusing on the application situation of AI technology in secondary vocational English teaching, a detailed decomposition and analysis has been carried out, as shown in Figure 1.

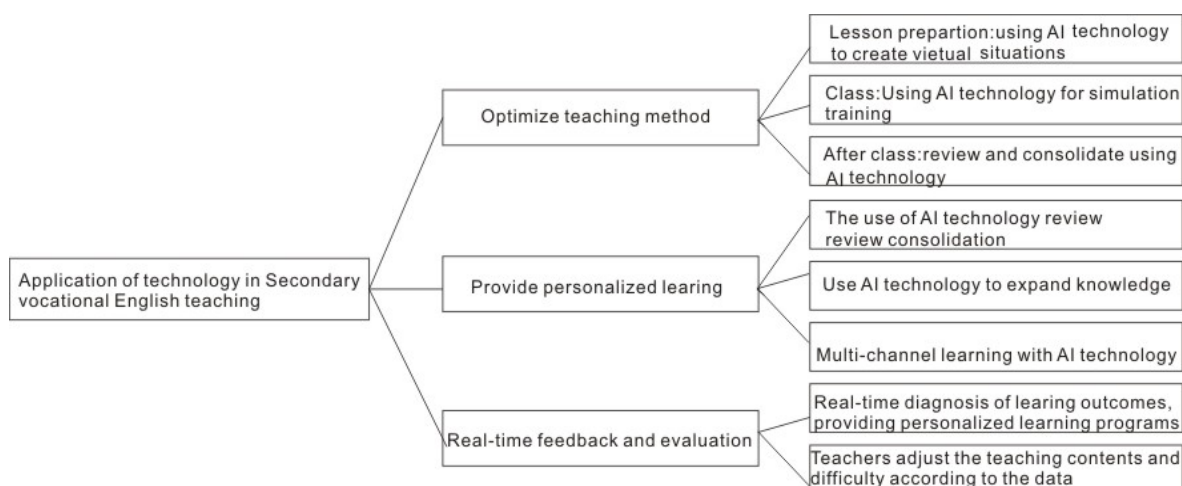


Figure 1. The Application of AI Technology in Secondary Vocational English Teaching.

3.1. Optimization of teaching methods.

To realize the combination of AI technology and secondary vocational English teaching, first, teachers should prepare lessons with the assistance of AI technology. Use the massive teaching resources provided by AI, such as courseware, teaching plans, videos, etc. Based on students' learning data, understand the strengths and weaknesses of students and prepare lessons targetedly. Simulate the teaching environment through AI to predict possible problems in advance. Collaborate with other teachers to prepare lessons online and share experiences and resources. Secondly, in the classroom, use AI technology to create a real situational teaching, let students integrate into it, increase oral conversation practice, watch some domestic and foreign interviews, so that students can faster understand and learn this knowledge on the basis of accepting this culture. [3] Finally, after class, students can use AI technology to consolidate and review the knowledge points that they did not understand in class.

3.2. Provide personalized learning.

AI technology brings more possibilities for students' self-directed learning. Provide customized learning content according to students' levels and needs. Students can learn anytime, anywhere 24 hours a day, not only through the teacher's in-class teaching, but also review and consolidate at home by themselves. The development of AI technology has enhanced students' ability of self-directed learning, making home learning possible. The development of AI technology allows students to have more opportunities to discover knowledge in all aspects and learn through multiple channels. It provides multiple options for students to learn English, enhances students' ability of self-directed learning, and also enhances students' ability to make autonomous choices in life. [4]

3.3. Real-time feedback and evaluation.

Evaluation is an important part in English teaching and an important means for teachers to grasp students' learning situations and grades. The evaluation based on AI technology is more comprehensive than traditional evaluation. It can not only conduct process-based evaluation for each student, such as conducting big data analysis on the student's learning process, learning enthusiasm, and learning progress, but also carry out precise and personalized evaluation. For example, the identification technology of AI can diagnose the learning emotions of students in real time, so that teachers can propose personalized learning plans based on understanding and analyzing the learning situation of each student. [5] It provides teachers with detailed data on students' learning situations, and teachers can adjust the teaching content and difficulty according to the students' performance for targeted teaching.

4. The Effectiveness Research of AI Technology in Secondary Vocational English Teaching.

In order to better evaluate the effectiveness of AI technology in secondary vocational English teaching, the team conducted a one-year class-separated experimental research in the school.

Research purposes: To evaluate the effectiveness of AI technology in secondary vocational English teaching, and compare the teaching effects of using and not using AI technology through controlled experiments.

Research methods: Comparative experiments; data analysis; classroom observation.

Research objects: Two parallel classes were selected, the experimental class and the control class.

Research steps: Students were randomly assigned to the experimental class and the control class. The experimental class adopted the teaching method assisted by AI, and the control class adopted the traditional teaching method. The differences in learning outcomes were evaluated through pre-tests and post-tests.

Research results:

4.1. Comparison of teaching effects.

Through the quantitative data of the scores of the pre-tests and post-tests, compare the learning effectiveness of students in the traditional teaching environment and the AI-assisted teaching environment. In this year, the students in the experimental class used relatively advanced AI teaching tools (such as intelligent teaching platforms, AI chat robots, adaptive learning systems, etc.), which had a greater impact on the learning effect of students. Students have all achieved significant improvements in listening, speaking, reading, and writing. We can see from the average scores of each midterm and final test that the grades of the students in the experimental class are gradually widening the gap with the control class, as shown in Table 1.

Table 1. Comparison table of students' test scores.

	Experimental class	Control class
The original score of entering the school	68.2	68.7
Mid-term test for the first semester	62.5	62.6
The end-of-term test of the first semester	73.3	70.1
Second Semester mid-term test	75.9	69.5
Second semester end-of-term test	79.2	71.3

4.2. Changes in the role of teachers and teaching methods.

After the introduction of AI technology, the role of teachers has changed from a knowledge transmitter to a learning guide and helper. There have been significant changes in teaching strategies and methods. The lack of pragmatic environment is a major obstacle in English learning, and AI technology has nicely solved this problem for learners, which can create virtual scenarios with a high degree of fit with the real context, allowing students to enter the simulation scenario to carry out English ability training. The secondary vocational English supported by AI technology obviously has more opportunities. Students have the opportunity to review, consolidate and expand after class, and can also carry out one-on-one oral practice. With more exercises, students become more confident and dare to speak. At the same time, students can select learning resources and customize personalized learning plans with the help of AI technology according to their own characteristics, interests, and learning needs.

4.3. Comparison of students' classroom participation.

Through classroom observations and student feedback, a comparison was made of the students' classroom participation and interaction frequency in the two classes under the traditional and AI-assisted teaching modes. Due to the poor English foundation of secondary vocational students and the lack of motivation for English students, the vast majority of students are in a relatively passive learning state in the English classroom. However, under the AI-assisted teaching mode, it is not difficult to find that students have developed a great interest in English learning, and the participation in the classroom has been greatly improved. It is not difficult to find in the following figure that the participation of the students in the experimental class in the classroom and the frequency of interaction are much higher than those of the students in the control class, as shown in Figure 2.

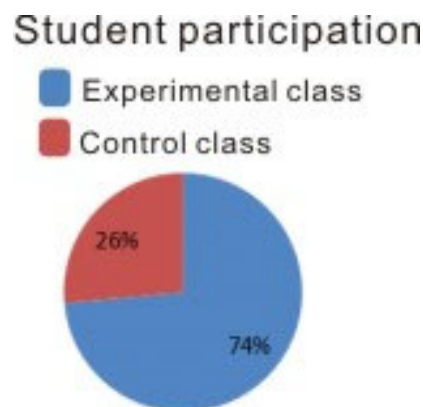


Figure 2. Comparison diagram of students' classroom participation

4.4. Comparison of the richness of teaching resources.

Traditional teaching resources mainly consist of textbooks and supporting exercises. The introduction of AI technology provides more possibilities for teaching, such as providing more diverse learning materials through online resources, virtual reality and other technologies. Teachers have more choices of teaching resources, which not only enriches the content of the classroom, but also promotes communication with students. At the same time, in order to ensure the learning effect of students, teachers can also regularly conduct checks on the level of online knowledge mastery. Offline, students can also check the knowledge they have learned, take the exam independently, summarize the current learning progress, find knowledge loopholes, and carry out specialized breakthrough learning. [6]

Research conclusion:

Through the above comparisons, the research can reveal the application effect and advantages of AI technology in secondary vocational English teaching, and provide guidance and reference for future teaching practice and research. These comparison results can also help educational decision-makers and technology developers to optimize the existing AI teaching tools and methods to better meet the needs of secondary vocational English teaching. This study has confirmed the effectiveness and potential of AI technology in secondary vocational English teaching. The teaching method assisted by AI can provide students with a more personalized and highly interactive learning experience, which helps to increase students' learning motivation and grades. The transformation of the role of teachers and the innovation of teaching methods provide a new perspective for the development of secondary vocational English education. Although there are some challenges and obstacles, these problems can be overcome through effective strategies and measures.

5. Conclusion and Suggestions

The application prospect of AI technology in secondary vocational English is broad. It can provide tailor-made learning plans according to the characteristics and needs of each student. Real-time adjust the teaching content and difficulty to improve learning efficiency. More accurately evaluate students' learning outcomes and provide strong support for teaching. Create real language use scenarios to enhance students' practical ability. Combine with other subjects to cultivate students' comprehensive literacy, etc.

In the future, we can further explore the educational application of AI technology: Conduct more in-depth comparative research on different types of AI teaching tools and methods, and evaluate their adaptability and effectiveness in different teaching environments; pay more attention to how AI technology affects students' learning process and strategies, and how to optimize the learning process to improve learning effectiveness; carry out long-term follow-up research to evaluate the long-term effect of the application of AI technology in secondary vocational English teaching, including changes in learning achievement, learning motivation and autonomous learning ability. By implementing these suggestions, the application effect of AI technology in secondary vocational English teaching can be further improved, and the innovation and development of secondary vocational English education can be promoted.

6. Foundation Project

2023-20242024 Zhejiang Province Adult Education Vocational Education Project: large curriculum background ideological and political secondary vocational schools to carry out the model of excellent traditional culture research, no. : 2023-96.

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