Application of Artificial Intelligence in Higher Vocational English Teaching Mode

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Abstract. Science and technology has always been an indispensable force in the reform of English teaching (ET) mode. In recent years, the extensive application of AI technology has also accelerated the ET Reform under the background of AI. However, due to the fact that the research is still in the trial stage, there are still many problems in the practical application of many higher vocational colleges (HVC). Therefore, this paper puts forward the application research of AI in Higher Vocational ET mode. In this paper, the main problems and advantages of AI technology in ET are analyzed in depth. It is considered that the current reform has some typical problems, such as over reliance on multimedia, lack of innovation in multimedia teaching content, and no change in teaching thinking mode. In view of these problems, this paper puts forward the optimization and improvement measures, through the establishment of AI education platform and other means, to strengthen the intelligent work of English education. Based on the analysis of the changes of students and teachers in learning and teaching English according to AI, it is believed that because of the change of teaching methods, the ET in HVC has become much easier, and the students' interest in learning has also been greatly improved. The results of the survey on the implementation of AI cloud teaching further confirm that AI has great help for ET. This paper holds that accelerating the reform of modern education is a major development trend of education in the future, and AI plays an important role in this aspect.

Keywords: Artificial Intelligence, English Teaching, Reform in Education, Vocational English

1. Introduction

In recent years, a new generation of action plan for the development of AI specialty in Colleges and universities and the action plan for the development and education of young AI major in Colleges and universities have been officially promulgated, which greatly promotes the interactive integration and coordinated development of AI and higher education in Colleges and universities [1-3]. In May 2019,
general secretary Xi Jinping put forward a speech to actively promote the deep integration and education of AI, promote education reform and innovation, give full play to the advantages of AI, and accelerate the development of modern education. For the modernization of education reform, the equality and openness of education are important reform indicators. The application of AI technology can better achieve this reform goal [4-6].

Science and technology innovation are the main driving force of ET mode reform in China. From the early cable gramophone, to modern wireless TV, to cable recorder, English cable TV teaching, modern multimedia to network TV teaching, etc., all effectively promoted the development of ET [7-8]. At present, China's AI speech recognition technology has reached the world's leading level, with an accuracy of 97%. The application of speech recognition technology in English learning can effectively help students in listening, speaking and translation training, and play an important role in learning guidance, education evaluation and other fields. With the arrival of the fourth scientific and technological revolution, in order to improve the inefficient and dumb ET situation, China should make full use of the increasingly mature AI technology, innovate ET methods and carry out ET Reform [9-10].

This paper deeply studies the application of AI in ET in HVC in China. It is found that in the reform of AI in ET in HVC, there are typical problems such as over reliance on multimedia, lack of innovation in multimedia teaching content, and no change in teaching thinking mode. As a result, the effect of the reform is far from expected, which seriously affects the cultivation of English talents in HVC. Therefore, this paper puts forward the application of AI in Higher Vocational ET mode, hoping to improve the existing ET mode in HVC through the optimization and improvement measures in this paper, so as to improve the teaching ability. In view of the existing problems, this paper gives specific optimization and improvement scheme, including the construction of intelligent teaching platform, and the realization of AI technology in ET system. Through the scheme of this paper, the intelligent teaching platform is further improved to make it more in line with the actual needs of Higher Vocational English education. According to the needs of students and teachers in teaching and learning, the role of AI is analyzed. The analysis shows that through the optimization and improvement of this paper, it can better make up for the deficiencies in the current vocational ET.

2. AI and Intelligent Education

2.1. Connotation of AI Technology and the Problems to be solved
AI technology is a kind of human intelligence, behavior mode and behavior rules. It studies human intelligence. Based on the information processing theory of AI, a computing system similar to human intelligent behavior is designed. The main subject of AI technology is that computer system imitates human intelligence, so that machine operation becomes a part of intelligence. AI is divided into two stages: theoretical and engineering research. Theoretical research and engineering research do not exist independently, but are closely related. They jointly solve the following problems: (1) intelligent information storage and internal information processing capacity; (2) intelligent symbol processing, evaluation and comparison; (3) cognitive and processing ability of intelligent problems.

2.2. AI and AI + Education
AI, as the name suggests, is to make machines work like people. AI provides a huge imagination space for future life, and education is considered as one of the best application scenarios of AI landing. If we can make full use of AI + education and explore a new teaching mode based on AI, it will play a positive role in ET in HVC. AI system uses data mining technology to collect and analyze students, diagnose their learning status and academic performance, and establish a multidimensional evaluation system. Through the analysis of big data, this paper summarizes the inertia and characteristics of each student's learning, so as to promote teachers to adjust teaching methods, meet the needs of students, and realize personalized teaching in teaching content and teaching form. Constantly improve the
teaching mode, make the teaching effect better and better, let students' learning efficiency become higher and higher, and finally form a good cycle. With the extensive application of AI in AI, the intelligent research platform with students as the main body has also been greatly developed.

3. Main Problems and Advantages of AI Technology in ET

English is a common language in the world, which has been widely used in production and life. Therefore, we should continue to attach importance to ET in educational activities. Improving students' comprehensive ability of using English is the key point of ET in HVC in China. Vocational colleges should improve learners' English application ability, autonomous learning ability and English thinking ability through ET activities. Based on the above objectives and key points of English learning, this paper uses AI technology to optimize the process of ET in HVC. In the process of learning English professional knowledge, the intelligent system can intelligently assign learning tasks according to students' learning situation, so as to improve students' learning effect. However, the application of the current stage is still in the primary stage, and there are still some problems in the practical application. Therefore, this paper makes a statistical analysis of the insufficient application of AI in ET and its main role, as shown in Table 1. The analysis shows that although AI has many advantages to ET, it still needs to strengthen the reform efforts and make joint efforts from both ideological and technical aspects.

Table 1: main problems and advantages of AI technology in ET.

| Main problems                                      | Main advantages                          |
|----------------------------------------------------|------------------------------------------|
| 1. Over reliance on Multimedia                     | 1. Intelligent analysis of learners       |
| 2. The multimedia teaching content lacks innovation| 2. Intelligent distribution of learning content |
| 3. Some areas lack of multimedia teaching facilities| 3. Intelligent selection corpus           |
| 4. There is no change in teaching mode of thinking  | 4. Improve the management efficiency of learning effect |

4. Discussion

4.1. Investigation on the Implementation of AI Cloud Teaching

In order to investigate the practical application of AI cloud teaching in Zhejiang HVC, we distributed 260 questionnaires to teachers and students of four HVC in Zhejiang Province. According to the survey, there are 14852 registered courses in the smart cloud app, and 11523 courses have actually started to use AI cloud teaching, including 2074 foreign language courses, accounting for 18%, and 9449 other courses, accounting for 82%. 227 foreign language teachers are using AI cloud teaching. Among the 597412 students who benefit from AI cloud teaching, 36% of them like to use AI cloud teaching in foreign language courses, and 64% of them like to use AI cloud teaching in other courses. In order to further understand the distribution of AI cloud teaching activities, this paper conducts a detailed survey of resource release (A), check-in times (B), classroom performance (C), homework times (D), test times (E), brainstorming (F), and Q & a discussion (G). The details are shown in Figure 1 and Figure 2. From the results of Figure 1 and Figure 2, we can see that in the AI cloud teaching, the use frequency of resource publishing is the highest, the number of signs in times and classroom performance are second, and the frequency of voting and discussion is low.
Figure 1: AI cloud teaching activities of all courses
Figure 2: AI cloud teaching activities of English Course

4.2. System Design
In this paper, modern educational technology students as the object, trying to design an AI based ET system module, in order to improve the quality and efficiency of ET. The system consists of four modules: assistant teaching, knowledge explanation, practice and environment simulation. In the teaching video module of English tutoring process, English teacher users can arrange the video courseware to be uploaded directly and upload the video directly. Through the use of AI based and big data mining analysis technology, this paper makes an overall evaluation of the students' English test scores in senior high school, and puts forward suggestions for reference teaching. In the knowledge explanation module, students can preview knowledge points or review by watching TV, so as to increase their English knowledge base. Through the practice module, students can understand their English knowledge system and test their basic English knowledge such as reading and listening. After the training, the students can understand their English knowledge system, and take the examination. According to their evaluation level, the corresponding learning suggestions are given.

4.3. Implementation of AI Technology in ET System
In the design process of teacher module, the design content includes not only the protection of teachers' own information, but also the overall information statistics of teachers. Through the analysis of the teaching management department's teacher information, we can effectively analyze the management department, thus providing the design idea of teacher module management application and providing some first-hand information. In addition, scheduling is the primary task of system design. Scheduling personnel should integrate resources in time to achieve the best match. Curriculum scheduling mainly refers to the integration of existing teaching resources to achieve more accurate allocation of teaching resources under the premise of limited resources. On the elements of curriculum arrangement, class, course and time are expressed as follows:

\[ BJ = \{ b_{i1}, b_{i2}, \ldots, b_{iM} \} \]  
(1)

\[ KC = \{ k_{c1}, k_{c2}, \ldots, k_{CN} \} \]  
(2)

\[ SJ = \{ s_{j1}, s_{j2}, \ldots, s_{jP} \} \]  
(3)

4.4. Application of AI Technology for English Learners
AI technology can realize speech recognition, and use the strength of speech for conversion. The intelligent learning method based on listening and speaking can realize speech error correction and speech evaluation, so as to make students' speech expression more accurate. At the same time, when using AI technology to analyze grammar, intelligent robot can accurately distinguish students' mistakes in grammar learning, discover errors in grammar practice, and guide and correct them. Moreover, the use of AI system can also simulate the specific scene, according to the students' voice, grammar and expression in the dialogue, correct the deficiencies.

4.5. Intelligent Classroom Designer
In the era of AI, English teachers should follow the trend of technological reform; improve the ability of teaching resources integration, design and practice of learning activities. On the one hand, we need to collect relevant teaching resources, and use AI technology to generate personalized teaching content according to teaching objectives and teaching tasks. On the other hand, the characteristics of AI are used to track the progress and real-time effect of students' learning, guide students to make feasible learning plans, strengthen interactive learning and practice, so as to promote the improvement of teaching quality.

5. Conclusions
In this paper, in the application of AI in Higher Vocational ET mode, the main problems and advantages of AI in Higher Vocational ET are deeply studied. At present, it is a big trend to optimize ET with AI in HVC. However, in the trial stage, there are still some typical problems, such as over reliance on multimedia, lack of innovation in multimedia teaching content, and no change in teaching thinking mode, which leads to poor reform effect and cannot meet the expected requirements. The optimization and improvement strategies proposed in this paper, to a certain extent, make up for the deficiencies in the current reform of AI ET mode in HVC, and play a positive role in promoting the modernization of ET in HVC. In this paper, the implementation of AI cloud teaching survey, also further verified that AI technology in ET has a good auxiliary role, to the work of teachers, students' learning has played a role in promoting. The analysis shows that the research in this paper has achieved ideal results and made a contribution to the research of AI technology in ET reform of HVC in China.

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