Research on the Application of Artificial Intelligence in Foreign Language Curriculum Teaching

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Abstract

With technological advances in hardware and software, artificial intelligence has been applied in the teaching in foreign language curriculum. By building a teaching model applying AI, examples for the teaching reform in foreign language curriculum incorporating AI are studied in detail. The research explores the specific implementation paths and ideas of AI for teaching reform in foreign language curriculum, takes advantage of the AI function in foreign language education, and provides a powerful technological assistance to the improvement of foreign language teaching.

Keywords

Artificial Intelligence; Foreign Language; Curriculum Teaching; Model.

1. Introduction

AI mainly includes building neural network structures and designing intelligent algorithms. The computing power of computer hardware continues to increase, especially with the upgrade of the graphics processing unit. Deep learning frameworks are developed to build network models more rapidly. It has applications in areas such as face recognition, object detection and robotics. Artificial intelligence is also increasingly being used in foreign language curriculum teaching in universities [1-2]. Artificial intelligence has increased the diversity of foreign language teaching methods [3-4], and it has become an important technological tool for teaching reform of foreign language curriculum in universities.

Natural language processing and computer vision have been widely used in education and teaching. Natural language processing can be applied in writing, translation, oral communication in foreign language curriculum teaching. Computer vision is to obtain information from image data by extracting image data features. A combination of technologies such as natural language processing and computer vision are used to offer intelligent assistance for teaching of foreign language [5-6].

The traditional teaching of foreign language in universities has the problems of single teaching method and lack of teaching according to students' characteristics. Some foreign language teaching incorporates intelligent algorithms, but there still exist problems such as insufficient convergence of AI technology with foreign language curriculum teaching. By integrating intelligent algorithms, a model for teaching of foreign language curriculum applying AI is constructed. The model is used with the reform for teaching of foreign language curriculum to explore the specific implementation path and ideas of AI to contribute to the reform for teaching of foreign language curriculum, to make the foreign language curriculum teaching method intelligent.

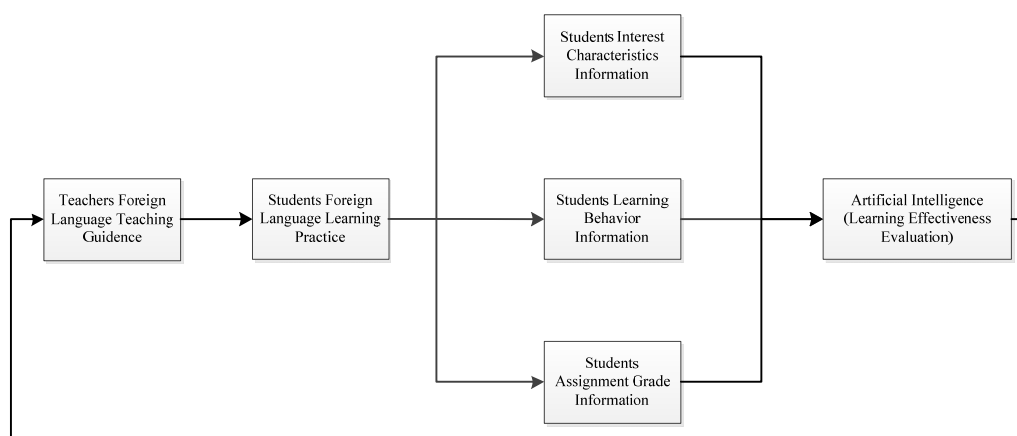## 2. Teaching Model of Foreign Language Curriculum Applying Artificial Intelligence

Figure 1. Teaching model of foreign language curriculum applying artificial intelligence technology

Figure 1 shows the teaching model of foreign language curriculum applying artificial intelligence. When students use an online learning platform that includes artificial intelligence technology to learn a foreign language, it generates information about students' interests, their learning behaviors, and their learning performance. Information about students' interests includes their preferences for learning foreign language curriculum and the modules they are interested in learning. Learning behavior information includes reading behavior information, listening behavior information, and status information while studying in foreign language curriculum. Student assignment grade information refers to the usual grade information of each assignment and exam grade information. The learning platform will record and collect these information. By building an artificial intelligence network model for feature extraction of factors affecting foreign language learning effectiveness, key features affecting foreign language learning effectiveness are derived. The platform's artificial intelligence system makes adaptive changes to the assignment of tasks and the difficulty of content to better suit the student's situation. Teachers will provide targeted instruction and individualized instruction based on student learning characteristics. This increases student learning efficiency and improves teaching effectiveness. The teaching model of foreign language curriculum applying artificial intelligence technology forms a closed loop of teaching links between teachers guidance, students learning practice and artificial intelligence learning effect evaluation.

Examples of current applications of natural language processing and computer vision to foreign language curriculum instruction include professional knowledge learning foreign language education applications, artificial intelligence-enabled foreign language writing tutoring applications, and artificial intelligence online university foreign language curriculum learning platforms.

Professional knowledge learning foreign language education applications use artificial intelligence image recognition technology to provide assistance in learning professional English. When studying a certain type of professional book, the AI system can identify the type of professional studied and will actively push foreign language scientific and technical articles corresponding to the type of professional. When learning computer, it will automatically push computer professional foreign language technology articles through artificial intelligence technology according to the specific computer knowledge and direction. The application can

better integrate the learning of professional knowledge and foreign language curriculum, and play a mutually reinforcing role.

Artificial intelligence-enabled foreign language writing tutoring applications use natural language processing, deep learning and data mining for foreign language writing tutoring. Artificial intelligence foreign language writing tutor application can check words for spelling and grammatical errors online, and also suggest word substitution options for the context of the sentence. It can also prompt and guide students to improve the quality of their statements and the integrity of their compositions. It gives tips on reasonable sentence formation options based on the essay topic. It also provides suggestions for revisions based on essay problems and references for study, thus improving students' writing skills.

Artificial intelligence online university foreign language curriculum learning platform has foreign language curriculum learning videos, teaching reference books, courseware and other learning materials. The platform has different learning modules for students to choose to learn. Artificial intelligence systems record and collect information about student learning. For the common problems of foreign language curriculum learning, the artificial intelligence system will set learning topics to strengthen learning. At the same time, the platform will push suitable learning resources and learning help in a personalized way. When students encounter difficult learning problems, they can ask the instructor for advice. The artificial intelligence system submits the extracted student learning characteristics to the teacher as suggestions for instructional guidance.

3. Conclusion

A teaching model applying AI is constructed to analyze how artificial intelligence can innovate foreign language teaching mode. The technologies such as natural language processing and computer vision used in professional knowledge learning foreign language education applications, artificial intelligence-enabled foreign language writing tutoring applications, and AI online foreign language curriculum learning platforms are described. The effects of these technologies in teaching foreign language curriculum are also analyzed and studied. This study provides new ideas for better integration of artificial intelligence in the teaching reform of foreign language curriculum, so that it can improve the teaching effect of foreign language curriculum in universities that integrate artificial intelligence and provide a powerful technological assistance for the teaching reform of foreign language curriculum.

Acknowledgments

References

[1] X. Liu. Artificial intelligence and modern sports education technology. 2010 International Conference on Artificial Intelligence and Education (ICAIE), 772-776, 2010.

[2] S.W. Yin, D.Y. Zhang, D.X. Zhang, et al. Wireless Sensors Application in Smart English Classroom Design Based on Artificial Intelligent System. Microprocessors and Microsystems, 2020, 103798.

[3] F. O, P.C. Jiao. Artificial Intelligence in Education: The Three Paradigms. Computers and Education: Artificial Intelligence, 2021, 100020.

[4] S. Yang, H.C. Bai. The integration design of artificial intelligence and normal students' Education. Journal of Physics Conference Series, 2020, 1453:012090.

[5] F. Wang, X. R. Tao. Visual Analysis of the Application of Artificial Intelligence in Education. International Joint Conference on Information, Media and Engineering (ICIME). 187-191, IEEE, 2018.

[6] X.Y. Fu. The Application of Artificial Intelligence Technology in College Physical Education. 2020 International Conference on Big Data, Artificial Intelligence and Internet of Things Engineering (ICBAIE). 263-266, IEEE, 2020.