Theoretical Research on Empowering International Chinese Teaching with Artificial Intelligence

Wenli Zhang*, Xiaoxuan Zheng, Xinyu Wu, Wenting Yu, Yu Dai
College of Teacher Education, Quzhou University, Quzhou, Zhejiang, China
Corresponding Author: Wenli Zhang (2857475292@qq.com)

Abstract: With the increasing global connectivity and China's rising international status, there has been a worldwide surge in interest in learning Chinese. At the same time, the number of Chinese people settling overseas is growing, and the Chinese language learning of overseas Chinese children has received more attention. In recent years, with the rapid development of artificial intelligence, the use of AI models to learn Chinese has been widely applied and has achieved certain results. This paper thought how to use artificial intelligence in international Chinese teaching. This study based on relevant articles, summarizes the practical application problems, including cultural conflicts and pronunciation difficulties in different countries. This article proposes some suggestions and practical solutions.

Keywords: Artificial Intelligence; Chinese Language Teaching; Overseas Chinese Learning

1. Research Background

1.1 The Development of Overseas Chinese Learning

Recently, overseas Chinese language learning has been displayed a positive development. According to statistics from the Ministry of Education, as of 2025, the global Chinese learning platform has over 16 million registered users, covering more than 190 countries and regions worldwide, and has established stable partnerships with over 1600 educational and cultural institutions. This phenomenon fully reflects the extensive attention and strong demand of Chinese language teaching and education. There are approximately 20 million Chinese teenagers scattered across over 200 countries and regions worldwide. accompanied by around 20,000 Chinese schools operating in various countries and regions. At the same time, there are about 20000 Chinese schools operating in different regions, with over half of the schools offering Chinese language learning courses, indicating the enormous potential of overseas Chinese language courses. In terms of relevant policies, Chinese language learning is receiving increasing attention from countries around the world. China has introduced the 'National Standard Language and Characters Law,' which, for the first time, legally includes international Chinese education, setting clear guidelines for teaching the national standard language and characters and promoting cultural exchange and mutual learning. In Saudi Arabia, Chinese is a compulsory subject in middle schools; in Russia, Chinese is included in the national unified examination (college entrance examination) as an elective foreign language; and in Germany, France, and Italy, multiple universities have elevated the status of Chinese to be on par with English.

1.2 Limitations of Traditional Teaching

Overseas Chinese learning is continuously developing, but traditional teaching methods have many limitations. The serious shortage of qualified Chinese teachers is a big problem. Although many schools have hired specialized Chinese teachers, there are relatively few high-quality ones, making it difficult to carry out large-scale Chinese language teaching. For example, there are 148 Chinese schools in the Philippines, but only 10.6% of Chinese teachers have received systematic and formal teacher training. The relatively monotonous teaching method is a common problem in traditional teaching. Classroom-based teaching makes it difficult for teachers to take into account students from different ethnic and cultural backgrounds, as teaching is mostly unified for the whole class and lacks personalized design. Another trouble is the textbook content is rigid and lacks integration with local culture. Most of the content focuses on daily conversations, and some words are only suitable for the Chinese cultural background, which is disconnected from local culture and prone to cultural conflicts. The high costs, complicated course content and long learning cycles have also reduced students' enthusiasm and initiative in learning Chinese.

In ethnic Chinese families, teenagers' understanding of Chinese mainly comes from their parents or elders at home. They teach them how to speak Chinese fluently and the cultural knowledge behind it. But it is worth that due to limited exposure to Chinese language environments, a series of problems have arisen. They may understand the word but unable to speak, recognize the character but unable to write. In some families, Chinese is not a common language in daily life, teenagers may even develop resistance towards speaking Chinese, which further hinders their progress in learning Chinese.

1.3 The increasing use of Artificial Intelligence in Language Teaching

Qian [1] thought that the application of artificial intelligence technology in the area of education is becoming more and more broad. He believes that artificial intelligence technology is experiencing a rapid and common expansion in education. This expansion is especially significant in the field of language teaching; artificial intelligence can are bringing many benefits to language teaching. These benefits can improve learning efficiency and according to learners' individual characteristics, draw up personalized learning experience. For example, we can use speech recognition technology to assist real-time listening practice, conduct automatic speaking ability assessment, and timely correct pronunciation. We can use machine learning algorithms to diagnose complex learning situation and provide relevant learning strategies based on this information. We can also use generative artificial intelligence to create various teaching materials and achieve contextualized interact with learners. These technologies are all very important.

2. The Basis for Using Artificial Intelligence in Language Teaching

Qu [2] believes that artificial intelligence has the ability to analyze large amounts of student learning data, such as exam scores, completion status of homework, and learning experiences during classroom interactions. Teachers can use this data to better understand students' current learning levels and weak areas, and make teaching evaluations and feedback. The development of these technologies has established the foundation for the application of artificial intelligence technology in language teaching. By utilizing this data analysis model, teachers can develop more efficient learning plans, according to individual progress, they can make adjustment dynamically. Artificial intelligence

can also provide customized learning resources to meet the unique needs of learners. All learners can gain unique learning experiences, optimize learning methods, and obtain more effective learning methods.

Modern speech recognition technology has developed maturely and been widely applied. When recognizing standard Chinese, the accuracy can reach 95%—98%, and when recognizing dialects, it can also reach 90%—95%. For example, with the popularization of Mandarin Chinese, Mandarin exams have been promoted, and speech recognition systems have been widely used in exams. The examination system can clearly recognize the pronunciation of each word, the stress in a sentence, and the tone of each sentence. It can also capture some tiny errors, such as pronunciation errors, non-standard pronunciation, and word cohesion. The system can also highlight the error area and provide a rating evaluation after detection. We can make corresponding practice strategies based on these data to improve our abilities.

When we conduct offline Chinese language teaching, we often feel that the price is expensive, the teaching content is not interesting, and the class time is too long and inconvenient. These are the shortcomings of traditional offline teaching, results in low teaching efficiency and hinders learners' participation in learning. The online Chinese learning platform has improved these shortcomings and made some breakthroughs. Online language learning platforms can stratify users and match them with suitable learning content. They adopt a gradual teaching process, enabling learners to absorb knowledge well. They also added mini games for users to learn while playing, presenting language knowledge in a simple and understandable form, increasing the fun of learning. Artificial intelligence technology can also analyze users' learning data and generate specific learning difficulties, including difficulties in word grouping, distinguishing synonyms, and difficulties in changing word order. Based on these diagnoses, artificial intelligence will provide corresponding countermeasures to solve these problems.

3. The Advantages and Disadvantages of Using Artificial Intelligence in Teaching

3.1 The Advantages of Artificial Intelligence Language Teaching

Du [3] conducted research on global Chinese language teaching, he observed a significant increase in the number of people participating in Chinese language learning worldwide, the specific learning needs and goals of different learners are becoming more and more personalized. These changes all reflect the general trend of shifting from standardized learning objectives to personalized teaching methods. The traditional teaching model adopts 'cut and cover' approach, the method becomes more and more difficult to adapt to constantly changing requirements. In traditional teaching, teachers face everyone and teach the same things, it is difficult to adapt to the learning speed, interests, and cultural backgrounds of global learners. The online language teaching platform combines artificial intelligence technology to meet the actual teaching needs of learners. By analyzing learners' data information, it intelligently generates corresponding learning content, making personalized Chinese language teaching possible on a global scale.

3.2 Challenges Faced by Artificial Intelligence Language Teaching

Artificial intelligence technology has reached a considerable level of development, but there are still a series of limitations. We may find that the accuracy of speech recognition may decrease and not be completely correct in noisy environments, multiple people are speaking at the same time and the pronunciation of words is similar. The pronunciation of some words and expression may be

influenced by local dialects, resulting in unique pronunciations. When we read the word 'Taizhou' it is customary to assume that the word 'Tai' should be pronounced in the second sound, but in reality, it should be pronounced in the first sound. There are also some specific word pronunciations that artificial intelligence finds difficult to pronounce correctly. User information storage and privacy security are the most significant challenges that artificial intelligence online language teaching platforms will face. These essence of an online language learning system is to collect and process user information, including personal information, detailed learning records, and a large amount of audio materials. These pieces of information are susceptible to the risks of illegal access and information leakage in complex network environments, and different countries and regions have different regulations on the use of personal information. In the complex situation of cross-border use of information, it has become quite difficult to manage and use data globally in a unified manner.

4. How to Optimize Artificial Intelligence Language Teaching

In order to better enhance the ability of artificial intelligence in Chinese language teaching, we also need to inject various high-quality data and information into the artificial intelligence system, and improve the professional skill of the system. Such a abundant database can promote the development of more professional and intelligent artificial intelligence infrastructure, providing speech recognition systems with higher accuracy and more detailed Mandarin pronunciation knowledge. One important reason for these improvements is intelligent adaptation technology, it can make language learning systems a means of cross-cultural language communication and cultural dissemination. The purpose of these technologies is to provide timely evaluation feedback, provide real-time adjusted teaching strategies based on learners' performance, and generate corresponding teaching plans based on learners' learning data. To the well-know Duolindo platform, users will first conduct a test and provide layering training based on the test results, allowing learning data to develop as learners progress. Duolingo not only provides language learning plans, but also generates encouraging words to provide emotional value for users and create a positive learning environment for them. This is also what an artificial intelligence learning system should possess. It can understand the needs of users as well as the emotional needs of learners, transforming the artificial intelligence language learning system from a simple learning tool into a language learning partner with intelligent and emotional perception capabilities.

We should also combine artificial intelligence language learning technology with teacher education. Artificial intelligence can provide many conveniences, but it can never completely replace human learning. Teachers' psychology and educational knowledge play an irreplaceable role in teaching. Teacher led teaching emphasizes teacher-student interaction, student interaction and emotional expression, while artificial intelligence teaching has the advantages of convenience, standardized methods and diversified teaching methods. It is more beneficial for students to combine the two and give full play to their respective strengths. Li [4] believes that at the initial stage of Chinese learning, international students' understanding of Chinese knowledge is limited, and AI assistants are suitable for controlled use under the guidance of teachers, such as as acting as a substitute in the classroom to promote teacher-student interaction and student-student interaction. With the improvement of learners' Chinese level and their knowledge of Chinese characters, vocabulary and grammar, students can be encouraged to have a dialogue with 'Chinese learning partners' outside class to meet their personalized needs.

5. Conclusion

This study analyzes the research background and feasibility of AI in Chinese teaching, and finds that AI assisted Chinese teaching has great development potential. It has the advantages of balancing and optimizing learning resources, conducting scientific and comprehensive evaluation, and cultivating intercultural communicative competence. However, the technical capability of information privacy storage also has limitations and challenges. Based on these problems, the AI assisted Chinese learning system should further improve its technology and combine with teacher led teaching to provide users with a better learning experience.

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