

Artificial Intelligence and Cross-Cultural Communication: ChatGPT's Role in International Chinese Education

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Abstract: *As the incessant growth of science and technology, Artificial Intelligence (AI) has evolved significantly over the last few decades, transitioning from theoretical concepts to powerful, real-world applications. Its application has profound impacts on a variety of fields, such as science, medicine, logistics, and communication. As the globalization process advances rapidly, the intersection of AI and cross-cultural communication is reshaping how we interact with people from different cultural backgrounds. Since late 2022, the absence of ChatGPT marked a groundbreaking shift in the capabilities of conversational AI, showcasing a significant leap from traditional one. Undoubtedly, the role of ChatGPT in cross-cultural communication cannot be overlooked. In this context, the author aims to explore the ChatGPT's impact in cross-cultural communication, especially international Chinese education. Furthermore, with the increasing popularity of Chinese learning, the paper highlights the future implications of integrating AI into cross-cultural education, proposing pathways to further refine AI technologies (like ChatGPT) for more nuanced and effective language education.*

Keywords: Artificial Intelligence, ChatGPT, Inter National Chinese Education, Cross-Cultural Communication.

1. Introduction

Artificial intelligence refers to the study of agents that receive perception from the environment and perform actions (Russell & Norvig, 2010). The embryonic stage of AI can be traced back to the famous Turing Test in 1950 by Alan Turing, which was regarded as the beginning of Natural Language Processing (Zhang & Dong, 2022). Later in 1960s, the first development climax occurred in Artificial Intelligence field, fostering the NLP and man-machine dialog technology. Since 1970s, statistic-based approach has gradually replaced the rule-based one. And since 1980s, the machine learning algorithms, neural networks, and expert systems developed in a fast pace. Expert systems, such as MYCIN, were designed to solve complex problems in specific domains (e.g., medical diagnosis). Thanks to advancements in machine learning, big data, and the availability of powerful computational resources, the 2000s witnessed that AI has become frequently applied in real world. Deep learning, a subset of machine learning that uses multi-layered neural networks, became the dominant approach in AI research (Silver., et al., 2016). In recent years, AI has continued to evolve with focus on reinforcement learning, natural language processing, robotics, and autonomous systems. In 2022, the absence of ChatGPT-3 by OpenAI revolutionized natural language processing with its ability to generate human-like text, leading to new possibilities for AI-driven content generation. The absence of ChatGPT left a gap in the AI ecosystem, one where conversational agents lacked coherence across longer dialogues, struggled with understanding complex instructions, and failed to engage users in a natural, intuitive manner.

Artificial Intelligence (AI) is increasingly playing a transformative role in facilitating cross-cultural communication, the exchange of information, ideas, and values between individuals from different cultural backgrounds. By providing powerful tools for language translation, enhancing cultural sensitivity, and offering immersive learning experiences, AI is breaking down barriers

to effective communication. Education, as a key field, has been greatly influenced by AI. As the rapid development of Artificial Intelligence, especially NLP technology, it has brought robust challenges for educational field (Alhawiti, 2014), sprouting the AI + Education. Artificial Intelligence in Education is the AI's empowerment for education, referring to the application of AI in education field, to assist or optimize the educating and learning process (Wu et al., 2017). Intelligent education can be fully improved by the rapid development of NLP technology. As globalization accelerates, Chinese, being the most spoken language in the world, has garnered increasing attention, has become an essential tool for fostering cross-cultural understanding and international cooperation across the globe. Therefore, the application of AI on international Chinese education should be put more emphasis to enhance its personalization, efficiency, and accessibility. Under the circumstances, the paper aims to explore the impact of AI (ChatGPT) in cross-cultural communication, and then propose the ways to facilitate its application in Chinese language education, expecting to expand the Chinese influence in global stage.

2. ChatGPT's Impact in International Chinese Education

Generative AI ChatGPT is largely supported by the large language model, computing power and big data (Zhu & Wang, 2023). In brief, ChatGPT possesses the key technologies, namely, Pre-training, In-Context Learning (ICL), and Reinforcement Learning from Human Feedback (RLHF) (Zhang et al., 2023). For its functions, it can respond to a wide range of queries, simulate conversations, and offer assistance in tasks like writing, brainstorming, answering questions, and problem-solving. Nowadays, it is an universal trend to apply ChatGPT on various fields, such as customer service, specific program, creative writing, and even for the education. Maybe you cannot immediately link the relationship between ChatGPT and education, but it truly makes sense. With its ability to process natural language and provide detailed,

personalized responses, ChatGPT is increasingly being integrated into educational to enhance learning, teaching, and support educational administration. Gradually, AI has transformed the traditional ways students learn and teach. However, its limitations cannot be overlooked. Here's a look at the positive and negative impact of ChatGPT in international Chinese Education.

As to positive impacts, ChatGPT is so powerful that it can enhance the both language acquisition and cultural immersion. First, ChatGPT can tailor the personalized learning patterns for them. For example, ChatGPT can cater to learners of all levels by adjusting its responses based on the their performance in Chinese. Whether a beginner or an advanced learner, students could receive explanations, examples, and corrections from current understanding. Also, it can recognize the unique needs and preferences of students, offering personalized learning materials or approaches, such as simplifying explanations, providing more examples, or adjusting language complexity. Second, ChatGPT can improve students' language skills. One of the most significant advantages of ChatGPT is its ability to engage in natural and fluid conversations. Therefore, it helps learners practice their spoken and written Chinese in real-world scenarios, improving their fluency and confidence in communication. Benefited by the interactive features, ChatGPT can offer suggestions to improve writing in Chinese, whatever everything on sentence structure, vocabulary choice, or stylistic improvements. Furthermore, it can also help students practice writing essays, emails, or short texts in Chinese, offering real-time feedback and corrections. Third, ChatGPT can enhance students' cultural understanding on Chinese language. For instance, if students have some confusions on Chinese customs, traditions, festivals, or societal norms, ChatGPT can provide the detailed explanations about them. Such function fosters a more comprehensive understanding of the language within its real cultural context, enhancing their overall learning experience. Fourth, ChatGPT can greatly save the learning cost. Unlike traditional teachers, ChatGPT is available round the clock. Therefore, it makes learning more flexible and convenient, as students can practice their Chinese skills whenever they need, without being constrained by class schedules or time zones. Moreover, for students in poverty-stricken regions with limited access to qualified Chinese teachers or resources, ChatGPT provides them with an affordable and a scalable learning option, which greatly saves the expensive costs of tutoring or courses. Finally, ChatGPT can be used as a classroom assistant to engage students in group discussions, quizzes, or even interactive language games, which enhances the learning experience and gets students engaged and motivated.

As to the negative impacts, although ChatGPT offers many pros in international Chinese language education, there are some potential cons that need to be considered. First, accuracy and reliability of information. Unavoidably, ChatGPT would provide some inaccurate or misleading information, especially when it comes to complex language nuances or regional variations in Chinese. In this context, students may unknowingly believe in wrong information, which could hinder their learning or cause misunderstandings. Due to the distinctive and complex cultural meaning of Chinese, it may not always fully capture the cultural subtleties of it. However,

cultural context is essential for understanding idiomatic expressions, slang, and historical references. Without it, they may miss out on important aspects of the language. Second, over-reliance on technology. With its universal application, students may become overly reliant on ChatGPT for answers and solutions, diminishing their critical thinking ability, problem-solving ability, or independent learning ability. Compared with traditional education, ChatGPT cannot replace the richness of real-life conversation or provide nuanced feedback from human teachers. But without human interaction, it can hinder the natural and fluent communication skills. Third, although AI has developed as a relative mature form, it can never replace the human brain. The reason behind is that the fundamental physical difference between AI and human, that is, human cerebrum (Chen, 2020). While ChatGPT can engage in conversation, it still lacks manlike empathy and emotional intelligence, in that it cannot fully understand the emotional state or motivational needs of students. As a result, students may miss out on the personalized support that human teachers offer, such as encouragement, emotional feedback, or nuanced understanding of their challenges. Fourth, limited ability to teach pronunciation and speaking skills. Although ChatGPT is capable of providing written corrections and suggestions, it does not offer speech recognition or pronunciation feedback effectively so far. However, pronunciation is a crucial aspect in learning Chinese, especially with its tonal system. Without a teacher or native speaker to correct their pronunciation, learners may develop poor habits. And the final point is inability to address specific learning disabilities. ChatGPT might not be effective for students with certain learning disabilities, such as dyslexia or ADHD, who need more tailored and interactive learning methods. While AI can assist in many areas, it lacks the flexibility and adaptability of human teachers when addressing the diverse needs of students with disabilities.

As is stated above, while ChatGPT offers many advantages for international Chinese language education, there are several potential negative impacts that need careful consideration. To mitigate these challenges, ChatGPT should be used as a supplementary tool rather than a replacement for traditional language learning methods, ensuring the great educational experience.

3. Application of ChatGPT on International Chinese Education

3.1 Ensure Accuracy and Reliability

To improve its accuracy and reliability, teachers should encourage students more to cross-check information from ChatGPT with reliable sources such as textbooks, academic journals, or native Chinese speakers. And, teachers can also guide students to identify the response from ChatGPT, particularly in complex language contexts. Moreover, they should regularly monitor the interactions between students and ChatGPT to guarantee the accurate information. Teachers can step in to correct any misinterpretations, especially regarding regional variations or culturally specific expressions. For idiomatic expressions, historical events, or cultural norms in real-life lessons, teachers should guide students through the subtleties and cultural references that AI

might miss.

3.2 Prevent Over-Reliance on Technology

To avoid the over-reliance on AI, like ChatGPT, teachers should encourage students to use ChatGPT as a supplementary tool rather than a primary source of learning. Also, they can design exercises that require students to first attempt problems by themselves, fostering the independent thinking and problem-solving. In modern society, a hybrid teaching approach should be adopted more. A hybrid teaching approach that integrates both technology and traditional classroom practices can help students develop a more well-rounded skill set. Real-life conversations, peer interactions, and instructor feedback should be put first during the learning process, with ChatGPT acting as a subsidiary for practice and feedback.

3.3 Address the Lack of Empathy and Emotional Intelligence

While ChatGPT can provide language feedback, it also lacks the emotional intelligence to understand the individual real needs. Teachers should offer regular opportunities for emotional engagement, offering encouragement, personalized feedback, and motivation. For example, they can offer mentorship and individualized support, addressing the personal challenges that students may face in their learning journey. Such support can range from providing motivational feedback to offering advice on how to overcome language learning frustrations.

3.4 Improve Pronunciation and Speaking Skills

Since ChatGPT lacks the ability to provide pronunciation feedback, teachers should recommend supplementary tools or platforms specifically designed for pronunciation practice, such as speech recognition apps or language exchange programs with native speakers. In class, teachers can organize conversation sessions with native speakers to ensure that students receive proper speaking practice. During the teaching procedure, teachers should focus more on tonal accuracy and pronunciation during classroom interactions, guiding students through phonetic drills, tone practice, and oral exercises that ChatGPT cannot offer.

3.5 Accommodate Students with Learning Disabilities

For students with learning disabilities like dyslexia or ADHD, teachers should create tailored learning plans that incorporate multiple learning modalities, such as visual aids, interactive activities, and one-on-one tutoring, alongside ChatGPT's use. AI tools, just like ChatGPT, should be used in conjunction with interactive teaching methods that engage students with disabilities. For example, visual or auditory components, gamified learning, and personalized feedback can make learning more accessible.

3.6 Combine AI and Human Expertise for Effective Teaching

Whether now or future, ChatGPT should be used as a complement to human expertise, not as a replacement.

Teachers should actively integrate it into their teaching methods and regularly evaluate the performance of ChatGPT in assisting students with language learning, ensuring that any gaps or weaknesses are addressed promptly through traditional pedagogical methods.

4. Conclusion

In future, NLP technology will make massive breakthroughs in text analysis and creation, emotional intelligence, machine translation and intelligent dialogue (such as voice assistant chatbots), but no matter which technology have close relationship with future development of intelligent education (He, 2019). With the development of science and technology, Artificial Intelligence has become an essential assistant in cross-cultural communication, like Chinese language education. It not only supports language learning, cultural exchange, and personalized instruction but also breaks down traditional educational barriers in terms of time and geography. However, as discussed above, AI also comes with certain limitations, such as concerns about accuracy, cultural understanding, emotional interaction, and pronunciation training. Integration of AI and international Chinese education has promising future, with the potential to revolutionize how Chinese is taught and learned worldwide. If it combine the personalization, immersion, advanced assessments, and real-time feedback, AI will offer learners more tailored, engaging, and accessible learning experiences. However, the success of this transformation will rely on collaborative efforts between AI technology developers and human educators. Together, they can create a balanced educational ecosystem where AI enhances and supports the work of teachers, while maintaining the vital human element that is essential for meaningful learning. With these innovations, AI will help drive Chinese language education to new heights, making it more accessible and impactful across the globe.

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