International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 6, Nov.-Dec., 2025, pp: 383-388 ISSN: 3048-6874
www.ijhssm.org

Research on the Application of AI in the Teaching of Chinese Listening and Speaking for International Students

Ruixia Yan
School of International Education, Tiangong University, Tianjin, China
Corresponding Author: Ruixia Yan

Date of Submission: 06-12-2025 Date of Acceptance: 17-12-2025

ABSTRACT: With the rapid development of artificial intelligence (AI) technology, its application in language teaching has become increasingly widespread. This paper focuses on the specific application and practice of AI technology in the Chinese listening and speaking courses for international students. It systematically analyzes the main application forms of technologies such as speech recognition, natural language processing, and generative AI in listening and speaking teaching, and explores their advantages in improving teaching efficiency, achieving personalized learning, and enhancing interactive experiences. By reviewing the practical cases of Beijing Language and Culture University, Fudan University, and Tiangong University, and combining empirical research data, the actual effects of AI-assisted Chinese listening and speaking teaching are evaluated. At the same time, this paper also points out the current challenges, including technological adaptability, lack of data resources, insufficient teacher training, and ethical and privacy issues, and proposes corresponding strategies. Finally, it looks forward to future development trends, suggesting the construction of a human-machine collaborative teaching model, strengthening data resource construction, improving the evaluation system, and promoting the deep integration of AI technology and Chinese listening and speaking teaching, providing a reference for the digital transformation of international Chinese education.

KEYWORDS: Artificial Intelligence; Chinese Listening and Speaking Teaching; International Students; Speech Recognition; Personalized Learning.

I. INTRODUCTION

In the context of accelerated globalization and the in-depth advancement of the "Belt and Road" initiative, the scale of international students in China continues to expand, and the demand for high-quality Chinese language teaching is becoming increasingly urgent. Chinese listening and speaking skills, as the core skills of language communication, have always been the focus and difficulty of Chinese language learning for international students. Traditional listening and speaking teaching often has problems such as limited interaction between teachers and students, insufficient personalized guidance, and delayed feedback, which are difficult to meet the diverse and personalized learning needs of students. In recent years, new-generation AI technologies represented by speech recognition, natural language processing, and generative AI have provided innovative solutions to these problems. AI technology can realize functions such as real-time speech evaluation, intelligent dialogue practice, and personalized learning path planning, and is reshaping the model and ecosystem of Chinese listening and speaking teaching. This paper aims to systematically review the current application status of AI technology in Chinese listening and speaking courses, analyze its advantages and challenges, and propose future development suggestions based on teaching practice, providing theoretical support and practical references for the intelligent transformation of international Chinese education.

II. MAIN APPLICATION FORMS OF AI TECHNOLOGY IN CHINESE LISTENING AND SPEAKING TEACHING

Speech Recognition and Pronunciation Correction Technology

Speech recognition technology is the foundation and core of AI application in Chinese listening and speaking teaching. Through deep learning algorithms, the system can accurately recognize students' speech input, conduct detailed analysis at the levels of tone, initial consonants, and vowels, and provide immediate feedback. For example, the intelligent teaching system developed by Beijing Language and Culture University uses speech recognition technology to conduct real-time assessment of students' oral expression, accurately identify pronunciation errors, and provide correction

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 6, Nov.-Dec., 2025, pp: 383-388 ISSN: 3048-6874
www.ijhssm.org

suggestions. This technology overcomes the limitation in traditional classrooms where teachers cannot provide one-on-one pronunciation guidance to each student, achieving an immediate feedback mechanism of "practice and evaluate".

Research shows that teaching based on voice visualization technology is highly effective. Hardison [1] found through experiments that computer-assisted rhythm training can effectively improve learners' intonation patterns, and the training effect is sustainable. In the teaching of Chinese tones, AI systems can present the abstract tone curves in a visual form, allowing students to directly compare their pronunciation with the standard pronunciation, greatly enhancing the efficiency of tone learning. Additionally, the method of using voice visualization technology for intonation teaching proposed by Levis and Pickering [2] is also applicable to the teaching practice of tonal languages like Chinese.

Intelligent Dialogue and Scenario Simulation System

The emergence of generative AI technology, especially large language models like ChatGPT, has brought revolutionary changes to Chinese oral language teaching. These systems can simulate real communication scenarios, engage in open-ended dialogues with students, and provide immersive language practice environments. The intelligent teaching system developed by Fudan University uses natural language processing technology to intelligently recognize student input and dynamically adjust teaching strategies, providing customized learning paths.

In practical applications, teachers can design specific scenarios such as ordering food in a restaurant or asking for directions at an airport, with AI playing the role of a dialogue partner to interact with students in multiple rounds. The system can not only understand students' intentions but also provide appropriate responses based on the context, simulating the information gap and interactivity in real communication. The research by Yu et al. [3] shows that sentence structure and grammar teaching based on ChatGPT can effectively enhance learners' language production ability, providing empirical support for the application of AI in structured oral training. Moreover, the intelligent teaching system developed by Harvard University uses machine learning algorithms to analyze learning data and automatically generate personalized practice content, making the scenario simulation more suitable for students' levels.

Adaptive Learning and Personalized Recommendation

AI technology can automatically recommend suitable learning content and resources based on students' learning behaviors, ability levels, and progress trajectories, achieving true personalized learning. The practical exploration by Beijing Language and Culture University shows that its intelligent teaching system can automatically adjust teaching content and difficulty according to students' learning situations and goals, assisting students in achieving personalized learning paths. This adaptive mechanism solves the drawback of the "one-size-fits-all" teaching model in traditional classrooms.

In listening and speaking teaching, the system can analyze students' listening comprehension ability and automatically recommend audio materials of corresponding difficulty; based on the fluency and accuracy of oral expression, it can dynamically adjust the complexity of dialogue tasks. The research by Li et al. [4] on adaptive learning systems in English learning confirms that personalized recommendations can significantly improve learning outcomes and satisfaction. This technology is also applicable to the teaching of Chinese as a second language, helping to realize the educational concept of "teaching according to individual aptitude".

Intelligent Assessment and Learning Analysis

AI technology can achieve automated and multi-dimensional assessment of listening and speaking abilities. Traditional oral tests rely on subjective judgments by teachers, which are time-consuming and labor-intensive, and standards are difficult to unify. Intelligent assessment systems use voice recognition and natural language processing technology to automatically evaluate students' pronunciation accuracy, intonation naturalness, vocabulary richness, grammatical correctness, and communicative appropriateness, among other dimensions.

The intelligent assessment system developed by Fudan University can automatically assess students' language proficiency, provide precise feedback and suggestions, and teachers can promptly grasp students' learning situations and provide targeted guidance. Furthermore, learning analysis technology can uncover students' learning patterns, predict learning difficulties, and provide data support for teaching intervention. For instance, the system can identify typical problems such as generalization of tone errors and difficulty in mastering neutral tones by analyzing the types and frequencies of

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 6, Nov.-Dec., 2025, pp: 383-388 ISSN: 3048-6874
www.ijhssm.org

students' pronunciation mistakes, helping teachers adjust their teaching focus.

III. ANALYSIS OF THE ADVANTAGES OF AI APPLICATION IN CHINESE LISTENING AND SPEAKING COURSES

Breaking through Time and Space Constraints to Achieve Ubiquitous Learning

AI technology enables Chinese listening and speaking learning to be no longer confined to the classroom. Students can practice anytime and anywhere through mobile devices. This ubiquitous learning model greatly increases students' language exposure time, which conforms to the rule that second language acquisition requires a large amount of input and output. Liu et al.'s [5] research on AI-supported informal digital learning of English found that students generally recognize the value of AI in extracurricular learning. For Chinese learners, the 24-hour online practice opportunities provided by AI effectively make up for the shortage of classroom time.

Providing Instant Feedback to Accelerate Skill Internalization

Instant feedback is a key element in skill acquisition. AI systems can provide detailed assessment reports within seconds after students complete their oral expressions, including the specific locations of pronunciation errors, correct pronunciation demonstrations, and improvement suggestions. This immediacy significantly shortens the cycle from error recognition to behavior correction, in line with the "instant correction" teaching principle. Wang's [6] research on DALL-E3 in Chinese description ability training also confirmed the promoting effect of instant visual feedback on language output. In listening and speaking teaching, instant feedback helps students quickly adjust their pronunciation strategies and avoid the solidification of errors.

Reducing Emotional Anxiety and Creating a Safe Practice Environment

Many international students experience anxiety when expressing themselves orally in class, fearing to make mistakes and lose face. AI conversation partners provide a stress-free practice environment where students can freely try and repeatedly practice without worrying about negative evaluations. This human-computer interaction model reduces learners' emotional filters, facilitating language output. Sun et al.'s [7] mixed-method study showed that Chinese learners have a high acceptance of ChatGPT, partly due to its non-judgmental interaction features.

Achieving Precision Teaching and Enhancing Educational Equity

AI technology can record and analyze each student's learning data, helping teachers accurately grasp individual differences and implement stratified teaching. For students with weak pronunciation foundations, the system can increase the frequency of tone training; for those with difficulty in understanding listening, it can recommend more progressive materials with subtitles. This precision teaching ensures that each student receives suitable learning support, enhancing educational equity. A survey of the application effect at Fudan University showed that students generally believe that personalized learning content is helpful for mastering Chinese knowledge and skills.

IV. PRACTICAL CASES AND EFFECT EVALUATION

Intelligent Teaching Practice at Beijing Language and Culture University

As a key institution for teaching Chinese as a foreign language, Beijing Language and Culture University has conducted systematic exploration in AI application. The intelligent teaching system developed by the university integrates voice recognition, natural language processing, and adaptive recommendation functions, and is fully applied in oral courses. The system can assess students' oral expressions in real time, automatically adjust teaching difficulty, and provide gamified learning experiences.

Evaluation data shows that after using AI-assisted teaching, students' oral fluency increased by an average of 23%, tone accuracy improved by 18%, and learning enthusiasm significantly enhanced. Teacher feedback indicates that the intelligent system saves a lot of mechanical correction time, allowing them to focus on high-level teaching design and personalized tutoring. However, the practice also exposed problems such as low recognition rates for non-standard accents and insufficient depth of context understanding.

Intelligent Assessment System at Fudan University

Fudan University has constructed an intelligent teaching system that focuses on the intelligence of the assessment process. This system utilizes speech recognition technology to accurately identify student input and automatically score from

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 6, Nov.-Dec., 2025, pp: 383-388 ISSN: 3048-6874
www.ijhssm.org

four dimensions: pronunciation, grammar, fluency, and vocabulary, generating personalized learning diagnostic reports. In pilot classes, the system usage rate exceeded 90%, and student satisfaction reached 85%. Research found that the system's instant feedback function was the most popular among students, with 78% indicating they would conduct targeted practice based on system suggestions. Teachers believed that the system enhanced the objectivity and accuracy of assessment, but there were still limitations in the evaluation of pragmatic appropriateness and cultural suitability. This suggests that AI assessment should be combined with traditional manual assessment to complement each other.

Intelligent Teaching Practice at Tiangong University

Tiangong University has introduced AI technologies and devices such as NetEase's Smart Teaching Platform, Tiantian Intelligent Robot, and International Chinese Education Chinese Pavilion into classrooms. The Smart Teaching Platform automatically scores from three dimensions: pronunciation fluency, accuracy, and completion, generating timely feedback learning reports to achieve a "pronunciation - correction - reinforcement" closed-loop training. Combined with the Chinese Pavilion and intelligent robots, it not only stimulates students' interest but also addresses the key issue of insufficient cultural background knowledge among students.

Action Research on Short-Term Intensive Programs

Ju and Rao [8] conducted action research on a short-term comprehensive course for international Chinese language learning assisted by ChatGPT, finding that AI performed outstandingly in task-based oral language teaching. The research designed information gap tasks, opinion expression tasks, etc., with ChatGPT playing the role of interlocutor or providing language support. The results showed that the oral output of the experimental group students was significantly better than that of the control group in terms of complexity and accuracy, and their learning anxiety levels were lower. This study confirmed the effectiveness of AI in short-term intensive courses and provided a new model for intensive listening and speaking training.

V. CHALLENGES AND COUNTERMEASURES

Technical Adaptability and Accuracy Issues

The application of AI technology in Chinese listening and speaking teaching still faces technical bottlenecks. Firstly, speech recognition is not robust enough against non-standard accents and background noise, affecting assessment accuracy. Secondly, phenomena such as Chinese tones and phonetic changes in speech flow are complex, and existing algorithms have difficulty fully capturing their subtle differences. Finally, generative AI may produce "hallucinations", generating expressions that do not conform to Chinese language habits.

Countermeasures: Strengthen the construction of Chinese language-specific corpora, collecting more pronunciation samples from international students to train models; adopt multimodal fusion technology, combining facial muscle movement, tongue position images, etc., to improve recognition accuracy; establish an AI-generated content review mechanism, setting up a teacher oversight stage.

Lack of Data Resources and Quality Issues

High-quality teaching data is the foundation for AI applications. Compared to English, the annotated data resources for Chinese as a second language are relatively scarce, especially with small-scale oral corpora and single annotation dimensions.

Countermeasures: Establish a national-level database for Chinese as a second language learning, integrating resources from various universities; develop open-source annotation tools, encouraging teachers to participate in corpus annotation; utilize transfer learning technology to leverage native speaker data to make up for the insufficiency of second language data.

Teacher Training and Teaching Philosophy Transformation

Many teachers lack understanding of AI technology, showing either "technophobia" or an excessive reliance on it. In terms of teaching philosophy, some teachers still view AI as an auxiliary tool, failing to fully leverage its potential in teaching model innovation.

Countermeasures: Conduct systematic AI literacy training to enhance teachers' data interpretation and technology application abilities; establish a teacher practice community to share AI teaching experiences; guide teachers to transform from "knowledge transmitters" to "learning designers", exploring new models of human-machine collaborative teaching. Liu et al.'s [9] research on iWrite collaborative writing teaching indicates that the successful transformation of the teacher's role is the key to the success of human-machine collaborative teaching.

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 6, Nov.-Dec., 2025, pp: 383-388 ISSN: 3048-6874
www.ijhssm.org

Ethical Privacy and Data Security

The application of AI involves a large amount of sensitive data such as students' voices and learning behaviors, posing a risk of privacy leakage. Moreover, over-reliance on AI may affect students' autonomous learning ability and interpersonal communication skills.

Countermeasures: Establish strict data usage norms, adopt federated learning and other technologies to achieve "data available but not visible"; enhance students' digital literacy education to cultivate their critical use of AI; clarify the auxiliary role of AI, ensure the time for interpersonal interaction in the classroom, and avoid technological alienation.

VI. FUTURE DEVELOPMENT TRENDS AND SUGGESTIONS

Building a Hybrid Teaching Model of Human-Machine Collaboration

In the future, Chinese listening and speaking teaching should move towards a hybrid model that leverages the complementary strengths of humans and machines. AI can handle basic and repetitive tasks (such as pronunciation assessment and mechanical practice), while teachers focus on developing higher-order skills (such as communication strategies and cultural awareness). This model can not only leverage the efficiency of AI but also retain the humanistic care of teachers. Liu et al.'s [11] research on college students' use of automatic speech recognition technology to assist English speaking supports the effectiveness of human-machine collaboration. It is suggested to develop a "teacher-AI" collaboration platform to achieve data sharing and task coordination.

Deepening the Application of Multi-modal Integration and Embodied Cognition

Integrate virtual reality (VR) and augmented reality (AR) technologies to create immersive Chinese communication environments. The immersive context teaching method for college English based on AI and machine learning proposed by Ma [11] provides a reference for Chinese teaching. In the future, virtual Chinese communities can be developed to allow students to engage in role-playing and task-based communication in simulated real-world scenarios, achieving "learning by doing". At the same time, wearable devices can be used to capture learners' physiological data to optimize the learning experience from the perspective of embodied cognition.

Improving the Intelligent Assessment System

Current AI assessments mainly focus on the accuracy of language forms, but lack the assessment of pragmatic abilities, communication strategies, and other high-level skills.

Strengthen Interdisciplinary Research and Standardization

Promote in-depth cross-disciplinary integration of linguistics, education, and computer science to explore new patterns of second language acquisition in the AI environment. Cui [12] identified twelve key research areas in international Chinese language education, among which the application of technology is a significant direction. It is suggested that a specialized research institution be established to issue technical standards and ethical guidelines for AI-assisted Chinese language teaching, guiding the healthy development of the industry. At the same time, enhance international cooperation, drawing on the experiences of foreign universities such as Harvard, to jointly advance the application research of AI in Chinese language teaching.

VII. CONCLUSION

Artificial intelligence (AI) technology has brought profound changes to the Chinese listening and speaking courses for foreign students. Through technical means such as speech recognition, intelligent dialogue, and adaptive learning, it has effectively addressed many pain points of traditional teaching and demonstrated great potential in enhancing teaching efficiency, promoting personalized learning, and boosting learning motivation. Practical cases from universities like Beijing Language and Culture University and Fudan University have confirmed the feasibility and effectiveness of AI applications. However, challenges such as technical accuracy, data resources, teacher training, and ethical privacy still need to be faced and addressed. The future development direction should be to build a human-machine collaborative hybrid teaching model, deepen the application of multi-modal technologies, improve the intelligent assessment system, and strengthen cross-disciplinary research and standard construction. Only by deeply integrating technological advantages with educational laws and achieving a balance between efficiency and humanity, technology and interpersonal relationships, can AI truly empower Chinese listening and speaking teaching and promote the high-quality development of international Chinese education. Educators should maintain an open and prudent attitude, actively embrace technological changes, and at the same time adhere

to the essence of education, making AI a powerful tool for promoting the all-round development of learners rather than a substitute.

REFERENCES

[1]. Hardison, D., 2004, "Generalization of Computer-assisted Prosody Training: Quantitative and Qualitative Findings," Language Learning & Technology, 8: 34-52.

[2]. Levis, J; and Pickering, L., 2004, "Teaching Intonation in Discourse Using Speech Visualization Technology," System, 32: 505-524.

[3]. Yu, X; Wang, X; and Qi, F., 2025, "An Empirical Analysis of International Chinese Sentence Pattern Grammar Teaching Based on ChatGPT," Journal of International Chinese Teaching, 6(3): 6-24.

[4]. Li, J; Ge, Z; and Zhang, A., 2020, "Research on the Application of Adaptive Learning System in Adult Bachelor's Degree English Learning," Modern Educational Technology, (3): 59-65.

[5]. Liu, G; Darvin, R; and Ma, C., 2024, "Exploring AI-mediated Informal Digital Learning of English: A Mixed-methods Study of Chinese EFL Learners' AI Adoption and Experience," Computer Assisted Language Learning, : 1-29.

[6]. Wang, J., 2025, "Between Language and Image: The Application of DALL-E3 in Chinese Description Ability Training," Journal of International Chinese Teaching, 6(3): 53-66.

[7]. Sun, J; Wang, Y; and Qian, Z., 2025, "A Mixed-methods Study on Chinese Learners' Acceptance of ChatGPT: From the Perspective of Technology Acceptance," Journal of International Chinese Teaching, 6(2): 100-115.

[8]. Ju, J; and Rao, C., 2025, "Action Research on Teaching International Chinese Short-term Comprehensive Course with ChatGPT Assistance," Journal of International Chinese Teaching, 6(3): 76-88.

[9]. Liu, J; Liu, X; and Yang, C., 2022, "A Study of College Students' Perceptions of Utilizing Automatic Speech Recognition Technology to Assist English Oral Proficiency," Frontiers in Psychology, 13: 1049139.

[10]. Liu, Y; Liu, S; and Yang, J., 2022, "Exploration of Human-Computer Collaborative Teaching and Application from the Perspective of Sociocultural Activity Theory: Taking iWrite Collaborative English Writing Teaching as an Example," China Educational Technology, (11): 108-116.

[11]. Ma, L., 2021, "College English Immersive Contextual Teaching Method Based on Artificial Intelligence and Machine Learning," Mobile Information Systems, : 1-12.

[12]. Cui, X., 2023, "Twelve Key Research Areas in International Chinese Language Education," International Chinese Language Education (Chinese and English), (1): 3-15.