

A Study on the Application of Artificial Intelligence in Chinese Language Teaching in Indonesia

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Abstract

With the acceleration of global digital transformation, Artificial Intelligence (AI) is profoundly reshaping the landscape of International Chinese Language Education. As a key country along the Belt and Road Initiative, Indonesia has witnessed a rapid increase in the demand for Chinese language learning. However, the country continues to face significant shortages of qualified teachers and teaching resources. Taking Indonesia as the research subject, this paper analyzes the current state and major challenges of Chinese language teaching and explores the application of AI technologies in pronunciation correction, Chinese character learning, and personalized instruction. The study aims to provide digital solutions for improving the quality of Chinese language education in Indonesia.

Keywords: *artificial intelligence, international chinese language education, indonesia, digital teaching, personalized learning*

Introduction

In recent years, artificial intelligence technologies, particularly those driven by big data and natural language processing (NLP), have developed rapidly and brought profound changes to the field of education. In the area of International Chinese Language Education, digitalization and intelligent learning have become irreversible trends. Technologies such as intelligent speech assessment, adaptive learning systems, and virtual simulation dialogues have created new possibilities for overcoming the limitations of traditional language teaching, including constraints related to time, space, and teacher availability.

Indonesia is the most populous country in Southeast Asia. With the deepening cooperation between China and Indonesia under the Belt and Road Initiative, exchanges in trade, tourism, and education have become increasingly frequent. According to data from Indonesia's Ministry of Education, the number of schools offering Chinese language courses continues to grow, while Chinese language tutoring centers have expanded across major cities. As a result, the demand for Chinese language learning has experienced explosive growth, making Indonesia one of the most important destinations for Chinese language promotion in Southeast Asia.

Despite the growing demand, Chinese language teaching in Indonesia still faces practical challenges, including a shortage of qualified teachers and limited teaching

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methodologies. The integration of artificial intelligence can effectively alleviate the shortage of teaching staff while providing precise support for Indonesian learners in overcoming difficulties related to pronunciation and Chinese character acquisition. This study explores AI-enabled teaching models with the aim of improving teaching efficiency and reducing learners' anxiety, thereby contributing to the sustainable development of Chinese language education in Indonesia.

Method

This study adopts literature review and case study methods. It first reviews the historical development and current status of Chinese language education in Indonesia, then analyzes the major challenges in Chinese language teaching, and finally discusses the practical applications of artificial intelligence in listening, speaking, reading, and writing instruction. Based on these findings, corresponding optimization strategies are proposed.

Results

Current Development of Chinese Language Teaching in Indonesia

A. Overall Development of Chinese Language Education

Chinese language education in Indonesia has experienced a turbulent history. Since the lifting of restrictions in 2001, it has rapidly recovered and expanded. At present, Indonesia has established a three-tier educational system consisting of public educational institutions (primary schools, secondary schools, and universities), Chinese community educational institutions, and Confucius Institutes. Although Chinese language education has achieved broad coverage, regional disparities remain in terms of teaching standards, localized teaching materials, and educational infrastructure.

B. Characteristics of Indonesian Learners of Chinese

Influenced by their native language (Indonesian, an alphabetic language) and Indonesia's multicultural environment, Indonesian learners of Chinese demonstrate several distinctive characteristics. First, they are highly motivated by practical purposes, especially business and employment opportunities. Second, they generally perform better in listening and speaking than in reading and writing, possessing strong imitation skills but relatively weaker logical reasoning abilities. Furthermore, influenced by religious beliefs and cultural etiquette, Indonesian students tend to be modest and reserved in class. As a result, they are often reluctant to make mistakes during speaking practice, leading to the widespread phenomenon of "mute Chinese," in which learners have limited oral communication skills despite years of study.

Major Challenges in Chinese Language Teaching in Indonesia

A. Structural Shortage of Qualified Chinese Language Teachers

Although the demand for Chinese language education continues to increase, Indonesia faces a serious shortage of qualified local Chinese language teachers. Some non-Chinese Indonesian teachers possess limited Chinese proficiency, while many ethnic Chinese teachers, despite their linguistic advantages, often lack systematic training in pedagogy and language teaching methodologies. Consequently, teaching quality varies considerably.

B. Difficulties in Learning Tones and Chinese Characters

Since Indonesian is a non-tonal alphabetic language, students often encounter dual challenges when learning Chinese: inaccurate pronunciation and difficulty in mastering Chinese characters. Traditional imitation-based pronunciation practice is insufficient for correcting deep-rooted pronunciation errors, while the complex stroke order and structural composition of Chinese characters remain major causes of learning difficulties and student attrition.

C. Lack of an Authentic Language Environment

Apart from students from Chinese-speaking families, most Indonesian learners are exposed to Chinese only in classroom settings. The lack of immersive language environments outside class leads to limited vocabulary retention and insufficient opportunities for oral practice, preventing learners from transforming language input into effective communicative output.

D. Conventional Teaching Models and Lack of Personalization

Most Chinese language classrooms in Indonesia still rely on traditional teacher-centered instruction, where teachers lecture and students passively receive information. Large class sizes make it difficult for teachers to accommodate students with different proficiency levels, resulting in limited personalized learning opportunities and reduced learner motivation and confidence.

Advantages of Applying Artificial Intelligence in Chinese Language

Teaching With the rapid development of artificial intelligence, its advantages in Teaching Chinese as a Foreign Language have become increasingly evident. First, AI removes the time and space limitations of traditional education, enabling learners to study independently anytime and anywhere through intelligent devices, thereby improving learning flexibility and continuity.

Second, advances in speech recognition and natural language processing enable AI systems to accurately identify and correct pronunciation, tones, and Chinese character writing, providing learners with immediate and precise feedback.

Third, AI creates immersive language-learning environments through virtual conversations and situational simulations, compensating for the lack of authentic Chinese-speaking environments and enhancing learners' communication experiences. In addition, AI possesses powerful data analysis capabilities that enable personalized content recommendations based on learners' proficiency, learning habits, and error patterns, thereby facilitating differentiated instruction according to individual needs.

Finally, AI can support teachers in lesson preparation, assignment grading, and instructional evaluation, reducing teachers' workloads while improving teaching efficiency. Overall, artificial intelligence not only optimizes learning methods but also promotes the transformation and modernization of Chinese language teaching.

Practical Applications of Artificial Intelligence in Chinese Language Teaching and Learning in Indonesia

A. Applications in Listening and Speaking

Artificial intelligence has been most successfully applied in listening and speaking instruction. Through speech recognition technology, learners can practice pronunciation while AI systems automatically detect and provide feedback on errors related to initials,

finals, and tones. AI powered situational dialogue systems can simulate real-life scenarios such as shopping, asking for directions, and classroom interactions, helping students improve their speaking abilities despite the limited Chinese-speaking environment in Indonesia.

B. Applications in Chinese Character Learning and Writing

Chinese character acquisition is one of the greatest challenges for Indonesian learners. AI supports character learning through handwriting recognition and stroke-order demonstrations, providing standardized writing guidance. Intelligent handwriting practice systems can detect stroke-order and structural errors in real time and provide targeted corrections. Moreover, AI can analyze learners' common writing mistakes and offer focused explanations, significantly improving character recognition and writing efficiency.

C. Applications in Vocabulary and Grammar Learning

In vocabulary and grammar instruction, AI facilitates comprehension through intelligent translation and bilingual explanations. The system automatically records learners' mistakes and creates personalized error databases for targeted review. AI-powered grammar assistants can answer learners' questions instantly, thereby improving learning efficiency and effectiveness.

D. Applications in Classroom and After-Class Learning

During classroom instruction, teachers can use AI to assist in lesson preparation, generate teaching materials, design interactive learning activities, and conduct real-time quizzes with immediate feedback, thereby increasing student engagement. Outside the classroom, AI provides personalized tutoring by generating learning reports based on students' performance data, forming an integrated model that combines teaching, learning, and assessment to enhance overall educational quality.

E. Applications in HSK Assessment

For the Chinese Proficiency Test (HSK), AI provides mock examinations, automatic grading, and proficiency assessment. Learners can identify their weaknesses through practice tests and receive personalized review recommendations. AI can also analyze frequently tested knowledge points and help students develop effective examination strategies, thereby improving their chances of passing the HSK.

Applications of Artificial Intelligence in Chinese Reading and Writing Instruction and Assessment

Reading and writing are core components of Chinese language education in Indonesia, while classroom instruction and assessment play essential roles in developing literacy skills. Indonesian learners commonly experience difficulties in Chinese character recognition and written expression. Traditional teaching methods are often monotonous, and assessment procedures are inefficient, making it difficult to meet local educational needs. By leveraging natural language processing and intelligent recognition technologies, artificial intelligence has become deeply integrated into every stage of reading and writing instruction and assessment, providing strong technical support for improving teaching quality and learning outcomes. In reading and writing classrooms, AI enables personalized and precision-based instruction. AI teaching platforms recommend learning resources according to students' proficiency levels, while handwriting correction functions provide real-time feedback on

stroke order and character formation. Intelligent reading tools and text analysis systems help students comprehend texts and overcome learning difficulties. Furthermore, AI monitors students' learning progress and delivers targeted interactive exercises, making instruction more compatible with the cognitive characteristics of Indonesian learners.

In the assessment process, AI enables intelligent management throughout question generation, examination administration, grading, and evaluation. Based on curriculum standards, AI can automatically generate reading and writing test items, while intelligent examination platforms ensure standardized testing procedures. Objective questions are graded automatically, whereas subjective writing tasks are evaluated using deep learning algorithms that ensure consistent scoring standards. This significantly reduces teachers' grading workloads. After examinations, AI automatically generates analytical reports identifying students' weaknesses and providing feedback that supports instructional improvement, thereby establishing an integrated "teaching assessment-evaluation" cycle.

Discussion

Current Challenges of Applying Artificial Intelligence in Chinese Language Teaching in Indonesia

Although artificial intelligence has brought considerable convenience to Chinese language teaching in Indonesia, several practical challenges remain. First, the localization of AI educational resources remains insufficient. Most intelligent Chinese learning platforms lack adequate Indonesian language support and fail to fully accommodate Indonesian learners' pronunciation characteristics and learning habits, resulting in less accurate recognition and error correction.

Second, many Chinese language teachers lack sufficient competence in AI-assisted instruction. Most teachers only utilize basic AI functions and are unable to maximize its educational potential. Third, students may become overly dependent on AI. Some learners rely heavily on AI for translation and sentence generation, reducing opportunities for independent thinking and authentic communication, which ultimately hinders the development of communicative competence.

Finally, disparities in technological infrastructure remain significant. In some regions of Indonesia, limited internet access and insufficient digital devices restrict the stable implementation and widespread adoption of AI-assisted learning.

Strategies for Optimizing the Application of Artificial Intelligence in Chinese Language Teaching in Indonesia

To address the challenges discussed above, several practical strategies are proposed based on the realities of Chinese language education in Indonesia. First, localized bilingual AI learning resources should be developed by optimizing AI tools to better accommodate Indonesian learners' needs, local cultural contexts, and HSK preparation requirements.

Second, systematic AI training programs should be provided for Chinese language teachers to improve their digital teaching competencies and promote the deep integration of AI into classroom instruction. Third, students should be guided to use AI appropriately, employing it primarily for error correction and practice rather than directly copying AI-generated answers. Greater emphasis should be placed on independent learning and authentic human communication.

Finally, a blended teaching model combining online and offline instruction should be adopted, with traditional classroom teaching serving as the foundation and AI functioning as

a complementary tool. Such an approach can compensate for the lack of authentic language environments and comprehensively improve the effectiveness of Chinese language teaching.

Conclusion

Artificial intelligence provides new opportunities for the development of Chinese language teaching in Indonesia. It can effectively alleviate challenges such as teacher shortages, the lack of authentic language environments, and the inherent difficulties of learning Chinese, thereby enabling students to learn more efficiently. Although AI-assisted teaching still faces issues such as insufficient localization and inconsistent implementation, these challenges can be overcome through appropriate planning and responsible use. By leveraging its strengths while addressing its limitations, artificial intelligence can significantly contribute to the high-quality development of Chinese language education in Indonesia and further promote linguistic, cultural, and educational exchanges between China and Indonesia.

References

- Chinese International Education Foundation. (2021). Chinese Proficiency Standards for International Chinese Language Education. Beijing Language and Culture University Press.
- Council of Europe. (2020). Common European Framework of Reference for Languages: Learning, teaching, assessment—Companion volume. Council of Europe Publishing.
- Education First. (2024). EF English Proficiency Index 2024. <https://www.ef.com/epi/>
- Hanban. (2021). HSK Test Syllabus (Level 1-6). Beijing Language and Culture University Press.
- Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Center for Curriculum Redesign.
- Luckin, R. (2018). Machine Learning and Human Intelligence: The Future of Education for the 21st Century. UCL Institute of Education Press.
- Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. (2023). Education Statistics in Indonesia. Jakarta: Kemendikbudristek.
- UNESCO. (2021). AI and Education: Guidance for Policy-makers. UNESCO.
- UNESCO. (2023). Guidance for Generative AI in Education and Research. UNESCO.
- Wang, L., & Li, M. (2021). Artificial intelligence and personalized learning in Chinese language education. *Journal of Technology and Chinese Language Teaching*, 12(2), 45-60.
- Xu, J., & Moloney, R. (2011). Perceptions of Chinese language learning among students In Southeast Asia. *The Asia-Pacific Education Researcher*, 20(3), 457-469.
- Zhao, Y. (2022). Artificial intelligence in second language teaching: Opportunities and challenges. *Computer Assisted Language Learning*, 35(7), 1432-1454.