

Exploring the Practice of Artificial Intelligence Empowering Primary School Chinese Reading Instruction

SHANG Liyue, WANG Yuqiu*
Linyi University, Linyi, China

Intelligent technologies have brought many benefits to primary school Chinese reading instruction while posing new challenges. These technologies facilitate personalized reading, provide diverse reading resources, and offer intelligent guidance and feedback. However, their application in primary school Chinese reading instruction also faces issues such as teachers' difficulty adapting to new technologies, students' lack of self-control, and information overload. Teachers need to enhance their learning and effectively integrate intelligent technologies into instruction while guiding students in their reasonable use. This approach aims to maximize the advantages, overcome the shortcomings, improve reading instruction, and enhance students' reading literacy.

Keywords: primary school Chinese, reading instruction, intelligent integration, personalized instruction, information overload

Introduction

The "Education Informatization 2.0 Action Plan", issued in 2018, emphasized accelerating the deep integration of information technology with education and transitioning from the application stage to the innovative development stage. Education Informatization 3.0 has enabled human-computer interaction, emphasizing the deep integration of intelligent technologies into instruction. For instance, in classroom instruction, artificial intelligence facilitates personalized learning path planning. By leveraging intelligent teaching systems, teachers can tailor learning plans based on students' progress and mastery of knowledge. Education data, including students' learning data and teachers' instructional data, can be analyzed to optimize educational management and processes. For example, schools can identify weaknesses in instruction by analyzing students' performance data and classroom participation rates and adjust their teaching strategies accordingly.

In late 2022, OpenAI released ChatGPT, an AI tool that significantly impacted various industries. With the rapid maturity of intelligent technologies, numerous AI models have been developed and applied, such as iFlytek's Spark Model, Wenxin Yiyao, Doubao, and Kimi Intelligent Assistant. These technologies' intelligent, convenient, and resource-rich text-generation capabilities have quickly gained recognition from teachers, parents, and students, and they are widely applied in teaching and learning processes.

The 2022 version of the *Compulsory Education Chinese Curriculum Standards* also highlighted the importance of leveraging modern information technology to expand Chinese learning spaces, improve learning

Acknowledgement: The achievement of Shandong Provincial Social Science Research Project: "Construction of an Ecological Assessment Index System for Basic Education Under the Goal of 'Burden Reduction and Quality Improvement'" (23CJYJ11).

SHANG Liyue, postgraduate student, School of Education, Linyi University, Linyi, China.

*WANG Yuqiu (corresponding author), Ph.D., Professor, School of Education, Linyi University, Linyi, China.

abilities, and promote changes in evaluation methods.

The application of intelligent technologies in the Chinese language discipline has provided new solutions to the challenges of traditional instruction while introducing new ones. For instance, these technologies enable personalized instruction. They analyze students' reading data—such as text selection, page-turning speed, pauses, highlighted sentences, and queries—to recommend tailored reading materials that match students' levels, stimulate their interest, and improve outcomes. Intelligent technologies also assist teachers in understanding student differences, optimizing teaching methods, and achieving personalized instruction. Additionally, these technologies can animate knowledge, enhance realistic experiences, save teachers' time in resource collection, and provide immediate feedback to students during reading activities.

Literature Review

The integration of artificial intelligence (AI) into primary school Chinese reading instruction has emerged as a transformative approach to addressing traditional teaching challenges while offering new opportunities for personalized and efficient learning. This review synthesizes existing research to explore how AI empowers reading instruction, focusing on key areas such as personalized learning, teacher facilitation, student engagement, and the associated challenges.

Personalized Learning and Intelligent Feedback

AI technologies, such as intelligent tutoring systems, have demonstrated significant potential in personalizing reading instruction. These systems analyze students' reading behaviors, including text selection, reading speed, and comprehension levels, to recommend tailored materials and activities. According to Ma and Yu (2024), AI-driven learning environments allow teachers to customize instructional paths, catering to students with diverse reading abilities. Similarly, S. Y. Zhang and S. Zhang (2021) emphasized that AI-supported graded reading strategies enhance students' engagement by providing content aligned with their skill levels.

Enhancing Teacher Effectiveness

AI tools not only streamline resource preparation for teachers but also assist in identifying instructional weaknesses. M. S. Khine (2024) explored the development of Intelligent Tutoring Systems. The advancement of AI can bridge this gap. Intelligence tutoring systems leverage AI techniques like machine learning to create adaptive learning environments. These systems can assess a student's knowledge level, identify learning gaps, and deliver targeted instruction accordingly. This personalized approach allows students to progress at their own pace and master concepts as they progress through the lesson. Yin (2024) further noted that AI technologies, such as virtual assistants, reduce teachers' administrative workload, allowing them to focus more on pedagogy and student interaction. However, some studies reveal that teachers face difficulties in adapting to these tools due to technical complexities and a lack of training (Xing, Di, & Chen, 2024).

Student Engagement and Creativity

AI tools have enhanced interactive learning experiences, such as gamified reading platforms and virtual reality (VR) applications, which make reading more engaging. Jiang (2024) suggested that VR technologies embedded in AI platforms immerse students in the narrative world, fostering emotional connections to texts and improving comprehension. However, Yu (2021) cautioned against the overuse of AI, as it may inhibit students' independent thinking and creativity.

Challenges and Ethical Considerations

Despite its benefits, integrating AI into primary school reading instruction presents challenges. Technical issues, such as software glitches and compatibility problems, disrupt the continuity of teaching (Yin, 2024). Additionally, concerns about data security and student privacy persist. Teachers and parents remain apprehensive about the collection and use of students' personal data, as discussed by Alvarez and Ramirez (2012).

Moving Toward Sustainable Integration

To fully harness the potential of AI, researchers advocate for comprehensive teacher training programs and ethical guidelines for AI use in education. Jiang (2024) proposed that educational institutions collaborate with technology developers to create user-friendly tools tailored to instructional needs. Furthermore, policy frameworks should address data security and ensure equitable access to AI resources.

The adoption of AI in primary school Chinese reading instruction offers innovative solutions for personalized learning and teacher facilitation. However, addressing challenges such as technological barriers and ethical concerns is crucial for sustainable integration. Future studies should focus on long-term impacts, case studies of specific AI tools, and collaborative strategies among stakeholders to maximize the benefits of AI in education.

Analysis of the Current State of AI Empowerment in Primary School Chinese Reading Instruction

However, challenges remain in the practical integration of intelligent technologies into primary school Chinese reading instruction. This study explores the current state of intelligent technologies' application, based on interviews with five teachers and 10 students in City L.

Challenges for Teachers Adapting to New Technologies

The introduction of intelligent technologies into Chinese classroom instruction has altered traditional teaching methods and imposed higher requirements on teachers' professional competencies and ICT literacy. The study revealed that some teachers resist integrating intelligent technologies into primary school reading instruction due to ingrained teaching habits and a lack of understanding of these tools' auxiliary functions. Others recognize the benefits of these technologies but struggle with operational issues, preventing effective integration into teaching.

For example, Teacher C believes that Chinese as a subject emphasizes emotional experience and requires teachers' guidance to help students understand texts and appreciate authors' emotions, which cannot be replaced by intelligent technologies. Teacher A finds the variety and rapid updates of intelligent tools overwhelming, making it difficult to select appropriate software. While these tools save time in creating materials, they also demand significant time to learn and choose software. Teacher D mentions that intelligent technologies could generate images based on search terms, saving time spent on finding resources online. However, the use of these tools is often limited to basic functions like generating images or collecting multimedia content, leaving their potential largely untapped.

Some teachers are still exploring how to use intelligent technologies effectively, lacking comprehensive understanding and reducing their integration into primary school reading instruction.

Challenges in Students' Self-Control and Creativity

Student surveys indicate that while intelligent technologies help resolve many learning challenges, they also foster dependency. Primary school students, who often lack self-control, are easily distracted by irrelevant content and overwhelmed by the abundance of resources.

For instance, Student A often gets drawn into ads for mini-games while using intelligent tools, delaying task completion, and leading to eyesight deterioration. Student E relies on intelligent tools to summarize readings and write reflections without fully engaging with the text. Although these tools provide convenience and access to diverse resources, their inconsistent quality and various distractions can compromise learning effectiveness and students' well-being.

Technological Pitfalls and Data Security Risks

Despite their rapid evolution, intelligent technologies sometimes disrupt classroom activities due to software glitches or compatibility issues. Teacher A reported frequent software freezes, difficulties in opening applications, and poor network connectivity during lessons, all of which hinder instructional progress. Furthermore, the answers provided by these tools are not always accurate and may contradict textbook content, affecting the reliability of instruction.

Data privacy is another concern. Teacher C questioned the safety of requiring personal accounts to access intelligent tools, as these often track user activity to provide personalized recommendations. Ensuring students' privacy and creating a secure digital environment for learning are critical priorities.

Limitations in Emotional Comprehension of Texts

Intelligent tools often interpret texts rigidly, focusing on surface-level meanings without delving into deeper insights. Unlike mathematics, Chinese language education emphasizes personalized interpretations of texts. Teacher C observed that some students, after consulting intelligent tools for answers, struggle to form independent and unique perspectives. Overreliance on such tools may hinder students' creativity and critical thinking, which are essential for developing a deeper understanding of texts.

Strategies for Optimizing AI-Driven Chinese Reading Instruction

Organizing Teacher Training and Collaborative Learning

Conducting workshops on using intelligent technologies can enhance teachers' ability to integrate these tools into instruction. Training should address current doubts, explain the benefits of AI-assisted teaching, and provide practical strategies for selecting and utilizing tools. Establishing teacher communication platforms to share resources and exchange experiences can foster collective efforts to adapt to technological changes.

Improving Students' Self-Control and Information Evaluation Skills

To mitigate distractions, schools can introduce courses on responsible use of intelligent technologies, highlighting their strengths and limitations. Teachers can guide students through activities that enhance their critical thinking and help them discern credible information. Additionally, software developers should offer youth-friendly modes with minimal advertisements and restricted access, ensuring a focused learning environment.

Enhancing Technology Development and Data Security

Continuous investment is needed to improve intelligent technologies' accuracy, stability, and user experience. For example, incorporating advanced testing mechanisms and VR/AR features can enrich students' reading experiences. On the data security front, clear regulations must protect personal data, while intelligent tool providers should prioritize user privacy and conduct regular safety audits.

Defining Appropriate Usage Scenarios and Levels

AI tools should complement rather than replace traditional instruction. Teachers must consider students' needs, content requirements, and teaching goals to strike a balance between technology and pedagogy. Limiting AI's use to supportive roles can foster independent thinking and creativity, ensuring students' holistic development.

Conclusion

Integrating intelligent technologies into teaching is an inevitable trend in educational development. Teachers, researchers, and technology providers must work together to explore innovative ways to integrate AI deeply into instruction, maximizing its advantages while addressing its challenges. Future research will focus on case studies of AI-assisted teaching in specific Chinese language texts to enhance instructional effectiveness and promote students' comprehensive development.

References

- Alvarez, O. H., & Ramirez, S. D. A. (2012). Constructivism and ICT: An experience in the area of language arts with elementary school students. *International Symposium on Computers in Education, IEEE*. Andorra La Vella, Principality of Andorra.
- Jiang, W. (2024). Digital transformation of continuing education in the era of Informatization 3.0: Rationale, risks, and directions. *Adult Education, 44*(3), 6-11.
- Khine, M. S. (2024). *AI in teaching and learning and intelligent tutoring systems*. Singapore: Springer.
- Ministry of Education of the People's Republic of China. (2018). Education Informatization 2.0 action plan. Retrieved from http://www.moe.gov.cn/srcsite/A16/s3342/201804/t20180425_334188.html
- Ministry of Education of the People's Republic of China. (2022). *Compulsory education Chinese curriculum standards (2022 edition)*. Beijing: Beijing Normal University Press.
- Ma, F. Y., & Yu, W. (2024). Transforming primary school Chinese instruction in AI-driven learning environments. *Educational Science Research, 35*(9), 57-64.
- Xing, T. Q., Di, P. C., & Chen, D. D. (2024). Challenges and beyond: Large language models in primary school Chinese instruction. *Teaching & Administration, 41*(26), 33-38.
- Yin, R. P. (2024). Constructing intelligent classrooms for primary school Chinese based on smart technologies. *China Modern Educational Equipment, 27*(18), 11-12.
- Yu, F. (2021). Reflections on primary school Chinese learning in the context of AI. *Education Exploration, 41*(3), 24-27.
- Zhang, S. Y., & Zhang, S. (2021). Exploring graded reading strategies for primary school Chinese supported by AI. *Theory and Practice in Education, 41*(5), 52-55.