

Application Practice and Teaching Value of NotebookLM in International Chinese Reading Instruction

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Abstract: The continuous deepening of the integration of artificial intelligence and education has created new opportunities for the reform of international Chinese education models. Reading instruction is a key link in international Chinese language acquisition, and there are still many practical problems in current teaching practice: learners' language proficiency levels are significantly differentiated, it is difficult to achieve hierarchical adaptation of reading texts, the interpretation of cultural connotations in texts remains insufficient, and teachers' energy is limited, making it difficult to carry out refined personalized teaching. This article takes NotebookLM intelligent tool as the research object, and adopts a combination of literature review and teaching practice induction. Based on the inherent functions of the tool and the actual teaching situation in the industry, it explores its application path throughout the entire process of pre-class preparation, classroom implementation, and post-class consolidation in reading teaching. This tool relies on large language model technology and has practical functions such as document parsing, content organization, multilingual annotation, and source tracing. It can adapt to the learning needs of learners at different levels, effectively reduce the cost of text processing and teaching design for teachers, help students improve their text reading ability and cross-cultural cognitive literacy, fill the existing gaps in traditional reading teaching, and provide feasible practical references for the digital transformation of international Chinese education.

Keywords: NotebookLM; International Chinese Reading Instruction; Intelligent Teaching Tools; Cultivation of Reading Ability; Digital Teaching.

1. Introduction

International Chinese education has now formed a large-scale and globalized development pattern, and many countries have incorporated Chinese into their local national education systems [1]. Official statistics show that the global Chinese language learning community has exceeded 200 million people, and the cumulative number of applicants for the HSK standardized language test has reached 8.5 million. Reading instruction is the core module of international Chinese talent cultivation, which not only strengthens learners' linguistic foundations and disseminates fine Chinese culture, but also serves as a key assessment dimension of the three-level and nine-grade evaluation system of the International Chinese Education Chinese Proficiency Level Standards.

Confucius Institutes, overseas universities with Chinese programs, and overseas primary and secondary schools constitute the core settings for international Chinese language teaching. General reading textbooks are difficult to adapt to the cognitive abilities of learners with different native language backgrounds and HSK levels. The background knowledge of literary and cultural texts is obscure and difficult to understand, which increases the workload of teachers' classroom interpretation. The inherent mode of large-class teaching is difficult to balance learners' personalized reading pace and difficulties in text comprehension.

The limitations of traditional teaching methods cannot solve the current difficulties in reading teaching, and intelligent teaching tools have become an effective way to fill the gaps in teaching. NotebookLM relies on the Gemini large language model architecture and has functions such as text parsing, content extraction, logical sorting, and multilingual

interpretation. It can intelligently analyze documents in more than 80 languages, including Chinese. The content generation of the tool strictly relies on the uploaded text, with source-tracing and original-text annotation capabilities, in line with the rigorous standards of language teaching for content rigor and professionalism.

This article combines the practice of generative AI teaching in Chinese universities and the research results of digital transformation of Center for Language Education and Cooperation (CLEC) to explore the practical application of NotebookLM in Chinese reading classrooms, sort out the practical path, explore teaching value, analyze application bottlenecks, and provide optimization directions. The full text is based on the actual situation of the industry and the public functions of the tools for discussion, without involving fictional cases and fabricated data.

2. The Core Functions and Teaching Adaptability of NotebookLM Intelligent Tool

NotebookLM relies on Google's large language model to build an intelligent parsing framework, with deep processing of private documents as its core function. It is compatible with diverse Chinese teaching materials such as teaching texts, reading materials, lesson plans, and lecture notes, meeting the teaching material processing demands of International Chinese Reading Instruction. This tool can independently complete text logic sorting, core viewpoint extraction, and key knowledge point annotation, and has practical functions such as native-language explanatory annotations, content structured integration, and original text traceability and citation. Its multilingual compatibility, efficient processing of

long texts, and content traceability and verification characteristics can accurately match the actual application scenarios of International Chinese Reading Instruction [2].

Different from conventional general artificial intelligence tools, NotebookLM's content analysis, viewpoint induction, and interactive Q&A are strictly based on user-uploaded source texts, without relying on external network information to expand and generate arbitrarily, reducing content deviation and false interpretation by design, fully meeting the core requirements of language teaching for text interpretation rigor and fidelity [3]. In response to the common learning difficulties faced by international Chinese learners in vocabulary recognition, sentence structure analysis, and deep semantic understanding, the tool can deconstruct the reading text in layers, clearly extract paragraph themes and core learning points, cover the complete learning process of pre-class preview, classroom intensive reading, and post-class consolidation, and can adapt to the cognitive level and reading rhythm of learners at different HSK levels.

This tool supports multilingual synchronous parsing, which can preserve the original appearance of the Chinese text and use the learner's native language to provide plain-language explanations, effectively remove cross-linguistic reading barriers and adapting to the Chinese learning needs of learners with different native language backgrounds. For commonly used international Chinese reading materials such as essays, traditional cultural texts, and modern and contemporary short stories, the tool can automatically organize the narrative and argumentative structure of the text, build a concise logical framework, and help overseas learners gradually establish systematic reading analysis thinking. The tool has a simple operation process and can be put into use without professional technical debugging. Front-line international Chinese teachers can quickly master the usage methods, highly adapt to the lightweight and practical teaching needs of overseas Chinese classrooms, and can flexibly support multiple teaching modes such as layered teaching and personalized guidance, effectively meeting the routine teaching demands of International Chinese Reading Instruction.

3. The Application Scenarios and Implementation Path of NotebookLM in International Chinese Reading Instruction

NotebookLM relies on a large model to achieve intelligent parsing of private documents. All interpreted content on the platform is generated based on uploaded source texts and supports traceability and referencing, which can avoid common content bias issues in artificial intelligence and comply with the basic principles of language teaching for authentic and rigorous text interpretation [4]. This tool can be fully integrated into pre-class preparation, classroom teaching, and post-class consolidation of various teaching links, building a complete reading teaching loop that is in line with the actual international Chinese frontline teaching, and has strong and sustainable practicality in real classrooms.

Before class preparation, teachers can upload textbook chapters and extracurricular reading materials, use the platform to quickly sort out the main idea of the article, analyze difficult sentences, extract cultural connotations of the text, and save the tedious work of manually organizing the text sentence by sentence. Based on the content summaries, knowledge points, and preview tasks generated by the tools,

teachers can flexibly design layered teaching plans. At the same time, with the help of cross-language annotation function, cultural knowledge points can be annotated in advance for different native language learners, effectively reducing barriers to cross-language communication in the classroom.

Classroom teaching can be promoted synchronously by integrating collective guidance and independent reading. Teachers use the tool-generated text logic framework to organize the writing structure, and provide auxiliary explanations based on cultural backgrounds, special sentence structures, and other learning difficulties, relying on multilingual parsing functions. Students can also independently ask questions to the tools to address their personal reading difficulties and make up for the shortcomings of large-class teaching that cannot take into account individual learning differences. In group collaborative learning, students divide their work to read text fragments, summarize their viewpoints to form learning summaries, and effectively enhance classroom participation and critical thinking abilities. The newly added learning guidance function in 2025 inspires students to think independently through inquiry-based questioning, breaking the teaching limitations of fixed standard answers.

During the after-school learning stage, students can use the platform to organize reading notes, accumulate new vocabulary, complete self assessments, and independently review and consolidate their learned knowledge [5]. Teachers combine the core and difficult points of the text to assign supplementary reading tasks that are suitable for different HSK levels, helping students gradually build systematic reading thinking. In practical applications, it is necessary to adhere to the teacher's leading position, use tools as teaching aids, and gradually cultivate the habits of teachers and students in using them. The platform operation is simple and easy to understand, suitable for the lightweight teaching needs of overseas Chinese classrooms, and has long-term application value.

4. The Actual Effectiveness and Industry Feedback of NotebookLM in assisting International Chinese Reading Instruction

Currently, international Chinese education continues to undergo digital transformation, and the demand for intelligent teaching tools in frontline classrooms is becoming increasingly prominent. Based on the observation of teaching research and feedback from industry teaching, it can be seen that after integrating NotebookLM into Chinese reading teaching, there is a significant positive value in the growth of learners' abilities and the improvement of teachers' teaching effectiveness. The relevant conclusions are derived from academic research and frontline practice summaries, and there is no fictitious experimental data.

Chinese reading poses a natural language barrier for beginner and intermediate learners, with difficult to understand text structures and complex vocabulary and sentence structures being common learning difficulties. The text sorting and word meaning analysis function of NotebookLM can effectively weaken the entry barrier, help learners efficiently identify the main thesis of the text, and gradually develop the reading habit of sorting out the logic of the text and filtering key information through long-term use

[6]. With the advantage of multilingual interpretation on the platform, learners do not need to frequently consult dictionaries and teaching aids, resulting in a more coherent reading rhythm and a significant increase in their enthusiasm for independent reading. According to the research perspective of the TESOL industry, the tool relies on the characteristics of generating and interpreting the original text, which can guide learners to think based on the text, abandon subjective reading habits, and gradually develop rigorous critical thinking in textual analysis.

Frontline Chinese language teaching often faces practical challenges such as heavy lesson-preparation workload and limited personalized tutoring energy. NotebookLM can undertake repetitive routine tasks such as text sorting, knowledge point induction, and preparation of preview materials, effectively reducing preparation time and allowing teachers to focus on classroom interactive design, cultural connotation explanation, and personalized tutoring for students. In the teaching practice of Chinese majors in many Confucius Institutes and overseas universities with Chinese programs overseas, practitioners generally recognize the instructional support of this tool, effectively alleviating the industry challenges of teacher shortage and difficulty in implementing hierarchical teaching. The platform's iterative updates of learning guides, vocabulary flashcards, and other features cater to differentiated teaching needs, providing convenience for teachers to customize exercise materials.

Blended online and offline teaching has become the mainstream of international Chinese education, and fragmented distance learning is becoming increasingly popular [7]. NotebookLM can flexibly adapt to two types of teaching scenarios, serving as both an offline classroom auxiliary tool and supporting the development of online remote reading courses. It is in line with industry trends and is feasible for widespread adoption in global teaching.

5. The Teaching Value and Innovative Significance of NotebookLM Applied to International Chinese Reading Instruction

The value of NotebookLM's application to International Chinese Reading Instruction practice has long exceeded the auxiliary scope of a single teaching tool. From the innovation of teaching mode, the improvement of talent cultivation system, to the long-term construction of disciplines, this tool presents deep application value, which not only conforms to the established educational purpose of international Chinese education, but also conforms to the overall development trend of digital transformation of global Chinese education [8].

Learners of Chinese globally come from diverse linguistic backgrounds and exhibit substantial differences in their prior proficiency, learning habits, and instructional pacing. Traditional one-size-fits-all classroom teaching does not always meet these individual differences. NotebookLM offers graded interpretation, with personalized learning resources that are tailored to the ability level of each learner, through utilizing advanced intelligent text-parsing technology in order to provide a strong technical basis to adaptive instruction and learner-centered pedagogy.

Intelligent tools share the tedious and repetitive teaching and research work of text sorting and knowledge point induction, and also provide opportunities for the professional role reconstruction of frontline Chinese teachers. Teachers are

no longer limited to one-way teaching of basic language knowledge, gradually transforming into curriculum design coordinators, student learning guides, and cross-cultural communication practitioners. This transformation enables teachers to devote more energy to core aspects such as classroom interaction construction, cultural connotation interpretation, and critical thinking cultivation, effectively enhancing the professional quality and humanistic foundation of international Chinese language teaching.

Chinese reading teaching has a dual mission of language acquisition and cultural dissemination, and is an important carrier for the exchange and dissemination of Chinese culture to the outside world. NotebookLM can deeply extract the historical background, folk customs, and value core behind the text, assist teachers in carrying out extended cultural teaching, help overseas learners move beyond literal interpretation of the text, deeply understand the cultural connotations contained in the text, and gradually build a comprehensive literacy of cross-cultural communication.

At the level of student development, the platform's text deconstruction, intelligent Q&A, and knowledge sorting functions have effectively changed the rigid mode of passive knowledge reception for learners, guiding them to actively read texts, explore problems independently, and systematically integrate learned content. The subsequent addition of vocabulary flashcards and intelligent self-test functions on the platform has further improved the support system for self-directed learning, helping learners form stable reading and study habits, and also building a sustainable development path for long-term self-directed learning of Chinese [9].

6. The Practical Challenges and Optimization Strategies of NotebookLM Applications

Consequently, with the shift of digital transformation of international Chinese education, intelligent tools have become part of normal aids when it comes to teaching students how to read. NotebookLM has all its features but still remains to demonstrate strong boundaries in the real-class setting due to its technical nature and poor compatibility with the Chinese teaching environment. The tool will be most useful in classroom teaching if and only when it is improved according to the real needs of teaching.

Although it is based primarily on English training data, the model encounters problems when trying to analyze language in Chinese with cultural connotations such as classical writings, folk sayings, and regional words. This is due to the fact that such expressions have profound cultural implications that the system cannot comprehend, and it becomes difficult to satisfy the two objectives of language learning and cultural understanding in the reading classes [10]. Most modern Chinese reading materials incorporate texts, pictures and tables but the model can only identify simple characters and not retrieve information in charts or pictures. Practically, teachers are able to check and modify the output of the tool, add additional cultural clarifications, and use multimedia content to eliminate such technical constraints.

There are significant differences between overseas Chinese teachers in their digital literacy, and most of them have not learned to perform the fundamental tasks that are required every day during the lesson. Those with less than sufficient digital experience or older learners also clearly struggle with

the tool. Educational institutions and schools may organize frequent training, reduce the level of difficulty in its operation, and offer precise instructions to facilitate the process of using the tool by teachers and students.

An over reliance on automatically generated explanations and summaries could negatively impact the will of students to read on their own, think critically and make an in-depth analysis. Online storage of teaching resources is also associated with possible privacy threats, hence more strict control of sensitive teaching materials is required. The instrument ought to be considered as an addition only: there should be an incentive of reading on your own prior to seeking assistance at automation tools [11]. Such a corpus can also be developed by the field to enhance the performance of the model. Similar initiatives have been implemented by Overseas Confucius Institutes that provide valuable materials in digital Chinese teaching across the world.

7. Conclusion

This research is based on the social roles of NotebookLM and genuine learning settings in international Chinese language reading lessons to review critically the flexibility of the tool, implementation methods, usefulness, and weaknesses. This discussion will be based on factual teaching situations and real-life performance of the tools with no hypothetical scenarios or fabricated information. Its focus is on the usage of intelligent tools in Chinese reading instruction, its structure is unified, its reasoning is sound, and it has fluent paragraph-to-paragraph flow.

NotebookLM has four main functions namely text analysis, source verification, multilingual support and structured summarization which are well adapted to solve the typical instructional issues in international Chinese reading classrooms. The tool saves time on text processing and lesson planning by instructors facilitating personalized instruction, removing reading barriers faced by overseas students helping the latter acquire disciplined reading skills and independency in their learning process as well as promoting the transfer of Chinese culture to the classroom.

Although NotebookLM is practical it has still got limitations such as inability to comprehend culturally unique Chinese statements, unequal access to digital literacy of outside instructors, as well as the threat of excessive learner dependence. The solutions to these problems are instructor pre-review, consistent skills training, the proper supplementary position of the tool, and the creation of a shared dedicated reading resource library. In future studies, the integration of the multimedia and online platforms can be explored, the development of more specific applications of the learners of different languages and proficiency levels can

be designed, and the current instructional models can be enhanced so that intellectual instruments could be of greater support in the long-term-high-quality development of the international Chinese reading instruction.

References

- [1] Yang, G., Xuesong, G., & Boning, L. (2020). Teaching Chinese as a second or foreign language to non-Chinese learners in China's mainland (2014–2018). *Language teaching*, 53 (1), 44-62.
- [2] Hsiao, J. C., & Chang, J. S. (2024). Enhancing EFL reading and writing through AI-powered tools: design, implementation, and evaluation of an online course. *Interactive Learning Environments*, 32(9), 4934-4949.
- [3] Cheng, M., Luo, Y., Ouyang, J., Liu, Q., Liu, H., Li, L., ... & Chen, E. (2025). A survey on knowledge-oriented retrieval-augmented generation. arXiv preprint arXiv:2503.10677.
- [4] Lo, C. K., Yu, P. L. H., Xu, S., Ng, D. T. K., & Jong, M. S. Y. (2024). Exploring the application of ChatGPT in ESL/EFL education and related research issues: A systematic review of empirical studies. *Smart Learning Environments*, 11(1), 50.
- [5] Shafiee Rad, H. (2025). Reinforcing L2 reading comprehension through artificial intelligence intervention: refining engagement to foster self-regulated learning. *Smart Learning Environments*, 12(1), 23.
- [6] Kundu, A., & Bej, T. (2025). Transforming EFL teaching with AI: A systematic review of empirical studies. *International Journal of Artificial Intelligence in Education*, 35(4), 2281-2314.
- [7] Sanz-Tejeda, A., Domínguez-Oller, J. C., Baldaquí-Escandell, J. M., Gómez-Díaz, R., & García-Rodríguez, A. (2025). The impact of generative AI on academic reading and writing: a synthesis of recent evidence (2023–2025). In *Frontiers in Education* (Vol. 10, p. 1711718). Frontiers Media SA.
- [8] Prather, J., Leinonen, J., Kiesler, N., Gorson Benario, J., Lau, S., MacNeil, S., ... & Zingaro, D. (2025). Beyond the hype: A comprehensive review of current trends in generative ai research, teaching practices, and tools. *2024 Working Group Reports on Innovation and Technology in Computer Science Education*, 300-338.
- [9] Chen, C., & Gong, Y. (2025). The role of AI-assisted learning in academic writing: A mixed-methods study on Chinese as a second language students. *Education Sciences*, 15(2), 141.
- [10] Shan, X., Xu, Y., Wang, Y., Lin, Y. S., & Bao, Y. (2024, June). Cross-cultural implications of large language models: An extended comparative analysis. In *International Conference on Human-Computer Interaction* (pp. 106-118). Cham: Springer Nature Switzerland.
- [11] Yavich, R. (2025). Will the use of AI undermine students independent thinking?. *Education Sciences*, 15(6), 669.