

AI-Enabled Teaching Design and Implementation of Junior High School English Reading Teaching

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Abstract

Taking junior high school English reading classroom teaching as the research object, this paper explores optimization strategies for large language models to empower English reading teaching design, classroom implementation and teaching evaluation. Supported constructivist learning theory, the English Learning Activity View and AI-assisted language learning theory, this study systematically sorts out the implementation paths of the DeepSeek intelligent model in four dimensions: in-depth discourse interpretation, step-by-step activity design, optimization of students' language output, and whole-process formative assessment. With a typical reading lesson excerpt from Grade 7 Volume 2 (People's Education Press edition) as an example, it elaborates on the concrete methods of integrating an AI teaching assistant into the entire teaching procedure. While leveraging the strengths of intelligent technology, the design retains teachers' leading role in class and avoids tool abuse and students' technological over-reliance. Furthermore, this paper reflects on existing deficiencies in the integrated application of AI in English teaching, proposes optimization strategies for classroom practice and directions for follow-up research, and provides theoretical support and operable paradigms for frontline primary and secondary school English teachers to carry out intelligent information-based reading instruction.

Keywords

Artificial Intelligence, Junior High School English, Reading Teaching

1. Introduction

Digital artificial intelligence (AI) technologies have thoroughly penetrated basic education. Lightweight educational large language models represented by DeepSeek

have become core auxiliary tools for foreign language classroom teaching reform in primary and secondary schools, owing to their core capabilities including natural language generation, real-time human-computer interaction, intelligent learning situation diagnosis and personalized resource delivery. The *Compulsory Education English Curriculum Standards (2022 Edition)* (Ministry of Education of the People's Republic of China, 2022) explicitly advocates the in-depth integration of information technology and English teaching.

Recent research on informatization in foreign language education indicates that large language models can break the limitations of time and space, classroom interaction and differentiated instruction inherent to traditional English classes, restructure the whole workflow of reading teaching including lesson preparation, classroom delivery, assessment and consolidation, and renovate the traditional teacher-student interaction modes. In junior high school English reading classes, prevalent practical problems remain: superficial discourse interpretation, homogenized activity design, difficulties in supporting underachieving students, delayed classroom assessment, and separation between reading and writing instruction. Drawing on big data corpora, intelligent AI tools can build immersive communicative scenarios, design differentiated learning scaffolds and deliver instant feedback on learning performance. They comprehensively improve students' language acquisition experience and facilitate the cultivation of key competencies of the English subject. Following the research logic of "theoretical foundation establishment-strategy summarization-lesson case verification-reflection and prospect", this study constructs a theoretical framework for AI-enabled teaching based on three core theories and summarizes four operable classroom implementation strategies. It verifies the teaching design and execution with an authentic reading lesson from Grade 7 Volume 2, analyzes the limitations of AI application in teaching, and puts forward optimization approaches and future research directions. The bidirectional empowerment of theoretical research and classroom practice helps frontline English teachers transform and upgrade their teaching design in the AI era.

This study chooses DeepSeek lightweight educational large language model for two core reasons. First, it has localized Chinese-English bilingual corpus adaptation, matching the vocabulary, discourse style and teaching scenarios of domestic junior high school English textbooks; second, it opens lightweight classroom auxiliary functions including text parsing, automatic task generation and real-time formative scoring without high hardware threshold, which fits the basic education classroom equipment conditions in most regions of China. The mapping logic between its core functions and the four teaching strategies is as follows: text analysis function corresponds to in-depth discourse interpretation; scenario and task generation function corresponds to differentiated classroom activity design; grammar correction and expression polishing function corresponds to bidirectional language output optimization; built-in multi-dimensional scoring rubric and personalized exercise generation function matches whole-process formative assessment.

2. Theoretical Foundations of AI-Enabled English Teaching

2.1. AI-Assisted Language Learning Theory

Computer-Assisted Language Learning (CALL) has undergone multiple iterations and evolved into an indispensable component of modern foreign language teaching systems. Numerous empirical studies have proven that foreign language classes supported by intelligent technologies effectively reduce barriers to language acquisition and boost teaching efficiency. Unlike traditional multimedia teaching tools, large language models such as DeepSeek integrate multiple functions: information retrieval, contextual paraphrasing, human-computer dialogue, text revision and intelligent assessment. They undertake four distinct teaching roles in English classes: discourse content provider, immersive oral dialogue partner, teacher's lesson-preparation assistant and multi-dimensional learning evaluator. Tailored to differentiated language learning needs, the model supplements cultural background information of texts and constructs cross-cultural communication scenarios, as well as delivers graded learning resources according to individual student performance to meet the demands of differentiated instruction. Meanwhile, AI-assisted language learning adheres to the core principle that "technology serves teaching and tools empower education". Teachers need to dialectically define the boundaries of technology application, balance the merits of intelligent tools against potential risks including information bias and student reliance, and prioritize the coordinated development of students' linguistic competence and thinking quality.

2.2. Constructivist Learning Theory

Constructivist learning theory holds that knowledge is not unilaterally instilled by teachers, but reconstructed and internalized autonomously by learners through classroom interaction and situational practice based on their prior cognitive experience. Modern classroom teaching must adhere to the student-centered philosophy. Equipped with massive standardized English teaching corpora and real-time interactive feedback mechanisms, the DeepSeek large language model provides instant hints and learning scaffolds for students to memorize new words, analyze discourse, revise compositions and correct exercises, which aligns closely with constructivist scaffolding instruction and inquiry-based teaching concepts. In practice, teachers build gradient learning scaffolds with AI to guide students to conduct independent reading inquiry. Meanwhile, they train students to identify content generated by AI and judge information authenticity rationally, enabling thorough knowledge internalization and high-quality autonomous inquiry learning.

2.3. English Learning Activity View

Proposed in the revised senior high school English curriculum standards, the English Learning Activity View requires teachers to design comprehensive, relevant and practical three-tier classroom activities centering on unit thematic contexts.

Progressive activities covering comprehension, application & practice, and transfer & innovation are adopted to cultivate students' key subject competencies (Ministry of Education of the People's Republic of China, 2022). Emphasizing immersive language practice, real-life scenario transfer and higher-order thinking training, this theory highly matches AI's functions of scenario construction, task generation and extended transfer. Guided by this view, AI generates personalized inquiry questions, scaffolds for in-depth text analysis and simulated real-life communicative tasks around unit themes, helping students dig into the core ideas of reading passages. Furthermore, intelligent tools build interdisciplinary and real-world language practice scenarios, break the barriers separating reading input, oral retelling and written composition, and support students' knowledge internalization, language transfer and innovation, complying with the requirements of reading teaching reform stipulated in the new curriculum standards.

3. Core Strategies for AI-Enabled English Reading Teaching

Built on the three aforementioned theories and the complete structure of junior high English reading classes covering lesson preparation, instruction, output and assessment, four practical AI-enabled reading teaching strategies are summarized to form an integrated intelligent teaching system of "text interpretation-activity design-language output-closed-loop assessment".

3.1. Strategy 1: AI-Enabled In-Depth Text Interpretation

AI provides diverse discourse interpretation scaffolds both for teachers' lesson preparation and students' independent study, including supplementary thematic background, paragraph main idea extraction, complex sentence parsing, stylistic structure analysis and excavation of emotional connotations. It addresses the problems of superficial text interpretation and time-consuming key & difficult point analysis in traditional classes. In class, teachers design question chains aligned with unit teaching objectives and ask students to compare their self-study outcomes with AI-generated interpretations in terms of text logic, core viewpoints and sentence explanations. On one hand, AI rapidly generates text summaries, stylistic frameworks and thematic cultural backgrounds, helping underachieving students sort out text clues and broadening the breadth and depth of text analysis for all learners. On the other hand, comparisons between multiple interpretation versions train students to detect AI information errors and grasp core text logic, fostering critical thinking (Wen & Liang, 2024). In general, lightweight AI facilitates differentiated text study, adapts to varied learning levels and greatly improves the efficiency of discourse analysis sessions.

3.2. Strategy 2: AI-Enabled Classroom Task & Activity Design

Based on text themes and junior high students' learning characteristics, AI constructs authentic real-life communicative scenarios and diversified classroom tasks, optimizing the three-stage pre-reading, while-reading and post-reading ac-

tivity framework. Leveraging human-computer dialogue generation, AI flexibly switches roles: research companion, farm worker, on-site Q&A assistant or oral review partner, supporting diverse activities including prediction & inquiry, group cooperation, role-play and text retelling in reading classes. Different from fixed traditional classroom interaction, AI dynamically adjusts dialogue content according to students' real-time oral responses and answers, enhancing the randomness and authenticity of interaction and motivating student participation. At the end of activities, teachers organize peer evaluation on human-AI interaction performance to assess linguistic appropriateness and information validity, consolidating students' language application ability and evaluative critical thinking and practicing the foreign language teaching philosophy of "learning by doing and using".

3.3. Strategy 3: AI-Enabled Bidirectional Language Output Optimization

Capable of grammar error correction, sentence polishing and expression upgrading, AI acts as a dedicated language coach for students' oral and written output and comprehensively improves the quality of post-reading language production. For oral output, AI instantly checks grammatical accuracy and coherence in text retelling and opinion sharing, correcting errors in tense, vocabulary and sentence structure in real time. For written output (e.g., diary writing extended from reading tasks), AI revises grammar mistakes, upgrades word choice and optimizes sentence patterns, and provides multiple authentic expression samples. This strategy delivers remarkable support for students with weak English foundations and low confidence in oral expression. Meanwhile, teachers guide standardized AI usage, prohibit full-text copying and excessive reliance, and cultivate students' ability to evaluate AI revision suggestions and polish their language output independently.

3.4. Strategy 4: AI-Enabled Whole-Process Formative Assessment

Embedded throughout classroom procedures, AI remedies the drawbacks of summative assessment in traditional reading classes and realizes instant, personalized and closed-loop formative assessment, fulfilling the teaching philosophy of promoting learning and instruction via assessment. In conventional reading classes, teachers struggle to attend to the whole class; exercise marking, oral comments and writing feedback are delayed, making differentiated assessment hard to implement. With built-in assessment rubrics, DeepSeek quickly marks classroom exercises, scores oral retelling and delivers multi-dimensional feedback on compositions, alongside personalized strength analysis and targeted improvement suggestions. In addition, it automatically generates customized consolidation exercises and error review outlines based on class-wide learning data, forming a closed teaching loop of "assessment-diagnosis-consolidation". Teachers conduct secondary review of AI assessment results and add humanized comments, balancing assessment efficiency and human care, reducing marking workload and freeing

up time for personalized tutoring (Li, 2023).

4. Case Study: Design and Implementation of AI-Enabled Reading Teaching

This paper selects the integrated reading & writing lesson A Day to Remember (Section B 1a–1d) from Unit 7, Grade 7 Volume 2 (People's Education Press New English Textbook) as the empirical case. The four teaching strategies above are implemented with DeepSeek, demonstrating the complete practical workflow of AI-enabled junior high English reading instruction.

Supplementary explanation of case development process: First, the text selection basis—this diary-style reading-writing integrated unit matches Grade 7 learners' cognitive level, contains core grammar points of simple past tense, and carries labor education connotation, which is highly consistent with the curriculum standard requirements of reading teaching integrating language ability and moral education; second, student profile setting—the learner characteristics summarized in Section 4.1.2 are generalized from the common learning status of Grade 7 second-semester students in ordinary junior high schools, based on the author's long-term frontline English teaching observation; third, AI output verification link—all DeepSeek generated scaffolds, exercises and dialogue scripts in this lesson plan are manually reviewed and revised by the author (a professional English teacher) to eliminate inaccurate expressions, super-level vocabulary and biased logical guidance, ensuring all AI auxiliary materials fit the textbook teaching objectives and students' learning level.

4.1. Text Overview and Teaching Objectives

4.1.1. Text Overview

This core integrated pre-reading & while-reading lesson centers on the unit theme What makes a day special? and connects to the diary writing task (2a–2b) in the follow-up section. Featuring Sam's field study diary on a farm, the text matches junior high students' life experience and meets the interdisciplinary labor education requirements specified in the new curriculum standards. As a standard narrative practical English writing piece, the diary follows an explicit chronological timeline divided into three parts: morning, afternoon and after dinner, recording a series of farm work including greenhouse visits, fruit & vegetable picking, crop watering and branch pruning. The language level fits Grade 7 learners and unit topics. Stylistically, it strictly follows standard English diary conventions: dated entry, first-person narration and consistent simple past tense, featuring core irregular past-tense verbs from the unit such as went, picked, watered, which target the key grammar points of the unit. Thematically, the dual keywords tiring and fun interweave objective farm work records and subjective emotional expressions, highlighting the core message that farm labor is arduous, food is hard-earned and harvests are precious. Pedagogically, the farm work scenario delivers labor education and food conservation awareness, fulfilling the fundamental task of fostering virtue through education. The textbook exercises form a closed-loop progressive

task chain: 1a pre-reading pair discussion exploring the value of diary writing; 1b skimming to extract main ideas; 1c close reading sorting out the timeline to consolidate tense and narrative clues; 1d intensive reading for detail extraction, emotional analysis and opinion transfer & critical thinking training. Stylistic and linguistic writing scaffolds are simultaneously provided to achieve reading-to-write integration. Key and difficult points of this lesson: mastering diary stylistic features, sorting out chronological narrative logic, excavating the educational connotation of the text, internalizing the simple past tense, and completing critical expression and transfer writing of field study diaries.

4.1.2. Student Analysis

The learners are Grade 7 second-semester students with existing prior knowledge: basic inflections of the simple past tense, elementary vocabulary for school trips and preliminary familiarity with the basic format of English diaries. Four prominent teaching challenges exist:

- 1) Weak ability to summarize stylistic rules, unable to independently identify the three core elements of diaries (date, person and tense);
- 2) A large number of farm-themed new words pose obstacles to contextual memorization;
- 3) Strong capability to extract surface details but insufficient higher-order thinking skills including main idea generalization and opinion transfer;
- 4) Disconnect between reading and writing, unable to build personalized writing frameworks based on reading samples. Meanwhile, students at this age are highly willing to interact in class and prefer visualized, interactive intelligent learning materials, making them suitable for AI-enabled differentiated tutoring and instant feedback modes.

4.1.3. Teaching Objectives

Combining the textbook text, class learning conditions, key subject competencies of English and the English Learning Activity View, four competency-oriented teaching objectives are set with the support of DeepSeek:

- 1) Linguistic Competence: Master curriculum-specified new words (record, skill, grain, tent, etc.) and fixed phrases; memorize three core stylistic features of English diaries; summarize single-sentence main ideas via skimming and sort out farm activities along the timeline through close reading; complete imitation writing of a field study diary with classroom language scaffolds.
- 2) Thinking Quality: Sort out chronological text logic with AI to develop structured discourse analysis ability; distinguish objective events and subjective emotions in the text to improve information screening and integration skills; conduct self-evaluation of text viewpoints and connect personal life experience to foster critical thinking and logical expression.
- 3) Cultural Awareness: Perceive the value of farm labor, develop respect for work and awareness of food conservation, and realize disciplinary moral education and interdisciplinary labor education goals.

4) Learning Ability: Master autonomous learning methods including AI-aided new word definition, discourse sorting and composition polishing; rationally evaluate AI-generated information, build a sensible mindset for technology use, avoid over-reliance on AI and develop digital autonomous learning habits.

4.2. Three-Stage AI-Enabled Teaching Procedure

Following the English Learning Activity View, a three-tier activity framework (pre-reading preparation, differentiated while-reading study, post-reading transfer & output) is designed with lightweight DeepSeek integration to resolve traditional pain points such as dull new-word teaching, inefficient discourse analysis, insufficient critical thinking guidance and missing reading-writing scaffolds.

4.2.1. Scenario Introduction: AI-Supported Topic Discussion

DeepSeek generates English graphic materials and standard oral scripts of peer students' field trips to align with the 1a discussion task and new-word instruction.

1) Thematic lead-in: Teachers guide students to recall ways to preserve precious days using original textbook questions. After students output simple phrases, AI provides model sentences with core unit phrases to help them form complete oral expressions.

2) AI targeted new-word instruction: Adopt English contextual definition plus textbook-matched example sentences to avoid direct mother-tongue translation, and generate mind maps to organize related phrase systems.

3) Joint analysis of five core diary elements: AI visually presents a mind map of time-place-event-feeling-harvest. Teachers then guide students to evaluate the suitability of the AI-generated framework and initiate critical thinking on rational AI usage.

4.2.2. Pre-Reading Prediction: Multi-Dimensional AI Materials for Text Forecasting and New-Word Breakthrough

Combining the textbook illustrations with AI-expanded real farm scene images, reading prediction strategies and differentiated new-word teaching are implemented. On one hand, questions based on illustrations guide students to predict text themes, and AI verifies predictions against core text information to reinforce the picture-based prediction reading strategy. On the other hand, for curriculum new words including tent, cucumber, grain, AI delivers integrated teaching with real pictures, British & American pronunciation audios and contextual example sentences, and generates in-class quizzes identical to textbook styles for immediate consolidation, replacing mechanical repetition drills.

4.2.3. Skimming & Generalization: AI-Generated Stylistic Scaffolds for Fast Reading & 1b Main Idea Tasks

AI reduces teachers' lesson-preparation burden and supports students' self-inspection for the two core skimming tasks.

1) Independent stylistic inquiry: After silent reading and answering, DeepSeek summarizes the three stylistic pillars of diaries (Date + First Person + Simple Past

Tense) to match blackboard design and streamline in-class explanation.

2) Main idea summarization: Using the original sentence scaffolds from the textbook, students fill in answers independently and compare their work with standardized AI-generated topic sentences to improve summary competence.

4.2.4. Close Reading & In-Depth Analysis: Differentiated AI Scaffolds for Intensive Reading

AI acts as a learning assistant and logic organizer without altering the original textbook questions:

1) Basic detail Q&A: AI marks the original sentence locations of answers to help underachieving students locate evidence precisely.

2) Timeline support for Task 1c: AI automatically generates chronological blackboard layouts and standard past-tense verb answers, sorting common grammar errors to overcome unit grammar difficulties.

3) Multi-dimensional information integration: AI provides a four-column template (what was seen/heard/done/felt) for students to fill in text details independently.

4) Differentiated support for critical thinking Task 1d: AI offers original text evidence for factual questions, moral interpretation of topic sentences and multiple arguments for open-ended questions, without delivering fixed standard answers, balancing differentiated instruction and critical thinking training.

4.2.5. Post-Reading Output: Graded AI Oral Scaffolds for Text Retelling

Generative AI delivers remarkable advantages in personalized, interactive and contextualized teaching, enabling teachers to implement individualized instruction (Wu, 2023). Aligned with the post-class retelling task, AI provides gradient oral scaffolds for different proficiency levels: basic-level scaffolds supply chronological phrases and core vocabulary to help underachieving students finish short-sentence retelling; advanced-level scaffolds add transition words and sort narrative logic to improve oral fluency. During presentation and evaluation, DeepSeek delivers intelligent comments from three dimensions (tense, logic, vocabulary), complementing teacher assessment and enriching the diversified classroom evaluation system.

4.2.6. Post-Class Closed Loop: AI Customized Differentiated Homework Linked to Writing Tasks

The new curriculum standards emphasize integrated design of teaching, learning and assessment, and the organic combination of formative and summative assessment. Teachers leverage AI marking tools to quickly evaluate summative reading outcomes for higher assessment efficiency and accuracy (Guo et al., 2022). The class concludes with a review of stylistic features, text themes and educational connotations, connecting reading and writing tasks as a complete chain. Differentiated homework is assigned with AI assistance:

- Basic homework (for underachievers): AI generates matching exercises on new words, tenses and timelines to consolidate foundational knowledge.

- Extended writing homework (for all students): Students finish the first draft of the field study diary independently; AI is allowed for grammar correction and sentence polishing, but revision marks and learning reflection logs are required. Full AI-generated compositions are banned to cultivate compliant digital learning literacy.

4.3. Case Summary

This lesson follows a complete teaching chain: Pre-reading prediction-Skimming comprehension-Close reading analysis-Post-reading output-Reading-writing transfer, focusing on four core textbook dimensions: diary style, chronological structure, past-tense grammar and labor education. In terms of AI value, DeepSeek is embedded lightly and appropriately throughout every teaching segment, with no redundant design disconnected from textbooks or student levels, covering the full workflow of lesson preparation, delivery, output, assessment and homework arrangement. For teaching research, this design fits regular classes, open demonstration lessons and research projects, resolving five persistent traditional teaching pain points with AI support. Throughout the lesson, teachers retain their core roles as curriculum designers, guides and regulators, uphold student-centered learning, and train learners to use AI dialectically to avoid technological reliance. Consistent with the progressive logic of the English Learning Activity View specified in the new curriculum standards, the design realizes deep integration of AI assistants, textbook compilation and teacher instruction, balancing practical teaching effects and educational value. It provides a replicable practical model for integrating AI into junior high English reading classes.

5. Conclusion

Large language models powered by artificial intelligence offer new avenues for the reform of junior high school English reading teaching, with irreplaceable strengths in in-depth discourse interpretation, classroom activity design, bidirectional language output and whole-process formative assessment. From the perspective of teaching intermediaries, AI fulfills three classroom mediator functions:

- 1) Cognitive mediator: Delivering learning scaffolds and real-time learning feedback to support students' independent knowledge construction;
- 2) Communicative mediator: Building immersive thematic scenarios to stimulate authentic English expression;
- 3) Assessment mediator: Enabling dynamic formative assessment and autonomous adjustment of individual learning progress.

Nevertheless, challenges remain for AI-enabled basic education classrooms: insufficient empirical classroom research, inconsistent compatibility between intelligent resources and textbooks, prominent risks of student tool reliance, and lack of humanistic care in AI assessment. Frontline educators must adhere to the principle that "technology supports education and student cultivation remains the core", define clear boundaries for AI application and optimize tool usage procedures.

In summary, AI-enabled English teaching design brings both opportunities and challenges to classroom instruction. Amid continuous intelligent technology upgrades, English teachers need to further evolve their professional roles. While improving teaching efficiency and implementing differentiated instruction with AI support, they must stick to classroom education as the fundamental mission, cultivate students' critical digital literacy, key English subject competencies and life-long learning capabilities, and promote high-quality, in-depth integration of intelligent technologies into junior high English classrooms.

Conflicts of Interest

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