

Article

AI-Assisted Design and Implementation of Teaching-Learning-Assessment Integration in Junior High School English

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Abstract: Teaching-learning-assessment integration represents a core educational principle outlined in the 2022 Compulsory Education English Curriculum Standard. Within conventional junior high school English instruction, lesson planning largely depends on teachers' accumulated practical experience. Such subjective decision-making often creates misalignment among instructional objectives, classroom activities, and assessment tasks. Objectives cannot effectively guide classroom practice, learning tasks drift away from intended teaching outcomes, and assessment fails to deliver timely, targeted evidence of student progress. Artificial intelligence opens new practical possibilities to ease these persistent instructional challenges. This study constructs a complete implementation model supported by artificial intelligence, and elaborates its practical operation through a concrete classroom case based on PEP (People's Education Press) junior high English teaching materials implemented in Zhengzhou, Henan Province. With AI-enabled data analysis, instructional planning, multi-dimensional feedback, and adaptive guidance, educators can interpret textbook content in depth, generate objective learner profiles, and obtain actionable teaching suggestions. Human teachers and artificial intelligence function as collaborative partners throughout the whole instructional cycle. Joint efforts support the coherent design of teaching objectives, learning activities and assessment tasks, facilitate the effective achievement of curriculum goals, and foster comprehensive core-competence development among junior high English learners.

Keywords: Teaching-Learning-Assessment Integration, Human-AI Collaboration, Junior High English Instruction, Formative Assessment, Core-Competence Oriented Teaching

Received: 30 August 2026

Revised: 9 September 2026

Accepted: 18 September 2026

Published: 30 September 2026

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1. Introduction

The revised compulsory education English curriculum released in 2022 has formally established teaching-learning-assessment integration as a fundamental guiding principle for subject-based classroom practice. This principle requires that instructional objectives, learning experiences, and assessment practices remain internally consistent across all teaching segments. Its ultimate purpose lies in shifting English classroom focus from isolated knowledge transmission toward systematic cultivation of students' core competencies covering language ability, cultural awareness, thinking quality and learning ability. Nevertheless, widespread gaps remain between theoretical expectations and day-to-day junior high English classroom reality.

Many front-line English teachers still build lesson plans heavily on personal teaching intuition rather than systematic evidence. When analyzing textbook content and learner prerequisites, subjective judgement occupies a dominant position. Consequently, teaching objectives often lack specificity and operability. Classroom activities may deviate from these objectives, creating a gap between instructional delivery and actual student learning. Meanwhile, assessment work tends to exist as an independent segment separated from regular teaching procedures. Summative tests occupy most assessment weight, while formative feedback cannot reach learners in a timely manner. Assessment results fail to provide concrete evidence for adjusting subsequent teaching arrangements. Collectively, these issues prevent core-competence-oriented educational ideas from being fully realized in ordinary classrooms.

The rapid popularization of generative artificial intelligence brings transformative resources for English subject teaching. Diverse AI tools can assist educators in text interpretation, learner data diagnosis, instructional material generation, task design and

real-time formative assessment. These technical capacities offer feasible pathways to narrow the gap among teaching, learning and assessment. Even so, artificial intelligence carries inherent limitations. Outputs may contain factual errors, logical bias and contextual misjudgement. Technical tools cannot replace teachers' professional pedagogical reasoning. Human educators must retain dominant decision-making authority and pursue balanced human-AI collaborative instruction.

Against this contextual background, the present study selects Unit 6 from PEP(People's Education Press) Grade 7 English textbooks as a practical case. This particular unit segment integrates listening, speaking, reading, viewing and writing training around the theme of natural landscapes. It serves as a suitable carrier to examine integrated instructional design. This research constructs an operational model for AI-supported teaching-learning-assessment integration. It systematically demonstrates the full implementation workflow covering curriculum requirement analysis, textbook interpretation, learner condition diagnosis, coherent objective-activity-assessment design and in-class execution. This paper further discusses practical constraints, potential risks and corresponding operational recommendations for AI adoption within junior high English contexts. It aims to provide referable practical insights for front-line English educators seeking to combine generative AI with curriculum-based integrated instruction.

This study adopts a design-based research methodology, taking Grade-7 students from an urban junior high school in Zhengzhou, Henan Province as the research case. The case was selected based on three criteria:

(1) The school represented a typical urban public junior high school in central China with standard information-technology infrastructure.

(2) The participating class had a mixed-proficiency student composition commonly found in regular Chinese junior-high English classrooms.

(3) The cooperating teacher had sufficient teaching experience to implement and reflect on an AI-supported instructional design.

The classroom teacher was a female English teacher with 8 years of junior-high English teaching experience, holding a bachelor's degree in English education and having participated in school-level information-technology training programs. Before classroom intervention, questionnaires were distributed to 48 students, and 48 valid responses were collected. The whole teaching case was implemented over three consecutive class hours. Questionnaire data, students' assignment records and classroom performance materials were collected to support learner-situation analysis and model demonstration. This class represented typical urban junior-high English learners with mixed proficiency levels in a central-China context, suitable for piloting the AI-supported teaching-learning-assessment integration model.

2. Literature Review

Globally, scholarly communities have produced abundant research exploring artificial intelligence applications within English as a Foreign Language contexts. Existing empirical literature generally acknowledges the unique strengths of AI-enhanced language teaching while highlighting non-negligible practical constraints, ethical risks and prerequisites for effective implementation. Relevant research can be sorted into several interconnected research strands, including teacher professional development, learner performance outcomes, assessment innovation and human-machine relational positioning.

A stream of studies concentrates on teacher professional growth under AI-enhanced teaching environments. Zhang (2024) carried out lesson-study research built upon China University MOOC (Massive Open Online Courses) resources together with AI-powered flipped teaching and assessment frameworks targeting EFL (English as a Foreign Language) writing courses. Three university English teachers participated in repeated cycles of instructional practice, reflection and revision. Research observations indicated steady improvement in teachers' technological pedagogical content knowledge. Teachers became more competent in selecting and configuring technical tools to serve language teaching philosophies. Student argumentative writing performance achieved measurable improvement, and participants expressed overall positive attitudes toward this blended instructional model. Large-scale questionnaire-driven research further reveals diversified levels of AI literacy among EFL educators. Pan and Wang (2025) developed a multi-dimensional measurement scale covering AI knowledge, tool application, assessment practice, instructional design and AI-related ethics. Their latent profile analysis of 782 Chinese English teachers identified four distinct AI-literacy subgroups. Age and teaching experience showed statistically meaningful connections with teachers' AI-literacy profiles. Many survey respondents reported insufficient institutional support and targeted training opportunities. Sobkowiak (2026) conducted a nationwide investigation among Polish EFL practitioners. Survey data confirmed relatively frequent AI usage for teaching-material creation and language practice exercises. By contrast, adoption rates remained limited for assessment-related and administrative work. Participating teachers recognized AI instructional potential yet worried about academic integrity risks and insufficient personal preparation for technical integration.

Empirical research has generated concrete evidence regarding AI influences on different dimensions of learner language performance. Vocabulary learning constitutes one well-researched field. Wang et al. (2024) collected data from university-level EFL student groups using AI-driven language-learning platforms and mobile testing applications. Data analysis demonstrated that AI-

supported learning resources generated positive impacts on vocabulary acquisition efficiency. Combined deployment of mobile self-testing tools alongside in-class evaluation activities produced better learning outcomes. In the domain of oral-skill development, Dai et al. (2026) adopted partial least-squares structural equation modelling and fuzzy-set qualitative comparative analysis to examine AI-augmented online assessment among vocational-college EFL learners. Statistical results showed that AI-enhanced assessment exerted only modest direct effects on learners' self-perceived speaking competence. Its major influence operated indirectly by elevating student learning motivation and classroom engagement. Motivation functioned as the core mediating variable determining high-level speaking performance. Susoy (2026) implemented mixed-methods research comparing AI-chatbot-facilitated speaking assessment and human-led oral examinations. Research findings suggested that AI-mediated assessment could weaken the negative correlation between speaking anxiety and test achievement. Learners with higher digital literacy obtained more benefits from AI-driven assessment scenarios. Concerning written-work evaluation, Almegren et al. (2025) compared scoring outputs and feedback quality between AI tools and human raters on EFL student essays. AI systems generated more detailed feedback entries across content, vocabulary, organization and accuracy dimensions. Meanwhile, AI tended to assign slightly lower overall scores compared with human evaluators.

Multiple qualitative studies focus on appropriate human-machine relationships within AI-infused language classrooms. Wang and Dai (2025) applied expectancy value theory to interpret semi-structured interview data collected from thirty Chinese EFL teachers. Interviewees acknowledged that generative AI could reduce lesson-preparation burden, diversify instructional materials and support differentiated learning arrangements. Even so, teachers stressed that human professional judgement remained irreplaceable for screening AI-produced content and matching technical resources with curriculum objectives. Babanoglu et al. (2025) investigated pre-service EFL teachers' visions for AI-assisted language education. Research participants widely endorsed a human-centered AI positioning. They held the viewpoint that artificial intelligence should play auxiliary roles rather than take over teaching responsibilities. Bengrait (2026) pointed out differentiated user capacities among EFL learners when interacting with large-language-model outputs. Learners with higher language proficiency could conduct critical inspection of AI-generated content. Learners at lower proficiency levels frequently accepted AI texts without fact-checking or logical scrutiny. This outcome highlights the necessity of explicit instruction targeting student AI literacy and critical-thinking capacities.

Domestic Chinese educational research concentrates on teaching-learning-assessment consistency under the 2022 compulsory-education English curriculum framework. Li (2025) pointed out three major bottlenecks restricting integrated practice within junior high English classrooms. Subjective experience-driven target setting reduces instructional precision. Disconnection exists between learning activities and pre-established objectives. Assessment cannot supply timely, multi-faceted evidence for core-competence development. Generative AI possesses obvious strengths in text parsing, learner-data processing, assessment-task generation and instant feedback provision. Nevertheless, AI outputs contain unavoidable factual and interpretive errors. Teachers must maintain rigorous review procedures for AI-produced materials. Human-AI collaborative practice instead of unconditional technical reliance represents the reasonable path forward for integrated English instruction.

Synthesizing existing literature, current research has verified AI's instructional potential for EFL contexts. Still, gaps remain. Many empirical studies target university-level participants. Practical case studies centering on junior high school classrooms are relatively limited. Few studies offer a complete, replicable workflow demonstrating how AI participates in the full chain of teaching-learning-assessment integration from curriculum analysis to classroom implementation. This study fills part of this research gap through a detailed junior-high English case practice.

3. Theoretical Background and Functional Advantages of AI-Supported Teaching-Learning-Assessment Integration

Teaching-learning-assessment integration describes the organic unification of three core components within a complete instructional cycle: teacher instructional practice, student learning engagement and learning-outcome assessment. All three components must align around shared educational objectives. Teaching activities create learning conditions for students. Student learning constitutes the central object of classroom practice. Assessment undertakes dual functions of diagnosing learning status and adjusting teaching arrangements. Assessment is not merely a terminal checking procedure. It runs through the whole teaching process and serves to promote both teaching quality and student learning progress.

Traditional junior high English classrooms face multiple practical obstacles when attempting to implement teaching-learning-assessment integration. First, textbook interpretation and learner analysis rely heavily on teachers' personal experience. Without systematic objective data support, formulated teaching objectives tend to be too general. Objectives lack concrete behavioural indicators and cannot deliver clear guidance for subsequent activity design. Second, learning activities may drift away from preset teaching objectives. Classroom tasks focus on superficial form, such as game-based interaction. Actual learning practice fails to help students achieve expected competence growth. This creates the well-documented phenomenon where teaching objectives be-

come practically hollow. Key and difficult knowledge points cannot achieve effective breakthroughs within class time. Third, assessment practices cannot match curriculum standards and teaching objectives. Many teachers depend on periodic written tests as major assessment channels. Formative assessment tools are underutilized. Assessment feedback arrives slowly and remains oversimplified. Feedback content cannot offer individualized suggestions for different learner groups. Assessment validity and reliability decrease accordingly. Under such conditions, teaching objectives, learning activities and assessment tasks become mutually disconnected. This situation constrains core-competence development and blocks overall classroom-quality improvement.

The 2022 Compulsory Education English Curriculum Standard explicitly advocates deeper integration between information technology and English curriculum practice. Artificial intelligence technology provides powerful technical support to resolve the above-mentioned instructional dilemmas. AI can supply educators with richer, more accurate language knowledge resources and instructional materials. It expands assessment possibilities toward greater flexibility and personalization. It delivers abundant feedback resources and adaptive learning guidance for individual learners. For these reasons, AI represents a valuable tool to lift English teaching effectiveness. Multiple domestic generative-AI platforms, including DeepSeek, Tencent Yuanbao and Doubao exhibit differentiated functional strengths. DeepSeek demonstrates solid logical reasoning capacities. Tencent Yuanbao performs well in multi-modal information processing. Doubao possesses outstanding image-generation and conversational-simulation capabilities. These platforms show distinctive value for junior high English instructional design and classroom delivery. Three core functional advantages of AI supporting teaching-learning-assessment integration can be elaborated as follows.

First, artificial intelligence supports refined text analysis and multi-dimensional learner diagnosis, so as to realize strong alignment between teaching arrangements and student learning reality. AI tools can rapidly parse long reading passages, identify core language points, grammatical structures and implicit thematic meanings. When combined with student historical assignment records, questionnaire data and exercise performance, AI can generate structured learner-condition reports. These reports cover cognitive characteristics, knowledge-mastering gaps, learning-habit features and learner interest preferences. Drawing on objective analytical outputs, teachers can formulate teaching objectives adapted to real-world student proficiency levels. Instructional activities built upon such precise objectives possess higher probability of generating positive learning outcomes.

Second, artificial intelligence facilitates interactive learning practice and real-time effect evaluation, achieving internal consistency between student learning procedures and assessment mechanisms. AI technology can construct simulated authentic language-use contexts. It generates adaptive personalized practice tasks and detects learner errors immediately during practice processes. AI systems continuously track student behavioural data. Based on recorded performance patterns, AI adjusts task difficulty and content composition dynamically for individual learners. Real-time evaluation modules keep complete learning logs and put forward targeted learning-strategy recommendations. Students receive instant signals about their own strengths and deficiencies, so they can adjust learning approaches without waiting for delayed teacher feedback.

Third, artificial intelligence enables timely, individualized assessment feedback and accurate teaching-effect inspection, promoting consistency between assessment outputs and teaching adjustment. Automatic scoring and instant feedback mechanisms reduce repetitive marking workload for teachers and improve overall instructional efficiency. Multi-dimensional assessment functions of AI go far beyond simple knowledge-point checking. They synthesize learner performance across language application, logical expression and other dimensions. Teachers can quickly identify widespread student misunderstandings revealed by analytical results. Based on such evidence, teachers modify teaching rhythms, supplement scaffolding resources and adjust task difficulty to guarantee the realization of planned teaching objectives.

The teaching case adopted within this research comes from a theme-based comprehensive section of PEP Grade-7 English textbooks. This concluding unit segment integrates listening, speaking, reading, viewing and writing skill training. The instructional design guides students to experience, internalize, consolidate and flexibly apply theme-related linguistic resources in given situational contexts. Centered on the theme Beautiful Chinese Landscapes, the unit introduces famous natural and cultural scenic spots, including well-known sites in Henan Province. The teaching material carries dual educational values: fostering students' comprehensive language competence and shaping cultural awareness toward local and national heritage.

4. Design Framework of AI-Assisted Teaching-Learning-Assessment Integration for Junior High English

The AI-supported teaching-learning-assessment integration design model takes curriculum-standard concepts as fundamental guidance. Comprehensive textbook interpretation and systematic learner-situation analysis constitute essential preconditions. Teaching objectives occupy the core and soul position of the whole model. Assessment undertakes dual roles. It verifies the degree of objective achievement. Meanwhile, it provides important reference standards for designing subsequent learning activities. Learning activities cover both teacher-led instructional behaviours and student-centered learning practices. Teachers deploy diversified instructional strategies to guide students toward objective completion. Students engage in varied learning tasks to strive for preset competence goals. Within this holistic framework, artificial intelligence assumes four distinct functional roles: data analyst, teaching

planner, assessment participant and learning guide. Each role undertakes corresponding partial work, while human teachers maintain overall control over the complete design workflow. Detailed design procedures are unfolded in the following subsections.

4.1. Sort Out Requirements From Official Curriculum Documents

Academic quality standards in compulsory-education curriculum represent staged, concrete descriptions of subject core competencies. They translate abstract core-competence concepts into observable student performance standards at different grade bands. This instructional case targets Grade 7-9 level academic-quality requirements. Given that the Integration section emphasizes comprehensive integrated-skill training, educators need to extract concrete requirement items for language skills and learning strategies from curriculum documents. For instance, students are expected to understand main ideas and extract key information from multi-modal materials such as radio-broadcast tourism advertisements. They should employ auxiliary tools including tables and mind maps to sort information within written texts and comprehend overall textual meanings. Students need to produce short coherent passages introducing Chinese and foreign cultural and natural heritage sites. In addition, curriculum standards require learners to actively participate in classroom group interactions, discuss thematic topics with peers and cooperatively finish assigned learning tasks. Thorough comprehension of curriculum-standard requirements prevents instructional design from deviating from curriculum orientation. It lays solid foundations for developing appropriate teaching objectives, assessment tasks and learning activities that promote students' key subject abilities.

4.2. Interpret Textbook Content

Textbooks function as core curriculum resources and essential carriers for fostering student core competencies. Careful, multi-angle interpretation of textbook texts forms the logical starting point of high-quality lesson planning. AI tools possess strong processing capacity for multi-modal teaching materials. They can extract core knowledge points, construct internal knowledge frameworks, identify corresponding core-competence dimensions and assess relative text difficulty levels. These technical capacities greatly optimize textbook-analysis efficiency. Even so, AI-generated analysis outcomes still need careful human professional review.

The thematic unit revolves around Beautiful landscapes. The Integration module selects Chinese unique landform resources as core content. Through interconnected reading, listening, dialogue simulation and writing tasks, students recognize and describe distinctive natural landforms. Textbook content is intended to cultivate learners' aesthetic appreciation toward natural scenery and form positive recognition of value embedded within human-natural heritage. After reading original textbook materials alongside corresponding curriculum-standard provisions, the teacher inputs these documents into Tencent Yuanbao. The AI generates mapping relationships among textbook sub-tasks and four core-competence dimensions, including language ability, cultural awareness, thinking quality and learning ability.

Reading tasks about Danxia and Yadan landforms exercise students' reading comprehension and information-sorting language competences. The learning process fosters logical-reasoning thinking quality and builds learners' understanding concerning natural-heritage value. Listening tasks built on Yunnan tourism-advertisement materials develop multi-modal listening-comprehension capacity. Task completion requires information classification and comparative analysis operations, while helping students perceive the aesthetic charm of natural landscapes. Imitated dialogue activities centering on travel-intention discussion train appropriate oral expression, cooperative learning behaviours and reasoned personal-opinion presentation. The final writing segment requires students to fill in information tables and imitate sample texts to compose short articles introducing Huangshan Mountain. This task develops text-analysis and structured-writing abilities, encourages creative language expression and undertakes the educational function of spreading Chinese cultural images.

AI can effectively match textbook tasks with grade-band academic-quality benchmarks and output concrete instructional suggestions. Nonetheless, AI interpretive outputs are not completely error-free. In this case, artificial intelligence mistakenly classified information-classification competence under the learning-ability dimension, whereas this competence essentially belongs within the thinking-quality category. This concrete example demonstrates that teachers must conduct rigorous screening of AI analytical results. Educators absorb reasonable analytical insights and revise interpretive mistakes before formal instructional design commences.

4.3. Carry Out Student-Situation Analysis

Student-centered educational philosophy determines that systematic learner-situation analysis constitutes an indispensable design step. Learner-situation analysis contains two major layers. General-dimension analysis covers age-related cognitive developmental traits, learner interests, value attitudes, learning habits and preferred learning styles. Specific-dimension analysis focuses on knowledge prerequisites, existing learning strengths and anticipated learning difficulties directly related to upcoming teaching content. Compared with teachers' isolated experiential judgement, artificial intelligence can aggregate historical assignment data, test

records and questionnaire feedback to produce detailed learner-analysis reports. These reports visualize knowledge-mastery conditions, common learning barriers and learner preference tendencies, providing objective evidence for targeted teaching-objective formulation.

Participants of this instructional case are Grade-7 students from an urban junior high school in Zhengzhou, Henan Province. Before classroom implementation, questionnaires were distributed to all 48 participants to collect data covering student cognitive traits, interest attitudes and subject-related competence status. Questionnaire raw data together with previous assignment performance data were imported into Tencent Yuanbao for integrated AI processing. Analytical outputs show that most participants remain within the transitional stage shifting from concrete thinking patterns toward abstract thinking. Their logical reasoning capacities still require further reinforcement. A large proportion of students achieve better learning effects supported by multimedia resources. Approximately thirty percent of participants demonstrate weak self-directed learning awareness. Only twenty percent of students can produce well-structured long English sentences. More than half of learners encounter comprehension obstacles when confronting complex English sentence structures. Forty percent of students display obvious logical confusion in written output. Fewer than thirty percent of learners master English vocabulary items describing geographical landform concepts. Seventy percent of participants show genuine interest in local natural and cultural heritage resources in Henan Province. Eighty-one percent hold positive attitudes toward cross-subject learning activities. Meanwhile, fifteen percent of students express worries about potential task difficulty brought by new learning content.

Beyond descriptive statistical summaries, AI further puts forward targeted instructional-strategy recommendations. Teachers can adopt short-video clips and three-dimensional virtual demonstration resources to visualize abstract land-formation processes. Term-comparison tables and reusable sentence templates can be designed to deliver necessary linguistic scaffolding. For learners with poor self-management habits, AI-supported self-learning auxiliary tools can be arranged. Students with logical-thinking deficiencies receive enhanced structured-writing training. Guided by such analytical suggestions, the instructor adopted 720-VR panoramic video resources and animation demonstration clips. These materials help students form vivid mental representations of Danxia and Yadan landforms and improve overall classroom engagement levels.

4.4. Design Aligned Goals, Assessment Tasks and Learning Activities

After finishing curriculum-standard sorting, textbook interpretation and learner-condition diagnosis, teachers carry out integrated design of teaching objectives, assessment tasks and classroom-learning activities with auxiliary support from AI tools. Every assessment task and learning activity maintains tight logical correspondence with specified teaching objectives.

The first teaching objective sits within the comprehension cognitive level. Through observation and text analysis, students identify landform characteristic features and corresponding formation conditions. Students organize scattered information into structured knowledge frameworks. Corresponding assessment requirements expect learners to accurately describe landform features and formation causes, and fully complete knowledge-structure charts. Matching classroom activities adopt a picture-and-video-aided lesson introduction. Students complete text reading tasks, summarize core feature information and fill in pre-designed structural charts. DeepSeek cooperates with Xmind to deliver knowledge-sorting functions and cognitive scaffolding support.

The second teaching objective also belongs to comprehension-level requirements. Students capture key detailed information from audio materials, collect scenic-spot-related information, compare distinguishing natural-landscape features and build personal aesthetic perception of natural beauty. Assessment criteria require learners to reasonably predict listening content before audio playback, accurately fill in scenic-spot information tables and clearly articulate unique landscape characteristics. Corresponding listening-stage activities include brainstorming concerning Yunnan natural attractions, pre-listening content prediction, note-taking during audio playback and small-group discussion comparing landscape traits. Doubao provides real-time linguistic support and collaborative-learning assistance.

The third teaching objective targets the practical-application cognitive level. Students deploy previously learned linguistic resources, imitate sample conversational frameworks, conduct theme-focused dialogues with partners and express personal subjective feelings. Assessment standards include appropriate application of target linguistic structures for landscape-themed communication plus reasonable explanation for individual emotional attitudes. Within dialogue-practice segments, students analyze sample dialogue texts and carry out role-play performance activities. Tencent Yuanbao constructs simulated conversational scenarios and delivers real-time skill-training feedback.

The fourth teaching objective focuses on the transfer-and-innovation cognitive level. Students synthesize accumulated vocabulary and sentence-pattern resources. They describe Chinese landform scenery from multiple perspectives, express reverence toward natural environments and complete simple-level cultural-promotion output introducing Chinese mountain landscapes. Assessment standards require student compositions to carry clear titles, rich linguistic expressions, coherent textual organization, distinct landscape-feature depiction and positive value orientation. During writing sessions, students construct personal writing outlines and

finish first-draft manuscripts. Revisions are completed drawing upon AI analytical reports and reference expression examples. DeepSeek undertakes writing-guidance and draft-evaluation functions.

The internal logical correspondence among teaching objectives, learning activities and assessment tasks within this AI-supported instructional model is visualized in Figure 1.

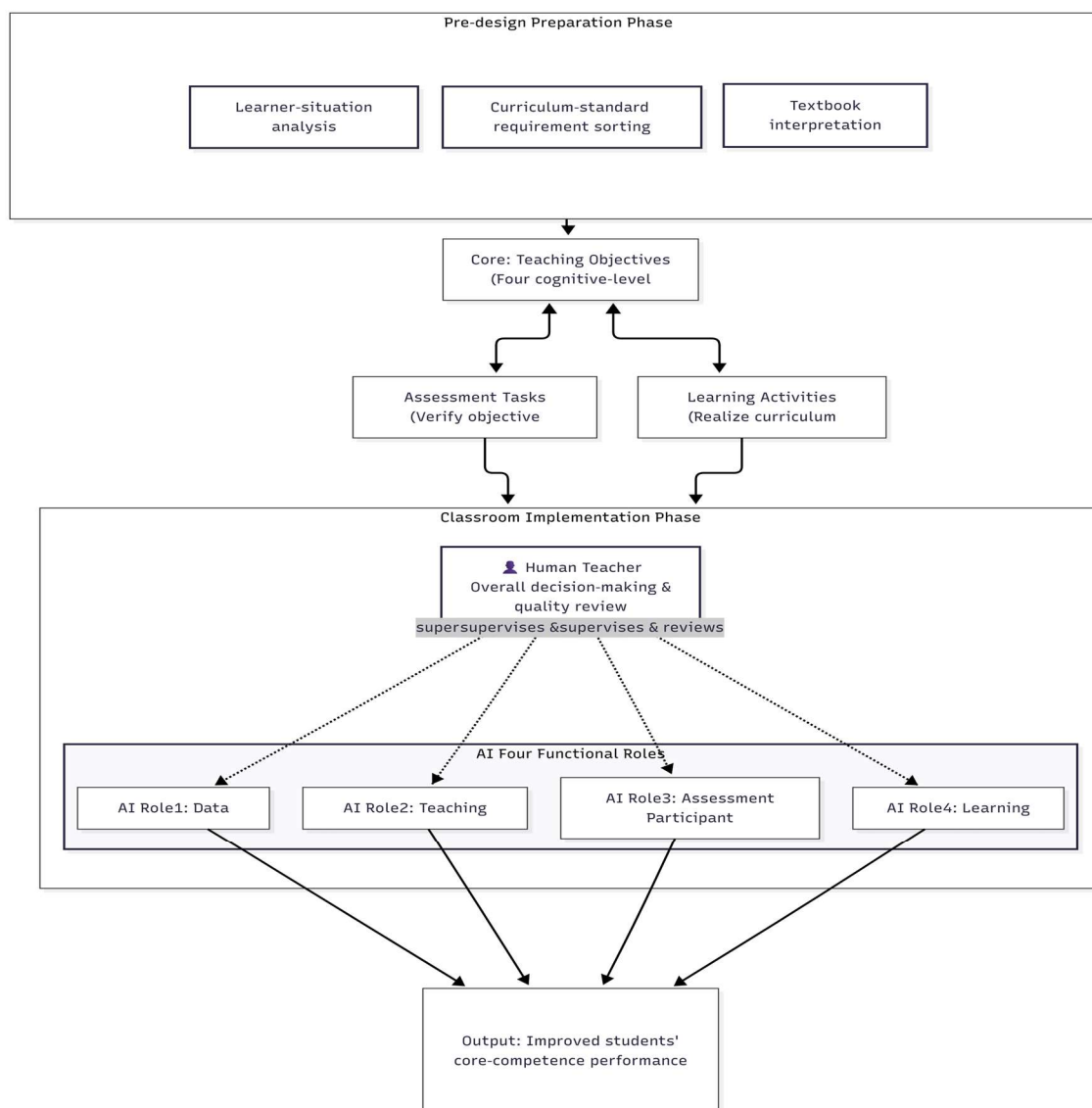


Figure 1. Framework of AI-Assisted Teaching-Learning-Assessment Integration (Goal-Activity-Assessment Alignment)

Source : The author.

5. Implementation of AI-Assisted Teaching-Learning-Assessment Integration

Human-AI collaborative relations run through the whole implementation process of integrated instruction. Teachers integrate AI-generated resources with mature pedagogical concepts. They retain final decision-making authority over all instructional links and accomplish systematic practice of teaching-learning-assessment integration.

5.1. Set Precise Teaching Goals

Accurate, clearly stated teaching objectives constitute the fundamental premise to realize teaching-learning-assessment consistency. Ambiguous or vague objective descriptions will render subsequent assessment and activity design directionless. In this case, the teacher inputs the textbook analysis and learner profiles into DeepSeek. Prompt settings follow core ideas of English learning-activity viewpoints, attach importance to multi-dimensional core-competence growth and adopt measurable action verbs to describe expected student behaviours. AI generates initial objective drafts. Teachers conduct manual revision, adjustment and optimization for these drafts before confirming formal teaching objectives. Generally speaking, AI-produced objective drafts reflect competence-oriented design orientations and provide valuable reference materials. Nevertheless, large-language-model reasoning carries inherent uncertainty. Outputs may contain logical deviations or context-inappropriate expressions. Teachers can adopt two

coping strategies. One strategy is iteratively revising input prompts to improve output quality. The alternative workflow allows teachers to draft preliminary objectives independently and use AI tools for language polishing work. Both approaches effectively lift instructional-design efficiency.

5.2 Design Assessment Tasks in Advance

Following the confirmation of learning objectives, teachers develop matched assessment tasks embedded within classroom procedures. Assessment design should reflect students' inquiry-based learning processes. It ought to realize organic fusion among language development, cultural perception and thinking-quality cultivation. Assessment undertakes the function of measuring objective-achievement status and realizes dual goals of promoting teaching progress and advancing student learning. Assessment-task difficulty must refer back to grade-level academic-quality standards to avoid excessive difficulty or insufficient challenge. The teacher inputs finalized learning objectives plus grade-band academic-quality standards into Tencent Yuanbao, which generates candidate assessment-task alternatives. Different AI platforms deliver differentiated scaffolding support for assessment implementation.

DeepSeek cooperates with Xmind to help students classify complex landform-related feature information and construct mind-map frameworks for systematic knowledge comprehension. Doubao integrates translation and speech-recognition capacities. It helps learners overcome language-expression barriers and improves oral-output accuracy and fluency. Tencent Yuanbao builds simulated role-play communicative contexts. It identifies pronunciation defects and grammatical mistakes in real-time and helps students upgrade practical communicative competence. DeepSeek supplies diversified writing frameworks adapting to learners at varied proficiency levels. It analyzes submitted student compositions and puts forward concrete revision suggestions, promoting the development of learners' reflective-learning capacities.

AI tools improve assessment-design efficiency and deliver personalized feedback resources. Even so, technical assessment cannot fully replace traditional assessment modes. Teachers combine AI-generated assessment data with conventional approaches including classroom observation, in-class questioning and student-work display. Teachers and students collaboratively formulate writing-evaluation rubrics. Students take part in self-assessment and peer-assessment activities. Through such arrangements, learners transform from passive assessment recipients into active participants in evaluation processes. They learn to monitor and regulate their own learning trajectories, acquiring a sense of achievement and self-confidence in the meantime.

5.3. Optimize Learning Activities

After objectives and supporting assessment tasks are established, teachers design corresponding learning activities to create conditions for students to reach preset competence standards. AI provides personalized learning pathways, real-time conversational interaction and continuous learning-data feedback during actual classroom execution. Authentic task-oriented situation construction serves as the starting point of learning-activity design. Situational contexts transform abstract linguistic knowledge into context-embedded usable resources.

Within this instructional case, the teacher constructs a creative historical-crossing situational setting. Ancient Chinese traveller Xu Xiake travels forward into the 21st century and invites students to explore magnificent Chinese natural wonders together. Doubao is used in combination with AI digital human-generation tools to build virtual Xu Xiake character images. Real-time interactive language communication between the virtual character and students becomes achievable. Students experience Xu Xiake's persistent exploratory spirit and establish positive emotional inclinations to appreciate domestic natural landscapes. The teacher quotes excerpted content from *The Travel Diaries of Xu Xiake*. Students compare classical Chinese descriptive expressions with corresponding English textual descriptions in textbooks. For example, comparative analysis is conducted between textbook English sentences and classical Chinese landscape depictions. This comparative activity deepens students' perception of linguistic aesthetic value and exercises critical-thinking dispositions.

AI tools represented by Tencent Yuanbao can automatically generate detailed oral-practice evaluation reports. These reports point out specific defects covering pronunciation, intonation, grammatical structure and lexical selection. They provide standard reference expressions together with operable improvement suggestions. Real-time personalized feedback provides powerful support for in-class activities and formative-assessment implementation. It comprehensively enhances students' integrated-language competence and thinking-quality development.

Measurable classroom outcomes were collected after the three-session instructional intervention, based on student worksheets, written compositions, in-class observation records and short post-class questionnaires (N = 48). In terms of knowledge construction, 85.4 % (41 out of 48) of students fully completed the knowledge-structure charts about landform features and formation conditions, and 12.5 % (6 out of 48) achieved partial completion. Regarding writing output for Chinese landscape introduction tasks, 79.2 % (38 out of 48) could produce coherent short paragraphs with clear topic sentences and basic descriptive details, while 10.4 % (5 out of 48) demonstrated outstanding structural organization and rich vocabulary. Classroom observation records showed that the average

effective on-task participation rate rose from 60.4 % in pre-intervention regular lessons to 81.3 % during this AI-supported teaching case. According to post-class self-report items, 77.1 % (37 out of 48) of students reported increased interest in learning English through landscape-themed materials. It should be noted that these data originate from a single-class exploratory case without a control group. Future multi-group research with pre-post tests and control-group comparison is needed to further validate the causal effectiveness of the proposed model.

6. Conclusion

Continuous advancement of internet technology and artificial-intelligence techniques offers innovative solutions for long-standing practical dilemmas existing within junior high English teaching. The AI-supported teaching-learning-assessment integration model leverages intelligent speech technology capacities to deliver instant formative evaluation. It designs personalized learning pathways grounded in objective student-learning data. Multi-dimensional assessment systems advance comprehensive language-skill development among learners. This model facilitates organic integration of teaching practice, student learning and assessment procedures, pushing core-competence-oriented educational ideas toward grounded classroom practice.

Practitioners need to keep several important principles in mind while deploying artificial-intelligence tools for English instruction. First, sufficient attention should be paid to human-machine complementary relations. Teachers occupy the leading position in overall instructional design. Tool selection must strictly follow teaching-objective requirements. Technical functions ought to achieve deep fusion with subject-specific content. Blind over-reliance on artificial-intelligence outputs should be firmly avoided. Second, teachers must implement strict quality review procedures for AI-generated resources. Only verified reliable materials can enter actual classroom usage to guarantee content accuracy and grade-level appropriateness. Third, value-guidance and cross-cultural-understanding dimensions cannot be overlooked. Educators need to identify implicit bias embedded within AI outputs and consciously cultivate students' critical-thinking capacities.

For school management, three practical recommendations can be drawn from this study. First, AI-assisted English teaching should be incorporated into school-level information technology development planning. Second, schools should organize special teacher training focusing on human-AI collaborative lesson-design competencies. Third, schools need to establish quality-review and approval mechanisms for AI-generated teaching resources before they are applied in real classroom settings.

Differentiated adoption strategies are suggested for schools with varied technical infrastructure. Well-resourced schools may implement the complete AI-supported workflow presented in this paper. For schools with limited technical conditions, teachers may pilot only one or two selected modules, such as AI-assisted textbook interpretation or learner-situation diagnosis, instead of deploying the full set of procedures. Readers should note that this case is based on Grade-7 PEP textbooks in the Zhengzhou urban context. When transferring this model to other grade levels, different textbook editions or inland schools with diverse student profiles, adaptive adjustments should be made according to local curriculum requirements and student characteristics.

Facing continuous technological transformation, front-line English educators need to rationally recognize both functional strengths and inherent limitations of artificial intelligence. Teachers should actively carry out innovative instructional practice, build human-AI integrated new educational ecologies, and promote high-quality development for compulsory-education English subject teaching. This study is limited to a single Grade-7 classroom case. Further multi-case investigations are required to test the generalizability of the proposed AI-supported teaching-learning-assessment integration model.

Funding: This research received no external funding.

Institutional Review Board Statement: Ethical review and approval were waived for this study due to the fact that this research adopted a design-based research in a regular public junior-high English classroom. The study only collected anonymized routine classroom questionnaires, student assignment and classroom performance materials for instructional model demonstration; no sensitive personal identifying information was collected, and all research activities fell within the scope of conventional school-based teaching research.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. All student-related data used in this research were fully anonymized to protect participant privacy.

Data Availability Statement: The raw questionnaire responses, student assignment records and classroom observation materials generated and analysed during this study are not publicly available due to student-related privacy protection restrictions. Derived aggregated statistical results supporting the conclusions of this article are included within this published manuscript.

Acknowledgment: The authors would like to thank the cooperating junior-high-school English teacher and Grade-7 students in Zhengzhou for their participation and support in this classroom-based design-based-research case.

Conflicts of Interest: The authors declare no conflicts of interest.

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