

Designing Interdisciplinary English Learning with Generative AI: A Secondary School Practice

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Abstract:

This paper explores how generative artificial intelligence empowers instructional design for interdisciplinary thematic learning in secondary English education through case studies. Findings indicate that generative AI can support the entire process of instructional design, including precise identification of interdisciplinary integration points in texts, generation of interdisciplinary resources, formulation of learning objectives, and detailed design of teaching activities that embody interdisciplinary thematic learning. To this end, refined prompt design is crucial, which requires a deep understanding of interdisciplinary thematic learning of English, as well as clear specification of patterns, processes, methods, and exemplars. Therefore, teachers should prioritize prompt engineering, developing subject expertise and AI application competencies through conceptual study, case collection, and practical iteration.

Keywords:

Interdisciplinary English Learning, Generative AI, Prompt Engineering, High School English, Instructional Design

1. Introduction

Interdisciplinary thematic learning (ITL) refers to an integrated approach centered on a specific research theme, grounded primarily in the subject curriculum while incorporating knowledge and methods from other disciplines to address students' developmental needs [1]. The Compulsory Education English Curriculum Standards (2022 Edition) explicitly mandates the implementation of interdisciplinary thematic activities to strengthen cross-subject connections and cultivate students' comprehensive competence in solving real-world problems [2]. ITL helps transcend the limitations of traditional single-subject instruction, shifting toward a deep learning model that uses language as a tool to explore nature and society [3]. It fosters the coordinated development of students' linguistic competence, thinking quality, and interdisciplinary literacy, laying the groundwork for addressing complex challenges in an increasingly globalized world [4].

However, teachers face numerous challenges when implementing ITL. Insufficient interdisciplinary knowledge and misconceptions about ITL often result in superficial juxtaposition rather than organic integration, where disciplinary thinking fails to be

addressed [4][5]. The scarcity and fragmentation of English interdisciplinary resources and scaffolding make it difficult for teachers to independently develop materials that balance linguistic accessibility with disciplinary depth. In teaching, it is particularly challenging to achieve a balance between language learning and interdisciplinary knowledge acquisition: either an overemphasis on non-linguistic content, risking diverting from the essence of English education [4], or inadequate linguistic scaffolding leaving students unable to express what they truly think—a manifestation of the “cognitive gap” where learners’ English proficiency lags significantly behind their cognitive levels, rendering ITL either perfunctory or artificially oversimplified [6]. Additional challenges include the authenticity of situational design [7] and the assessment methods [8].

Generative artificial intelligence offers a promising avenue for addressing these issues, yet existing research on AI-empowered interdisciplinary integration remains limited, particularly regarding prompt design strategies and pathways for optimization. This study aims to explore, through case study, the empowering effects of AI on instructional design for secondary school English ITL and the corresponding prompt engineering strategies.

2. Literature Review

Interdisciplinary thematic learning (ITL) integrates knowledge, methods, and modes of thinking from two or more disciplines through comprehensive teaching activities organized around authentic themes or problems [3]. It is characterized by comprehensiveness, structure, and practicality—emphasizing disciplinary integration, structured knowledge to facilitate internalization, and hands-on practice to develop students' problem-solving capabilities [6].

To address the challenges confronting English interdisciplinary instruction, several critical issues warrant attention. First, the integration of language learning with interdisciplinary knowledge should be optimized to achieve coordinated development of linguistic competence and interdisciplinary literacy [9]. To mitigate cognitive conflicts between language acquisition and interdisciplinary learning, an “infusion/partial integration model” can be adopted, maintaining an English disciplinary stance without attempting comprehensive coverage of other subjects. This approach appropriately reduces cognitive levels by calibrating them to students’ English proficiency levels, particularly through visual representations that render abstract disciplinary logic concrete during text interpretation or post-reading transfer activities, thereby enabling students to engage directly in higher-order thinking despite linguistic constraints [6]. Resource development merits substantial attention, including collaborative resource construction and even student-centered collection, integration, and processing of interdisciplinary materials. Task-driven approaches can stimulate interdisciplinary exploration awareness, develop cross-disciplinary connection capabilities, and expand innovative interdisciplinary thinking [10]. The authenticity of situational design should be emphasized, aligning with students’ interests and grounding activities in their lived experiences to motivate inquiry and cultivate their ability to mobilize multidisciplinary knowledge in solving authentic problems [3]. Assessment systems require refinement to accommodate both linguistic competence and interdisciplinary literacy [8].

Existing literature documents extensive case-based practices in English ITL, revealing a multi-domain integration which broadly categorized as “English +

Humanities/Social Sciences” and “English + Science.” Overall, integration with humanities predominates, exemplified by using historical text to interpret events such as the Normandy landings to foster interdisciplinary thinking through multidimensional historical reflection [11]; comparative analysis of Chinese and English poetry exploring imagery and prosody [12]; or impressionist painting appreciation combined with English description to achieve deep English-art integration [7]. Integration with science is gradually increasing, as seen in instruction linking seasonal themes and botanical knowledge [13], though such cases remain relatively scarce. Notably, “English + Science” integration offers greater opportunities for students to develop logical thinking skills, though it imposes greater demands on teachers’ scientific knowledge reserves [14].

Studies have also illuminated typical models, pathways, and macro-level procedures for English interdisciplinary instruction. Such teaching is not a single, uniform model but rather a continuum ranging from simple integration to deep, immersive fusion [1] [15]. Approaches range from highly integrated project-based learning [16] to “infusion/partial integration models” [6]. Typical integration pathways include theme-centered approaches (using English unit themes as the core to design progressive tasks incorporating other disciplinary content), problem-driven approaches (organizing inquiry around authentic life problems through multidisciplinary knowledge integration) and outcome-oriented approaches (structuring interdisciplinary activities toward concrete products such as research reports or creative works) [9][14]. Implementation paths can be realized through a series of activities organized at three hierarchical levels—text-based, within-text, and beyond-text activities, through which students acquire interdisciplinary knowledge, explore interdisciplinary themes, and complete interdisciplinary tasks [7]. These models and pathways, each with distinct emphases, may be flexibly combined. The macro-level procedure for English interdisciplinary instructional design generally encompasses: text analysis, interdisciplinary theme identification, learning objective setting, and interdisciplinary learning activity design (including generating interdisciplinary resources, creating interdisciplinary scenarios, and enriching interdisciplinary assessment) [4][7]. These cases offer valuable insights for both prompt engineering and instructional design.

AI’s robust content generation capabilities can effectively support ITL instructional design. AI can not only precisely identify interdisciplinary anchor points in instructional texts but also provide rich material support tailored to ITL needs. It can assist in interdisciplinary instructional design, reducing design complexity and particularly offering effective support for teachers with insufficient interdisciplinary knowledge reserves [16]. Furthermore, AI can provide personalized learning scaffolding to narrow the gap between students’ English proficiency and cognitive levels [6][16].

3. AI-Assisted Instructional Design for Interdisciplinary Thematic Learning in English

3.1. Prompt Design Strategies

Prompt design is critical to the quality of AI-generated outputs. Without professional pedagogical guidance, AI tends to produce encyclopedic, verbose text (Liu, 2024). To ensure AI-generated content effectively serves classroom instruction, prompt design must be given utmost attention. Research indicates that refined prompt significantly enhance generation quality compared to simple prompts [17]. This study

employs refined prompt; due to space constraints, only key components are outlined below.

The prompt adopts the BRTR framework, comprising four modules: background, role, task, and requirements. The background module specifies “grade level + textbook unit and target text information + learner profile.” The role is defined as “secondary English teaching expert with profound understanding of the New Curriculum, extensive interdisciplinary knowledge, and expertise in ITL instructional design.” The task is to “design a detailed interdisciplinary thematic learning lesson plan in English based on unit and text analysis.”

The requirements module constitutes the most critical component. This study posits that requirements should reflect deep understanding of ITL, encompassing key concepts, typical models, pathways, and procedures, alongside detailed output specifications and exemplary cases. Macro-level understanding includes key content from the introduction and literature review, such as conceptual definitions of English ITL, primary characteristics, main challenges and coping strategies, interdisciplinary integration domains (typical anchor points) illustrated through documented cases, as well as models, pathways, and procedures. The prompt suggest adopting the infusion/partial integration model, as project-based interdisciplinary learning, despite its high levels of integration, is hard to be a regular practice.

The most substantial and specific component of the requirements module addresses output specifications, including:

(1) Language and level: All outputs in English, with linguistic difficulty calibrated to [specified level] and cognitive difficulty appropriate for [specified learner group].

(2) Output Content and Sequence:

- Concise text analysis, following the what - why -how framework as specified in the prompt.

- Instructional design analysis, emphasizing interdisciplinary anchor points, justifications, and feasibility.

- Learning objective setting, matching the perspective of interdisciplinary literacy; the prompt provides macro-level principles such as the English Learning Activity Approach (particularly the hierarchical nature of objectives), the ABCD principle for objective formulation, Bloom’s detailed taxonomy with associated action verbs to ensure measurability, and exemplary ITL learning objectives.

- Teaching activity design, requiring alignment with the aforementioned interdisciplinary integration principles and adherence to general English instructional design principles. It should constitute a complete, well-articulated lesson plan with seamless transitions across stages and activities, including detailed teacher talk, anticipated student responses, and required textual/multimedia resources and activity worksheet. Activities must be presented in tabular format with five columns: “Stages +Time Allocation,” “Teacher Activities,” “Student Activities,” “Design Rationale,” and “Assessment.” Each column includes specific guidance and examples; for instance, typical stages include lead-in, pre-reading, while-reading, post-reading, summary, and homework assignment, though alternative models (text-based, within-text, beyond-text; 5E model, etc.) are acceptable. Specific requirements and exemplary activities are provided for each stage—e.g., the lead-in requires creating interdisciplinary scenarios and posing driving questions. The assessment column

particularly emphasizes evaluating interdisciplinary cultivation effects, with accompanying examples. These cases derive primarily from relevant research literature and award-winning high-quality lessons.

Additionally, to address resource scarcity in English interdisciplinary integration, prompt requires creation of worksheet for students to use in class and outside of class, including English supplementary materials on interdisciplinary anchor points based on textbook content, diversified visual scaffolds, and other resources (e.g., interdisciplinary English terminology banks). The Interdisciplinary supplementary materials must be authentic in content, appropriate in linguistic and cognitive level, and clear in cross-referencing to specific stages and activities in the instructional design where they will be utilized.

3.2. AI-Generated Instructional Design and Analysis

This study randomly selected “Save the Sharks!” (Section A 3a, Unit 13, Grade 9, Go for It!, PEP edition) as the case study, with the unit theme “We are trying to save the earth.” Multiple AI platforms were tested; all generated content offered valuable instructional insights, though Gemini 3.1 demonstrated a better refinement in the details of activity design, making its outputs more readily adoptable. Therefore, the generated content presented herein derives from this platform. Due to space constraints, only content closely related to interdisciplinary thematic learning is presented and details may be omitted or abridged. Text analysis is omitted, with only a brief presentation of interdisciplinary anchor points and the reasons behind them. For teaching activity design, tabular format is not used, with only “stages+ time allocation” and “teacher activities” presented below.

3.2.1. AI-Generated Instructional Design Analysis

(1) Type of Integration: Theme-based Problem Solving: We address the real-world problem of shark extinction.

(2) The Pillars of Integration

Discipline	Textbook Anchor	Interdisciplinary Concept	Learning Goal
Biology	cut off their fins,... slowly dies	Physiology & Survival	Understand <i>why</i> a shark dies without a fin.
Env. Science	top chain..., harmful, danger	The Domino Effect	Visualizing how removing the top predator destroys the coral reefs and lower species.
Economics	expensive dish...	Cost & Benefit	Analyze why fishermen choose cruelty (...fins).
Health Science	No... good for health.	Nutrition	Myth Busting
Law & Policy	Teaching the public..., develop laws	Hard Law vs. Soft Power	Distinguish between <i>legislation</i> and <i>advocacy</i> .

Design Rationale: (more rationale omitted)

(1). Biology Integration: Instead of just translating “fin,” we explain the function of the fin (breathing/ balance), making the cruelty scientifically understandable.

(2). Env. Science Integration: Students often think saving animals is just about “kindness.” Science shows it is about human survival.

3.2.2. AI-Generated Learning Objectives

By the end of the class, students will be able to:

- (1). Explain the biological function of fins and the ecological consequence of removing sharks using a “Domino Effect” diagram.
- (2). Analyze the economic reasons behind the shark trade and propose alternatives(e.g., eco-tourism)
- (3). Construct a logical argument to persuade a peer or family member to stop eating shark fin soup, utilizing specific data from the text and scientific reasoning.

3.2.3. AI-Generated Teaching Procedure

Phase 1: Lead-in – The Economic & Cultural Hook (5 mins)

Media: A picture of a luxury banquet with Shark Fin Soup + A price tag (\$100/bowl).

Teacher Talk: “Look at this dish. It is famous in southern China. It is very expensive. In Economics, when something is expensive and popular, we call it ‘High Demand.’ But where does the supply come from?”

Q: “Why do people eat it? Is it for nutrition?”

Students: “No, for face/status.” (predicted answer)

Teacher: “Exactly. It’s a status symbol. But today, we will look at the real cost—not the money, but the cost to the earth.”

Phase 2: Biological & Environmental Deep Dive (12 mins)

Material: Textbook Para 2 & Worksheet Part A.

Step 1: The Cruelty (Biology)

Teacher: “Read Paragraph 2. How do they treat the sharks? Find the verbs.”

Students: “Catch, cut off, throw back.”

Teacher (Bridging Question): “Why does the text say the shark 'slowly dies'?... Why does a shark die without a fin?”

Interdisciplinary Knowledge (Input): “Sharks are like airplanes. The fin is the wing. Without it, they sink. Also, many sharks must keep moving to breathe. No fin = No swim = No oxygen.”

Task: Students do the tasks on the worksheet part A.

Step 2: The Chain Reaction (Env Science)

Teacher: “Paragraph 3 says sharks are at the ‘top of the food chain.’ Let’s visualize this”.

Activity: The teacher draws a pyramid on the board (Sharks →Big Fish→ Small Fish → Algae/Coral. (refers to part A in worksheet)

Teacher: “If we remove the Shark, what happens to the Big Fish?”

Students: “The number goes up.”

Teacher: “And the Small Fish?” Students: (omitted)

Teacher: “And the sea plants?” Students: (omitted)

Teacher (Summary): “Correct. And when algae covers the coral, the coral dies. This is called a Trophic Cascade. The ocean turns into a green swamp.”

Phase 3: The Economic, Health Science & Legal Solution (15 mins)

Focus: Economics (Trade) & Law (Regulation).

Material: Textbook Para 3 & 4 & Worksheet Part B

Step 1: The Economic Driver- Why throw the shark back?

Teacher: “Look at Paragraph 3 again. Why do fishermen cut the fin and throw the body? Why not keep the meat?”

Discussion: Students discuss in pairs.

Teacher Guided Conclusion: “Shark meat is cheap. Fins are expensive. A boat has limited space. If you fill the boat with fins, you make _____. If you fill it with meat, you make _____. This is the Economic Driver.”

Step 2: Health Science - Myth Busting

Ref: Text: “No scientific studies have shown that shark fins are good for health.”

Teacher: “Why do people eat it? For health. But science says...”

Task: Students find the counter-argument in the text.

Science Fact: Teacher adds (via PPT): “There is no clinical evidence supporting Traditional Chinese Medicine claims that it cures cancer or boosts qi significantly. Conversely, Shark fins contain heavy metals like mercury. It is actually poisonous in large amounts.”

Step 3: Law vs. Education- Solution

Teacher: “How do we stop this? The text mentions two ways. Read the last paragraph.”

Task: Classify the actions into “Hard Power” (Law) and “Soft Power” (Education).

WildAid/WWF teaching the public → Soft Power (Education/Demand side).

Governments develop laws → Hard Power (Policy/Supply side).

Critical Question: “Which is more effective? Stopping the selling (Law) or stopping the eating (Education)?” (Allow brief student debate).

Phase 4: Output: The 30-Second Persuader (8 mins)

Context: You are at a wedding. Your uncle orders Shark Fin Soup. You have 30 seconds to stop him politely but firmly.

Activity: Choose a frame (Scientific Approach OR Ethical Approach) and Roleplay the scenario(pair work).

Example Output: “Uncle, please don't order that. Did you know 90% of sharks are gone? Without them, the ocean ecosystem breaks. Plus, science proves it has no nutrition.” (more Language Frames in Worksheet Part C)

3.2.4. AI-Generated Interdisciplinary Worksheet

Part A: Bio & Env Science - The Ocean Balance

(1). Biology: Read Para 2. Why is “finning” fatal?

“Without a fin, a shark can no longer _____. In Biology, we know that many sharks must swim to force water over their gills to get _____ (Oxygen). Therefore, they drown.”

(2). Environmental Science (The Ocean Domino Effect):

Reading Plus: Sharks are “Apex Predators” (top hunters). They keep the ocean healthy. Imagine a “Domino Effect.” If sharks disappear, the number of medium-sized fish will grow too fast. These medium fish eat all the small plant-eating fish. Without small fish to eat the algae (sea plants), the algae grows too thick. The thick algae covers and kills the coral reefs. The ocean dies.

Activity: Complete the Chain Reaction below using words from the box.

[Algae grows too much / Coral Reefs die / Medium Fish increase]

1. Sharks are killed -> 2. (_____) -> 3. Small fish are eaten -> 4. (_____) -> 5. (_____).

Part B: Economics, Health Science & Law - The Trade (omitted)

(3). Economics (The Driver): Why throw the shark back? (Circle the correct logic)

A. Shark meat tastes bad.

B. Shark fins are worth much more money than meat, and boat space is limited. (High Value / Low Volume).

C. Fishermen are just cruel people.

(4). Law & Policy (The Solution):

The text mentions “WildAid” and “Governments.” Match the action to the type:

(A) Banning the sale of shark fins.

(B) Telling the public “When the buying stops, the killing stops.”

Hard Power (Law): [____]

Soft Power (Education): [____]

Part C: Output –Speak Up!

Use these “Language Frames” to build your argument.

Option A: The Scientific Logic

“Actually, we shouldn’t eat this. Did you know that sharks are at the top of the ____? If they disappear, the ocean ecosystem will _____. Science shows that shark fins have no _____ value.”

Option B: The Ethical Appeal

“I learned that 70 million sharks are _____ every year just for a bowl of soup. This industry is very _____. We should protect nature, not destroy it.”

3.2.5. Evaluation and Analysis

Generative artificial intelligence demonstrates substantial empowering value across all stages of instructional design for English interdisciplinary thematic learning. For instance, building upon text analysis, it can precisely identify interdisciplinary anchor points—including non-explicit integration—while providing sound interdisciplinary integration rationale. Learning objective design fully reflects interdisciplinary literacy. Teaching activity design adheres to the English Learning Activity Approach, manifesting a progressive pathway from learning and understanding, through application and practice, to transfer and innovation. It also aligns with the characteristics of English ITL, such as comprehensiveness, structured output, and practicality. Overall, this constitutes an ITL instructional design with high cognitive demand yet low linguistic threshold.

The teaching activity design adopts an infusion model, combining theme-centered and problem-driven approaches, effectively addressing several challenges in English ITL. First, it achieves deep integration of language learning, interdisciplinary knowledge acquisition, and interdisciplinary thinking application. The design maintains English subject primacy, using English as the vehicle and texts in course books as the foundation. It precisely identifies interdisciplinary anchor points with appropriately expanded resources, incorporating not only theme-related key English expressions—including basic interdisciplinary terminology and textual structures such as the “emotion+ science data + call-to-action” persuasive framework. More importantly, it synthesizes interdisciplinary thinking to address real-world problems, successfully integrating language learning with disciplinary cognition—a depth rarely achievable through a pure English perspective. The design also skillfully employs visual scaffolding to resolve cognitive conflicts in English ITL. Rather than mechanically explaining complex interdisciplinary terminology, it demonstrates logic through devices such as pyramid diagrams, food chain/trophic cascade, thereby rendering logic visible. Through these visual thinking tools, students can express fundamental scientific principles using simple English, avoiding hollow advocacy. Second, it overcomes the challenges of teachers’ insufficient interdisciplinary awareness and resource scarcity, as evidenced by AI’s precise identification of interdisciplinary anchor points and the series of interdisciplinary resource expansions in teaching activities and worksheet. These resources align with students’ proficiency levels while presenting appropriate cognitive challenges, fitting the Zone of Proximal Development theory—one of the appeals of English ITL. Third, situational design demonstrates authenticity, such as guiding students to attend to the real-world context of shark fin consumption culture in China during the lead-in and creating task scenarios involving persuading diners, carrying strong social relevance.

4. Conclusions

The study demonstrates that generative AI offers substantial empowering value across all dimensions of instructional design for English interdisciplinary thematic learning, providing robust professional support for secondary English teachers in the field. Teachers can go further to integrate materials generated from different AI platforms, or refine generated content through appropriate human-AI interaction. The practice also reveals that prompt engineering warrants serious attention; the depth and clarity of task comprehension embodied in prompts largely determine the appropriateness of ITL design. Specifically, depth manifests as profound understanding of English interdisciplinary learning, while clarity is evidenced by clear

presentation of procedures, methods, and exemplary cases. These elements converge in the requirements module of the prompt, constituting the core of prompt engineering.

The study suggests that teachers need not fear English interdisciplinary instruction. They can leverage AI to enhance their skills in close textual analysis and interdisciplinary connections and interdisciplinary instructional design, including resource development and particularly the generation of visualized thinking. To this end, teachers should embrace AI, keeping on improving prompt quality, exploring diverse AI platforms, and constructing optimized AI application strategies. Teachers should also recognize that the iterative optimization of prompts is a long process and also essentially an internalization process of professional development. Through enhanced professional competence, teachers can subsequently develop critical evaluation regarding AI-generated content, ultimately achieving symbiotic human-AI development. The enhancement of prompt design capability requires sustained professional accumulation; an “conceptual upgrading—prompts optimization—practical experimentation—reflection and improvement” pathway should be adopted. Specifically, teachers should update their educational concepts through literature review, accumulate exemplary cases from literature and multiple platforms, and continuously reflect and optimize their practices through hands-on implementation.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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References

- [1] An, G. On the comprehensiveness and practicality of compulsory education curriculum. *Global Education*, 2022, 5, 14-26.
- [2] Ministry of Education of the People's Republic of China. Compulsory education English curriculum standards (2022 edition). Beijing: Beijing Normal University Press. 2022.
- [3] Wang, Q.; Liu, S. The significance and key problem-solving of implementing interdisciplinary thematic learning in English teaching. *English Language Learning*, 2023, 7, 4-11.
- [4] Li, Q.; Zhang, Y. The connotation, value, and practical pathways of interdisciplinary thematic learning in junior high school English. *Foreign Language Teaching in Schools (Secondary Edition)*, 2023, 3, 31-36.
- [5] Hu, P.; Liu, R.; Chen, Y. The value, practical dilemmas, and optimization pathways of interdisciplinary thematic learning in primary English. *Teaching and Administration*, 2024, 8, 38-42.
- [6] Fu, J. The value, dilemmas, and breakthroughs of interdisciplinary thematic learning in English. *Teaching and Administration*, 2022, 34, 57-60.

- [7] Jiang, L. Key issues and practical pathways of interdisciplinary thematic learning in senior high school English: A case study of impressionist painting appreciation in English. *Foreign Language Teaching in Schools (Secondary Edition)*, 2025, 3, 36-42.
- [8] Guo, B.; Ren, Y. Interdisciplinary integrated reading instruction in English: Theoretical basis, basic characteristics, and implementation strategies. *Global Education*, 2025, 1, 149-160.
- [9] Wang, Q. Practical guidance on interdisciplinary thematic learning. Beijing: Beijing Normal University Press. 2023.
- [10] Li, W. Strategies for cultivating interdisciplinary thinking in primary English from the perspective of resource collaboration. *Foreign Language Teaching in Schools (Primary Edition)*, 2025, 10, 28-32.
- [11] Peng, A. Interdisciplinary teaching strategies for historical texts in senior high school English. *Foreign Language Teaching in Schools (Secondary Edition)*, 2025, 9, 51-55.
- [12] Lü, X. Interdisciplinary instruction in junior high school English for collaborative education. *English Teaching and Research Notes*, 2024, 12, 35-38, 53.
- [13] Jin, L. On the design of carriers and tasks in interdisciplinary thematic learning in primary English. *Foreign Language Teaching in Schools (Primary Edition)*, 2025, 1, 39-45.
- [14] Zheng, Z. Integration pathways of interdisciplinary thematic learning in primary English. *English Teaching and Research Notes*, 2024, 9, 19-22.
- [15] Guo, H. et al. Interdisciplinary thematic learning: What is it? How to do it? Beijing: Educational Science Publishing House. 2023.
- [16] Liu, X. AI-based interdisciplinary project learning in primary English. *Teaching and Administration*, 2025, 8, 51-54.
- [17] Weng, S.; He, Z.; Liang, Y.; Zhang, Z. Research on prompt design strategies for generative AI-empowered junior high school English reading instruction. *Digital Teaching in Primary and Secondary Schools*, 2025, 1, 10-16.



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