

Original Research Article

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Construction and Implementation of Reading Thinking Hierarchies in Junior High School English within Project-Based Learning

Zhang-Chao Cen *

Cixi Shanglin Junior High School. Ningbo, Zhejiang 315300, China

*Correspondence to: Zhang-Chao Cen, Cixi Shanglin Junior High School. Ningbo, Zhejiang 315300, China, E-mail: 264215223@qq.com

Abstract: Against the backdrop of the new curriculum reform oriented toward core competencies, junior high school English teaching urgently needs to shift from knowledge transmission to ability cultivation. Project-Based Learning (PBL), as a student-centered instructional approach that emphasizes authentic contexts and problem solving, provides an effective pathway for enhancing students' higher-order thinking skills. However, in PBL practice, how to systematically construct and implement reading thinking hierarchies in English remains an issue that requires in-depth exploration. Based on Bloom's Taxonomy of Cognitive Objectives and deep learning theory, and in combination with the characteristics of the junior high school English discipline, this study constructs a four-level reading thinking model consisting of "information extraction – meaning construction – critical reflection – transfer and innovation." Through specific teaching cases, the paper elaborates on the implementation strategies of this model within PBL. The findings indicate that the model helps guide students to engage in reading activities progressively, enabling a shift from passive reception to active inquiry and from lower-order memory to higher-order thinking, thereby comprehensively enhancing students' core competencies in English.

Keywords: Project-Based Learning; junior high school English; reading instruction; thinking hierarchy; core competencies

Introduction

Following the implementation of the *English Curriculum Standards for Compulsory Education (2022 Edition)*, the objectives of English teaching have shifted toward the cultivation of comprehensive competencies. As one of the core competencies, thinking quality emphasizes the development of students' logical, critical, and

innovative thinking abilities. Reading serves as a key carrier of language input and cognitive development. However, current junior high school English reading instruction is characterized by problems such as fragmentation and superficiality: teachers tend to focus on the explanation of language points, while students lack deep interpretation and personalized reflection, making it difficult to meet the demands of talent



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cultivation in the new era. Project-Based Learning (PBL) is highly integrative and practical. Centered on authentic driving questions, it enables students to construct knowledge and develop abilities through the completion of projects. Introducing PBL into junior high school English reading instruction can stimulate students' learning motivation and provide authentic learning contexts. Nevertheless, how to scientifically design reading tasks within a PBL framework and guide students' thinking to progress from lower-order to higher-order levels remains a challenge in current teaching practice. This study aims to explore relevant construction pathways and implementation strategies, providing practical references for frontline teachers.

1. Theoretical Foundations and Conceptual Definitions

1.1 Core Characteristics of Project-Based Learning (PBL)

Project-Based Learning (PBL) is a student-centered instructional approach whose core lies in sustained inquiry around a complex, authentic, and challenging driving question. PBL typically embodies the following characteristics: (1) orientation toward real-world problems; (2) emphasis on student autonomy and collaboration; (3) focus on formative assessment and multiple types of outcomes; (4) integration of interdisciplinary knowledge and skills; and (5) promotion of deep learning. In English teaching, PBL embeds language learning within meaningful sociocultural contexts, enabling students to "learn by doing" and facilitating the coordinated development of language proficiency and thinking quality^[1].

1.2 Theoretical Basis of Reading Thinking Hierarchies

This study mainly draws on the revised Bloom's *Taxonomy of Cognitive Objectives* (Anderson & Krathwohl, 2001), which categorizes cognitive processes into six levels: remembering, understanding, applying, analyzing, evaluating, and creating. Among these, the first three levels are regarded as lower-order thinking skills, while the latter three constitute higher-order thinking skills. In addition, deep learning theory (Marton & Säljö, 1976) emphasizes learners' critical understanding of knowledge, meaning construction, and transfer and application, which also provides important theoretical support for the construction of reading thinking hierarchies. Taking into account

junior high school students' cognitive developmental characteristics and the features of English learning, this study localizes and disciplines Bloom's taxonomy to construct a four-level thinking model suitable for junior high school English reading instruction.

2. Construction of Reading Thinking Hierarchies in Junior High School English within Project-Based Learning

Based on the above theories, this study proposes a "four-stage progressive" reading thinking hierarchy model, namely: Information Extraction – Meaning Construction – Critical Reflection – Transfer and Innovation. This model not only reflects the logical sequence of cognitive development but also aligns well with the basic PBL process of "question–inquiry–output."

2.1 Level One: Information Extraction (Corresponding to Remembering and Understanding)

This level focuses on the identification and comprehension of surface-level textual information and serves as the foundation of reading. Students are expected to accurately obtain factual information from the text (such as characters, time, place, and events), understand the basic meanings of vocabulary and sentence structures, and summarize paragraph ideas or the main theme of the text. In PBL, this stage usually corresponds to the project launch and background research phase. For example, in an "environmental protection" project, students may read relevant English reports to extract key information about the current situation of plastic pollution, its impacts, and existing solutions.

2.2 Level Two: Meaning Construction (Corresponding to Applying and Analyzing)

At this level, students go beyond simple information reproduction and begin to conduct structured analysis of the text, exploring the author's writing intention, textual organization, and rhetorical devices, thereby constructing a deeper understanding of textual meaning. This process includes identifying causal relationships, comparing viewpoints, and inferring implicit information^[2]. In PBL, this stage is reflected in in-depth analysis of the driving question. For instance, students may analyze the argumentative logic in different environmental advocacy texts and compare

policy approaches across countries, thus gaining a more comprehensive understanding of the multifaceted concept of “sustainable development.”

2.3 Level Three: Critical Reflection (Corresponding to Evaluating)

Critical reflection requires students to make independent judgments and value evaluations of textual content, viewpoints, or stances based on their existing knowledge and values. Students need to identify bias, question assumptions, assess the reliability of evidence, and form their own reasoned positions. This level represents the core of higher-order thinking. In PBL, it is often manifested in activities such as group debates or the writing of position statements. For example, regarding the issue of “whether single-use plastic products should be completely banned,” students are expected to weigh the pros and cons based on the reading materials and present well-supported personal viewpoints.

2.4 Level Four: Transfer and Innovation (Corresponding to Creating)

Transfer and innovation represent the highest level of cognitive development, emphasizing the application of acquired knowledge, skills, and ways of thinking to new contexts in order to solve real-world problems or create new products. In PBL, this level directly corresponds to the final project outcomes. Students are required to synthesize what they have gained from reading to design solutions, create promotional materials, write proposals, or produce multimedia works^[3]. For example, based on prior reading and research, students may design a school-wide “plastic reduction action plan” and produce English posters or short videos for promotion.

It should be noted that this four-level model is not a rigid linear sequence. Rather, the levels are interwoven and develop in a spiral manner through iterative PBL cycles. Teachers should flexibly design tasks at each level according to project themes, text difficulty, and students’ proficiency levels, so as to ensure the systematic and appropriate cultivation of students’ thinking skills.

3. Implementation Pathways of Reading Thinking Hierarchies in Project-Based Learning

To effectively implement the above-mentioned

thinking hierarchy model, teachers need to carry out careful instructional design throughout the entire PBL process. Taking the reading text “Qomolangma — the Most Dangerous Mountain?” from Unit 7 “What’s the highest mountain in the world?” in the PEP junior high school English textbook (Grade 8, Volume II) as an example, this section illustrates concrete implementation pathways.

3.1 Project Design: Defining the Driving Question and Thinking Objectives

Project Theme: Protecting the Roof of the World—An Ecological Protection Action for Mount Qomolangma

Driving Question: How can our actions help reduce the negative impact of human activities on the ecological environment of Mount Qomolangma?

Thinking Hierarchy Objectives:

Information Extraction: Acquire basic facts about Mount Qomolangma’s geography, ecology, and mountaineering activities;

Meaning Construction: Analyze the specific mechanisms through which human activities (such as mountaineering and tourism) affect the environment of Mount Qomolangma;

Critical Reflection: Evaluate the effectiveness of existing protection measures and reflect on the rationality of the notion of “conquering nature”;

Transfer and Innovation: Design an environmental protection campaign on Mount Qomolangma aimed at adolescents.

3.2 Project Implementation: Advancing Thinking Training in Stages

3.2.1 Stage One: Project Launch and Information Extraction (1–2 class periods)

Task 1: Read the textbook text and complete an information chart (e.g., height of Mount Qomolangma, climbing history, risk factors, waste problems).

Task 2: Conduct supplementary reading of extended materials (such as National Geographic reports on waste on Mount Qomolangma) and extract key data and cases. Thinking Scaffolds: Provide a list of Wh-questions (What, Where, When, Who, How many, etc.) to guide students’ attention to factual information.

3.2.2 Stage Two: Inquiry and Meaning Construction (2–3 class periods)

Task 3: Work in groups to draw a cause–effect chain diagram of “human activities–environmental impacts,”

analyzing how waste sources, discarded oxygen bottles, and campsite sewage damage the ecosystem.

Task 4: Conduct comparative reading of two texts with contrasting viewpoints (one emphasizing the spirit of mountaineering, the other calling for restrictions on climbing) to analyze authors' stances and arguments.

Thinking Scaffolds: Guide students to use logical connectors (because, therefore, however, on the contrary, etc.) to express relationships between ideas.

3.2.3 Stage Three: Reasoning and Critical Reflection (1–2 class periods)

Task 5: Organize a mini-debate on the topic: "Should climbing Mount Qomolangma be banned to protect the environment?" Students are required to support their arguments with evidence from the reading materials.

Task 6: Write a reflective journal entry on the topic: "What does 'conquering a mountain' really mean? Is it about reaching the top or respecting nature?"

Thinking Scaffolds: Provide evaluative language frames (e.g., I agree/disagree because...; The evidence shows that...; However, it fails to consider...).

3.2.4 Stage Four: Output and Transfer and Innovation (2–3 class periods)

Task 7: In groups, design a "Green Everest Campaign", including slogans, posters, short video scripts, or advocacy letters.

Task 8: Present the products in class or on campus, collect feedback, and revise the work accordingly.

Thinking Scaffolds: Offer creative expression templates (e.g., Our slogan is...; We propose...; Join us to...), encouraging the use of imperative and persuasive language.

Through the staged design and implementation of tasks, students' reading activities are closely integrated with progressive thinking training, ensuring that lower-order comprehension and higher-order thinking develop in a coordinated and systematic manner within the PBL framework.

3.3 Project Assessment: Promoting Thinking Development from Multiple Dimensions

In Project-Based Learning (PBL), project assessment should focus on multiple dimensions so as to promote the in-depth development of students' reading thinking. Teachers can design structured assessment rubrics based on the thinking hierarchy, setting specific indicators across four levels—information extraction,

meaning construction, critical reflection, and transfer and innovation—such as accurate extraction of key facts, analysis of textual logic, formulation of evidence-based viewpoints, and production of creative solutions. Such formative and performance-based assessments not only attend to final outcomes but also emphasize the visualization of thinking processes.

Meanwhile, by guiding students to conduct self-assessment and peer assessment, supplemented with tools such as reflective journals and group meeting records, teachers can effectively enhance students' metacognitive awareness. Through continuous feedback and adjustment, students are encouraged to optimize their thinking strategies, thereby achieving sustained advancement in higher-order thinking abilities.

4. Implementation Challenges and Coping Strategies

Although PBL demonstrates significant advantages in enhancing reading thinking, its practical implementation still faces several challenges.

(1) Difficulties in teachers' role transformation: Traditional lecture-based teaching habits remain deeply rooted, making it difficult for some teachers to adapt to new roles as facilitators and collaborators. To address this issue, targeted PBL professional development should be strengthened by providing exemplary lesson cases and practical toolkits. In addition, school-based professional learning communities can be established to promote collaborative lesson planning.

(2) Limitations of class time and resources: The relatively long cycle of PBL may conflict with existing class schedules, and high-quality English reading materials are often insufficient. This challenge can be mitigated by adopting "micro-projects," in which large projects are broken down into smaller tasks that can be completed within limited class periods. Digital resources (such as Newsela and CommonLit) can also be utilized to flexibly adjust text difficulty according to students' needs^[4].

(3) Significant differences in students' abilities: Some students lack experience in autonomous inquiry and collaboration, making them prone to frustration when engaging in higher-order tasks. Differentiated instruction can be implemented by providing tiered tasks and thinking scaffolds for learners at different proficiency levels. Clear role assignments within

groups can further ensure the active participation of all students.

(4) An underdeveloped assessment system: Traditional paper-and-pencil tests are insufficient for measuring higher-order thinking, and assessment criteria are often vague. To overcome this limitation, multidimensional assessment tools aligned with core competencies can be developed, incorporating thinking performance into formative assessment. Digital platforms may also be used to document and track students' learning trajectories.

Conclusion

Project-Based Learning injects new vitality into junior high school English reading instruction, while the scientific construction of reading thinking hierarchies is key to realizing deep learning. The four-stage model proposed in this study—information extraction, meaning construction, critical reflection, and transfer and innovation—not only responds to the requirements of the new curriculum standards regarding thinking quality but also provides a clear pathway for the effective implementation of PBL in English classrooms. Future research should further explore the applicability of this model across different text genres (such as expository texts, argumentative

texts, and literary works), as well as how emerging technologies, including artificial intelligence, can be leveraged to provide more personalized support for students' thinking development. Only in this way can the educational ideal of “promoting thinking through reading, enhancing learning through thinking, and applying learning through use” truly be realized, cultivating a new generation of adolescents with global vision and critical thinking abilities.

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