



# Research on the Implementation Dilemmas and Optimization Paths of Project-Based Learning from the Perspective of Core Literacy

Jing Lu

Independent Researcher, Lan Zhou 730000, Gansu, China.

**How to cite this paper:** Jing Lu. (2026) Research on the Implementation Dilemmas and Optimization Paths of Project-Based Learning from the Perspective of Core Literacy. *Journal of Humanities, Arts and Social Science*, 10(5), 590-597.  
DOI: 10.26855/jhass.2026.05.014

**Received:** March 29, 2026

**Accepted:** April 24, 2026

**Published:** May 30, 2026

\***Corresponding author:** Jing Lu, Independent Researcher, Lan Zhou 730000, Gansu, China.

© 2026 by the author(s).

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND) license, which permits non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited and is not modified or adapted.

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

## Abstract

Entering the 21<sup>st</sup> century, global educational reform is undergoing a profound transformation from “knowledge-oriented” to “literacy-oriented”. China’s new curriculum standards have also clearly established an educational orientation aimed at core literacy. Project-Based Learning (PBL) is an essential way of teaching that tackles real-world problems in natural environments and encourages students to actively build their own knowledge and essential literacy. Therefore, it is in line with the new direction of curriculum reform. Now it has been used to promote the quality of education, transform the system, and implement the fundamental task of fostering virtue through education. However, in current localized practices, PBL faces structural implementation dilemmas, such as teachers’ weak theoretical understanding and insufficient execution capabilities, students’ lack of autonomous inquiry and superficial group collaboration, inadequate supporting resources and rigid scheduling, and an overly result-oriented evaluation mechanism. Relying on Dewey’s experiential learning theory, constructivism, discovery learning theory, situated cognition theory, and multiple intelligences theory, this study systematically reviews the core connotation and basic procedures of PBL. On this basis, it proposes optimization paths from five dimensions, including strengthening teachers’ professional development, scientifically designing project themes, standardizing group collaboration mechanisms, constructing a diversified process-oriented evaluation system, and improving resource and institutional support. The study aims to facilitate the deep implementation of PBL, promote the development of students’ core literacy, and provide theoretical references and practical guidance for PBL implementation in primary and secondary schools.

## Keywords

Project-Based Learning (PBL); core literacy; implementation dilemmas; optimization paths

## 1. Introduction

### 1.1 Research Background

Since the dawn of the 21<sup>st</sup> century, global educational reform has exhibited a general trend of shifting from “knowledge-oriented” to “literacy-oriented”. Under the guidance of the fundamental task of “fostering virtue through education”, China’s basic education curriculum reform has also established a cultivation orientation centered on core

literacy. The Compulsory Education English Curriculum Standards (2022 Edition) explicitly states that comprehensive practical activities should be carried out to guide students to integrate their personal life experiences with social needs, and comprehensively utilize cross-disciplinary knowledge to autonomously engage in Project-Based Learning (Ministry of Education, 2022). For a long time, primary and secondary school classrooms have been dominated by teacher lectures, leading to passive student learning, a disconnect between knowledge and real life, and a deficiency in students' practical innovation capabilities. Project-Based Learning (PBL) emphasizes conducting inquiry-based learning within authentic contexts, which highly coincides with the current direction of instructional reform. In recent years, domestic schools have gradually carried out PBL practices. However, problems such as formalization and superficiality remain prevalent. Teachers lack deep theoretical knowledge, a standardised implementation process, and supporting mechanisms, which limit the cultivation of students. Therefore, together with educational theories, analysis of actual problems and proposals for optimisation will have good practical value.

## 1.2 Research Significance

In accordance with the idea of traditional learning theory, this paper will examine PBL in detail and also present some domestic studies on Project-Based Learning. By identifying the difficulties in implementation and putting forward paths to optimise them at a practical level, this paper aims to offer instructional workflows for frontline teachers to promote classroom change, cultivate students' sense of collaboration and inquiry, problem-solving, and creativity, etc., to better achieve the goal of core literacy.

## 1.3 Current Research Status at Home and Abroad

Project-Based Learning (PBL), as a student-centered pedagogical model that constructs knowledge and skills through the investigation of real-world problems, has attracted widespread attention in the global educational community in recent years.

Researches on PBL at home and abroad have different focuses, but generally revolve around theoretical deepening, practical application, evaluation system innovation, and integration with new technologies.

Foreign research on PBL originated from John Dewey's theory of "learning by doing" and William Kilpatrick's "Project Method". At the end of the 20<sup>th</sup> century, this model was widely applied in medical, engineering, and business education. The "Gold Standard PBL" proposed by the Buck Institute for Education (BIE) is currently one of the most widely applied models internationally, emphasizing core elements such as authenticity, student voice and choice, reflection, and public products. Current research hotspots focus on STEM education integration, 21<sup>st</sup>-century skills cultivation, technology-enhanced learning, and teacher professional development.

Domestic research on PBL started relatively late but has shown an explosive growth trend driven by recent basic education curriculum reforms (especially the introduction of "core literacy" and the "2022 Edition New Curriculum Standards"). Domestic research is represented by Xia Xuemei, who constructed a localized implementation framework for Project-Based Learning. Sang Guoyuan focuses on "top-level design and teacher empowerment", while experts such as Dong Yan and Wang Zhijun have keenly captured the innovative integration of frontier technologies with PBL. Scholars like Zhong Qiquan and Cui Yunhuo have explored its application value from the perspective of curriculum and instruction. On the whole, domestic research mostly focuses on case designs, and systematic research on theoretical landing and practical dilemmas still needs to be deepened. Currently, domestic scholars mostly focus on emphasizing both disciplinary and interdisciplinary PBL, exploring evaluation based on core literacy, and integrating the "Five Educations" (moral, intellectual, physical, aesthetic, and labor education) with characteristic education.

## 1.4 Research Ideas and Methods

Based on PBL theories, this study clarifies its connotations, characteristics, and implementation processes, analyzes existing problems in combination with practice, and subsequently proposes optimization strategies. The main methods adopted include: the literature research method to sort out relevant domestic and foreign research achievements, the theoretical analysis method relying on learning theories to dissect the implementation logic, and the inductive analysis method to summarize common problems and refine corresponding strategies.

## 2. Core Connotations and Theoretical Foundations of Project-Based Learning

### 2.1 Concept and Core Characteristics of Project-Based Learning

Project-Based Learning (PBL) originated from the instructional thought of “learning by doing” advocated by Dewey in the early 20<sup>th</sup> century. It is a good way to solve real problems in authentic situations (Wang & Meng, 2024). Teachers create a good environment and organise a number of practical and inquiry activities around real problems or difficulties, which encourage students to integrate multidisciplinary knowledge to solve practical problems, learn and construct new knowledge, and enhance students’ collaborative communication, evaluative reflection, and autonomous decision-making capabilities. In Project-Based Learning, problem construction is the prerequisite, problem-solving is the core, and project evaluation is the safeguard to test the effectiveness of problem-solving (Shi, 2025). The purpose of Project-Based Learning is primarily to encourage students to learn actively. By creating an authentic and specific environment, teachers guide students to think with questions, allowing them to investigate, observe, explore, communicate, display, and share their thoughts and learning by playing specific social roles in the project.

The “Gold Standard PBL” that has been put forward by the Buck Institute for Education is now widely used in schools to guide the implementation of Project-Based Learning. Generally speaking, an excellent piece of work in project-based teaching usually has the following six characteristics:

#### (1) Target-oriented learning

The objective of Project-Based Learning is not random study without textbooks; it should start and end with key knowledge points in the discipline and meet the requirements of the new curriculum standards. Students do not do the projects just to complete them. Instead, they are used to gain a deeper understanding of the essential Big Ideas in the process of undertaking the projects.

#### (2) Problem-driven learning

At the beginning of a Project-Based Learning, there is a genuine, open-ended, and challenging driving question, which often arises from real life or fundamental problems in a particular subject, motivates students to learn and study, and is within the range that can be explored with the existing means and conditions of students. For example, in the project-based teaching case called “Safety Education Drama Performance” for 8<sup>th</sup>-grade English teaching, a driving question could be: “As middle school students, how can we use English drama to spread knowledge about natural disaster evacuation among the people in our community?”

#### (3) Sustained learning

Project-Based Learning emphasizes continuity. It is a very difficult and lengthy process. Students should be able to identify questions, review materials, devise plans for inquiry, conduct inquiry, make adjustments and revisions, and construct final products. During this process, students undergo cognitive conflicts and Deep processing of thought. It generally takes a few weeks or even a whole semester to complete, which allows students to think deeply and revise repeatedly.

#### (4) Authentic situations

Projects based on learning aim to be more authentic, which does not need to be done physically in the real world. On the contrary, at the level of cognition, students should be able to sense and align with the “sense of reality” of the problem. The driving questions of Project-Based Learning are drawn from reality, where students take on the roles of actual people in the project and can see the application results of the project.

#### (5) Student subjectivity

Project-Based Learning emphasizes that students are the main objects of study, so students need to take the initiative to learn independently. It promotes “learning by doing”, “learning through application”, and “learning by creation”, which is in line with the English discipline’s view of learning activities in “thinking, and combining use with creation”, and reflects the concept of curriculum reform of “educating through practice” (Yang, 2021). Project-Based Learning endows students with voice and choice, so that students can independently choose the specific entry point for investigating problems, select inquiry methods and tools, determine group division and collaboration modes, design presentation formats, and arrange time schedules. Accordingly, the teacher’s role shifts from a “knowledge transmitter” to a “learning guide” and “resource supporter”.

## 2.2 Theoretical Basis of Project-Based Learning

Project-Based Learning (PBL) is not a new educational trend that has appeared recently in an empty state, rather, its fundamental rationale has long been accumulated and investigated thoroughly by scholars in pedagogy, psychology, cognition, etc. The Design and Construction are based on the following five theoretical foundations:

### 2.2.1 Dewey's Experiential Learning Theory

John Dewey, a famous American educator, is one of the main ideological foundations of Project-Based Learning. He believed that “education is life” and “school is society”, and put forward the new concept of “learning by doing”. Dewey thought that the acquisition of knowledge is not achieved through passive inoculation; instead, it is a process in which people actively build their own experience by engaging in practical activities and addressing problems in life (Dewey, 2014). In fact, Project-Based Learning is the organised application of the “learning by doing” idea in today's schools. In Project-Based Learning, students can acquire knowledge about language, safety, and cooperation by carrying out real-life projects. It is not merely about first memorizing words, then learning grammar, and finally considering application.

### 2.2.2 Constructivist Learning Theory

Constructivism is the basic idea behind project-based teaching. The first theory was put forward by the Swiss psychologist Piaget and later extended and modified by Vygotsky and others. Constructivism believes that people learn by building knowledge themselves through experience and then adjusting it based on what they have learned in their daily lives. According to the above theory, the four basic characteristics of learning are active agency, situatedness, sociality, and construction of meaning (Liu & Si, 2023). In Project-Based Learning, students build knowledge by working together to discuss, gather information, and solve problems in the process of completing a task; this is consistent with the theory of the “Zone of Proximal Development” and enables capability enhancement via peer assistance.

### 2.2.3 Bruner's Discovery Learning Theory

Jerome Bruner, an American psychologist, proposed the idea of “discovery learning” and thought that students learn by constructing knowledge themselves. He pointed out that students should not be passive recipients of knowledge, but rather, under the guidance and inspiration provided by materials furnished by teachers, they need to discover the laws of nature and learn the basic system of the subject through their own ways of observation and thinking (Liu & Zhong, 2002). Project-Based Learning does not have a single “standard answer” to be copied. Students should collect information, identify problems, propose solutions, and then check whether these solutions are effective. For example, in the “Safety Education” project, instead of memorizing the evacuation guidelines provided by the teacher, students discover the underlying scientific principles by investigating “Why should we hide next to a desk rather than under it during an earthquake?” Knowledge acquired through such independent inquiry possesses stronger transferability and durability.

### 2.2.4 Situated Cognition Theory

Cognitive psychologists believe that knowledge is situated and thus exists in the genuine activities, culture, and physical environments where it is used. Brown, Collins, and Duguid (1989) said that without an application background, knowledge is “inert”. Project-Based Learning can set knowledge in the background of life; thus, students will be motivated to use their knowledge to solve real problems. As a result, learning has shifted from being about the future to taking place in the present.

### 2.2.5 Multiple Intelligences Theory

Howard Gardner, an American psychologist, proposed the theory of multiple intelligences to divide intelligence into several kinds and claimed that people have various types of intelligence, such as linguistic and logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalistic, and existential intelligences. All students have different strengths and weaknesses in their studies. In Project-Based Learning, students can show what they have learned in various ways (e.g., students with good verbal skills present, students with strong spatial intelligence build architectural models, students who are good at interpersonal communication manage team cooperation and communication with the outside world views). This provides a theoretical basis for performance-based

assessment and educational equity. Project-Based Learning can promote students' deep learning, transform shallow-memorization learning methods, develop critical thinking and innovative capabilities, enhance communication, collaboration, and social adaptability, and realize the integration of knowledge, capability, and values to facilitate the landing of core literacy.

### **3. Implementation Procedures and Practical Modes of Project-Based Learning**

Based on real-life problems, Project-Based Learning has been used to help students build public works and spread literacy in all stages of inquiry. Practically speaking, its modes can be divided into discipline, length, subject, and type of work, so they are suitable for different stages of school life and situations.

#### **3.1 Core Implementation Procedures**

##### **3.1.1 Project Launch & Design: Anchoring Real Driving Questions**

Goal Setting: The project is based on the curriculum standards to define the essential knowledge, key abilities, and literacy goals.

Driving Question: At the start, a free-ended, authentic, and challenging central question should be put forward, and this question should be carried over in the rest of the activities.

Scheme Planning: The teacher should set clear cycles, divide tasks into small units, form groups, list required materials, etc.

##### **3.1.2 Inquiry & Practice: Collaborative Construction and Problem Solving**

Knowledge Construction: Conduct a study of related papers, interviews with people in charge, experiments, etc.

Collaborative Inquiry: Divide the sub-tasks among the group members, and then carry out the research, model, and creation, etc. Teachers offer assistance by providing task sheets, resource packages, etc.

Process Recording: The learning log, mind map, data chart, etc., need to be preserved to observe changes in cognition.

##### **3.1.3 Artifact Generation: Iterative Optimization and Prototyping**

First Artifact Formulation: Create a tangible object, such as a report, model, poster, video, theatrical play, etc.

Iterative Polishing: After peers' evaluation, teachers' assessment, and audiences' feedback, the work needs to be improved by several corrections.

Artifact Standardisation: Uniformise the form and expression of the work to help it be displayed, shared, and used.

##### **3.1.4 Public Display: Artifact Delivery in Authentic Contexts**

Diversified Presentation: Utilize artifact expos, classroom reports, community showcases, or online releases.

Authentic Audience: Present to classmates, teachers, parents, community members, experts, etc., to receive questions and feedback.

Detailed Explanation: Clearly present the background, process, results, and other information of the artifacts, answer questions, etc.

##### **3.1.5 Evaluation & Transfer: Diversified Reflection and Literacy Landing**

Four-dimensional assessment: Build an all-round matrix to integrate self-assessment, peer evaluation, teacher assessment, and genuine audience feedback in all aspects of the whole process and work products, collaboration, etc., as well as reflection.

Review and Reflection: Summarise what has been learned, what new abilities have been developed, cooperation experiences, deficiencies, etc.

Transfer and Application: Extract the method and cognitive model, then use them in the new environment and for the new problem.

#### **3.2 Practical Modes of Project-Based Learning**

##### **3.2.1 Exploratory Projects**

Exploratory Projects are a kind of general Project-Based Learning whose characteristic is to discover and investigate. They want students to learn how to find and raise problems on their own, how to explore unknown regions in an orderly manner, how to collect information, organise it, analyse it, and finally produce results such as research reports and observation logs.

### 3.2.2 Process Reconstruction Projects

The purpose of a process reconstruction project is to rebuild the formation process of knowledge or the historical development context. Students can learn knowledge and methods through simulations of authentic scientific research or engineering practice, etc. They are concerned with the experience of research methods and thought processes and focus on the collection and organization of process-oriented data, highlight formative evaluation, stress reflection on the inquiry process, and present outcomes in the form of process records and interim reports.

### 3.2.3 Social Role-Playing Projects

Social role-playing projects have students take on various roles, such as journalists, engineers, environmental protection officers, etc., to experience the social responsibilities and working processes of different occupations and solve problems in simulated or actual social situations. They are expected to have a sense of social responsibility and practical abilities, and the results will be in the form of solution plans, proposal letters, or public speeches.

## 4. Problems in the Application of Project-Based Learning in Real Life.

Although Project-Based Learning (PBL) has been promoted in recent years to cultivate the core competencies of students, many problems have arisen in practice in our schools. It is not a problem of technology; rather, it is a structural flaw in the educational system and instruction, as well as the assessment system.

### 4.1 Teacher Dimension: Weak Theoretical Understanding and Insufficient Implementation Capabilities

Most teachers have a weak grasp of the theoretical basis for Project-Based Learning and simply think it is a group activity or handicraft practice. They do not have the power to guide questions, regulate the process, or direct the investigation. At the same time, preparing lessons for Project-Based Learning also has a huge amount of work, and due to teachers' lack of energy, their willingness to apply it remains low (Xia, 2022).

### 4.2 Student Dimension: Deficient Autonomous Inquiry Capabilities and Superficial Collaboration

Having been taught traditionally for a long time, students have grown up passively and do not know how to gather data, analyse evidence, or build arguments independently. In group collaboration, there are problems such as uneven division of labour, the domination by high-achieving students, and the lack of participation of struggling learners; as a result, the inquiry process is not efficient. Some students are not comfortable with having to do difficult homework.

### 4.3 Resource and Scheduling Dimension: Inadequate Supporting Conditions

Primary and secondary schools mainly have schedules consisting of scattered disciplinary class periods. Therefore, it is difficult to organise continuous blocks of time for inquiry. There are fewer on-campus practice sites and tool resources, and there is a lack of off-campus practice bases. Some parents believe that Project-Based Learning will harm their children's grades in the examinations, and thus lack the necessary cooperation at home and school.

### 4.4 Evaluation Dimension: Obvious Result Orientation and Lack of Formative Assessment.

Schools still use examination scores as the main basis for assessment. Therefore, the level of student participation, inquiry process, and cooperative performance in the project cannot be included in the assessment. The evaluation is based solely on one teacher's assessment, and self-assessment and peer assessment are just for show; thus, they fail to play a leading role in guiding learning (Cui, 2021).

## 5. Optimization Paths for the Implementation of Project-Based Learning.

Given the aforementioned real problems, this part proposes practical, layer-by-layer optimisation plans for the issues in faculty, curriculum, students, assessment, resources, etc., that are easy to operate and have good system coordination.

### 5.1 Enhance the Professional Development of Teachers to Strengthen their Theoretical and Practical Foundation

The school should organise some training and systematically introduce theories of experiential learning and situated cognition. In short, research on teaching and case studies can help schools enhance the ability of teachers to design

projects and organise classes. It is also necessary to optimise the work arrangement and reduce non-teaching pressure on teachers' preparation time for lessons.

## **5.2 Grounding in Authentic Contexts to Scientifically Design Project Themes**

According to the theory of situated cognition, the topics of the projects should be related to students' daily life and school education. The theme should be in line with the nature of the problem, not vague or general, and should motivate students' desire to learn through a practical task.

## **5.3 Standardizing Group Collaboration Mechanisms to Enhance Students' Inquiry Literacy**

The school should divide the responsibilities of the groups reasonably and rotate them so that all members can participate. Teachers should lead students to learn how to collect and analyse data by explicitly teaching them about inquiry methods, setting up phases with milestones for persistent exploration by students, etc.

## **5.4 Constructing a Diversified Process-Oriented Evaluation System**

Schools should build an all-round evaluation system based on "process + outcome" and integrate "self-assessment + peer assessment + teacher assessment". Participation attitude, collaborative behavior, inquiry process, reflection, and improvement need to be included in the evaluation contents to reduce the impact of single-outcome evaluations and use the evaluation to promote in-depth learning.

## **5.5 Perfecting Resource and Institutional Safeguards**

The school will arrange an adjustable class schedule to provide students with more time for all kinds of projects and in-school training areas, and work with the community and museums to extend the scope of access to practice facilities. Moreover, strengthening home-school cooperation is needed to change the parents' ideas and build a joint educational force.

## **6. Conclusion**

At the level of core literacy, Project-Based Learning is based on real-life problems, and under the guidance of teachers, students carry out research and present public works. It is in line with the trend of literacy-based educational reform and can serve as a good model to address the problem of disconnection between knowledge and practice, as well as weak innovation and application ability among students in traditional classrooms. Although some progress has been made in the Project-Based Learning practices of primary and secondary schools in China at present, structural problems such as teachers' cognitive and capability deficiencies, inefficient inquiry and collaboration by students, insufficient supply of class time and resources, and a lagging evaluation system still exist and restrict the full release of its educational value.

Research indicates that the successful implementation of Project-Based Learning is by no means an overnight, localized attempt, but rather a systemic project involving "teachers, students, curriculum, evaluation, and resources." To advance Project-Based Learning in the future, it is necessary to solidify teachers' implementation capabilities through theoretical empowerment, improve project design quality via authentic contexts, safeguard students' deep engagement via standardized mechanisms, guide learning directions via diversified evaluations, and fortify the implementation foundation via institutional resources. Only by realizing the systemic coordination of concepts, faculty, curriculum, evaluation, and safeguards can Project-Based Learning transition from formalization to depth, and from scattered attempts to normalcy. This will truly achieve the organic unity of knowledge, capabilities, and values, providing solid practical support for the landing of core literacy.

## **Funding**

This paper is supported by Understanding China · Translating China: Comprehensive Translation, Teaching Team Program of Northwest Normal University on Morals and Values Education throughout Curriculum in 2023: (Project No. 202320051343).

---

## References

- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Cui, Y. H. (2021). Classroom assessment: Promoting learning. East China Normal University Press.
- Dewey, J. (2014). Democracy and education (X. W. Wang, Trans.). People's Education Press. (Original work published 1916)
- Gardner, H. (1993). Multiple intelligences: The theory in practice. Basic Books.
- Liu, J. F., & Zhong, Z. X. (2002). Research on the model of project-based learning (PBL). *Foreign Education Research*, (11), 18-22.
- Liu, L. B., & Si, Y. L. (2023). Project-based learning: Historical evolution, practical models and localized pathways. *Journal of Educational Development*, (7), 5-15.
- Ministry of Education. (2022). Compulsory education English curriculum standards (2022 edition). Beijing Normal University Press.
- Shi, Y. (2025). The practice of optimizing project-based learning in junior high school English teaching. *Primary and Secondary School Foreign Language Teaching (Secondary School Part)*, (6), 45-50.
- Wang, Q. X., & Meng, F. L. (2024). The value implication and practical path of project-based learning in high school English under the guidance of subject core literacy. *Curriculum, Teaching Material and Method*, (1), 143-148.
- Xia, X. M. (2022). Evaluation of project-based learning directed toward core literacy. *Journal of the Chinese Society of Education*, (09), 50-57.
- Yang, M. Q. (2021). Project-based learning in the era of core literacy: Reconstructing connotation and value. *Curriculum, Teaching Material and Method*, (2), 57-63.