

PBL-SUPPORTED EXTENSIVE READING: EFFECTS ON COMPREHENSION AND MOTIVATION IN SENIOR HIGH SCHOOL^{*}

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Received 31 March 2026; Revised 26 April 2026; Accepted 28 April 2026

Abstract

This study addresses the lack of empirical research on the integration of Project-Based Learning (PBL) and smart education platforms in extensive reading instruction among senior high school students in China. Grounded in theories of extensive reading and learning motivation, the study examined the effectiveness of integrating PBL with the Smart Education Platform of China in enhancing students' reading comprehension and motivation. A mixed-methods design was employed. Quantitative data were collected through pre- and post-tests based on the China's Standards of English Language Ability (CSE) and a reading motivation questionnaire, while qualitative data were obtained through semi-structured interviews. The participants consisted of 96 senior high school students from Guanghan Middle School in Sichuan Province, divided into experimental and control groups over an eight-week intervention.

The results indicated that the experimental group demonstrated greater improvements in reading comprehension and fluency compared to the control

Citation:



^{*} Yuandi Zhang and Nipaporn Sakulwongs. (2026). Pbl-Supported Extensive Reading: Effects On Comprehension And Motivation In Senior High School.

Modern Academic Development and Promotion Journal, 4(4), 535-547.;

DOI: <https://doi.org/10.>

<https://so12.tci-thaijo.org/index.php/MADPIADP/>

group. In addition, students' reading motivation, classroom engagement, and collaborative learning showed noticeable enhancement. Qualitative findings further revealed that the Smart Education Platform enriched linguistic input and cultural exposure, while PBL activities promoted critical thinking, problem-solving skills, and learner autonomy. These findings suggest that the integration of PBL and smart education platforms can effectively support both cognitive and motivational development in extensive reading instruction..

Keywords: Project-Based Learning, Extensive Reading, Reading Comprehension, Learning Motivation, Smart Education Platform, Senior High School

Introduction

English plays a crucial role as a global language in various domains, ranging from daily communication to international business and academic exchange (Zhang, 2021; Hilda & Joe, 2021; Liu & Li, 2020). Consequently, English language education has become a key focus in many countries, aiming to develop students' communicative competence for a rapidly changing global environment (Zschomler, 2021). Among the four language skills, reading is particularly important as it supports overall language development and knowledge acquisition.

Reading instruction has mainly focused on two approaches: intensive reading and extensive reading (Andrés, 2020; Zhang & Milton, 2022). Intensive reading emphasizes detailed analysis of language forms and is widely used in traditional Chinese classrooms. While it improves accuracy, it often limits student engagement and motivation. In contrast, extensive reading involves reading large amounts of meaningful texts, which promotes vocabulary acquisition, reading fluency, and overall comprehension.

The effectiveness of extensive reading is supported by input-based theories, such as Krashen's Input Hypothesis, which highlights the importance of

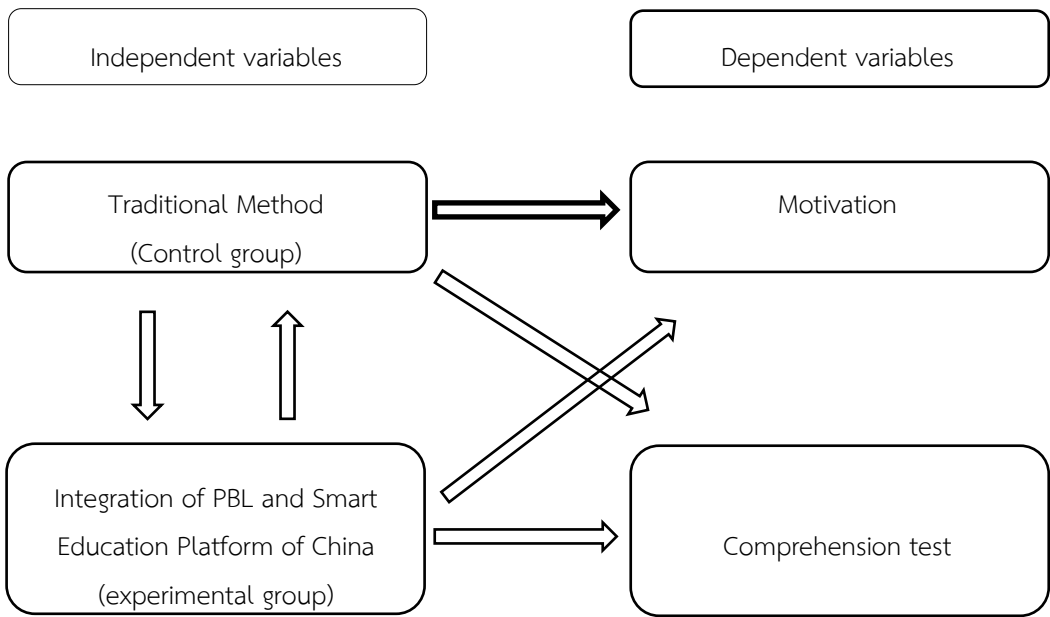
meaningful language exposure. Motivation theories, including Dörnyei's framework, also emphasize learner engagement in sustaining language learning. However, extensive reading remains underutilized in Chinese high schools due to exam-oriented instruction and low student motivation. At the same time, emerging technologies, such as the Smart Education Platform of China, offer new opportunities to enhance language input and interactive learning.

Project-Based Learning (PBL), grounded in constructivist theory, promotes active learning, collaboration, and meaningful engagement, and has been shown to improve student motivation. However, its impact on language achievement remains inconsistent, and research integrating PBL with smart education platforms in extensive reading contexts is still limited. Therefore, this study investigates the effects of integrating PBL with a smart education platform on students' reading comprehension and motivation through both quantitative and qualitative approaches.

Objectives

1. To compare the effects of the integrated Project-Based Learning (PBL) and smart education platform model (experimental group) with the traditional teaching method (control group) on senior high school students' reading comprehension.
2. To examine the influence of the integrated PBL and smart education platform model on students' extensive reading motivation by comparing the experimental and control groups.
3. To identify practical pathways for enhancing reading comprehension and motivation through the integration of PBL and a smart education platform in senior high school English instruction.

Research Framework



Methodology

This study employed the National Smart Education Platform as a technological support and integrated it with the theoretical framework of Project-Based Learning (PBL) to explore its implementation and effectiveness in senior high school English extensive reading instruction. The research focused on three main aspects: (1) the feasibility of implementing a PBL-based extensive reading model supported by the platform’s resources, such as dual-teacher classroom recordings and graded reading modules; (2) the practical integration of PBL and platform functions, including project task design and the use of digital tools; and (3) the differential effects of this model on students’ reading ability, particularly in terms of reading fluency, vocabulary acquisition, and reading motivation.

A quasi-experimental design was adopted, employing a pre-test and post-test control group structure. The participants consisted of 96 students from

Guanghan Middle School, who were divided into experimental and control groups. Quantitative data were collected using reading comprehension tests aligned with the China's Standards of English Language Ability (CSE) and a motivation questionnaire based on the ARCS model. Qualitative data were obtained through classroom observations and semi-structured interviews.

Data were analyzed using both quantitative and qualitative approaches. The pre- and post-test results were compared to examine differences in reading comprehension and motivation between the two groups, while qualitative data were analyzed to provide deeper insights into students' learning experiences and engagement. In addition, the study considered the moderating role of platform accessibility in influencing learning outcomes.

Overall, the study aimed to reveal an embedded instructional model of extensive reading characterized by the integration of platform-supported resources and project-based learning activities, providing empirical evidence for addressing challenges such as limited reading resources and low student participation in traditional classrooms.

Results

This kind of teaching approach was based on the project-based learning concept and incorporating the smart education platform in the actual teaching context. The data analysis process strictly followed the implementation procedures of the mixed research method. Through multi-angle and multi-level data processing and presentation, it provided a reliable basis for the formation of the research conclusion.

Pre- and Post-test Comparison Within Groups

The results showed that the average improvement score of the experimental group in the reading comprehension test was 7.18 points, while that of the control group was 5.20 points. From the perspective of the

improvement extent, the score increase of the experimental group during the study period was significantly greater than that of the control group. Although this indicator was not subjected to a significance test, it revealed the relative advantage of the experimental group in the development trend of reading scores at the descriptive level, providing an important reference for the subsequent comparison and analysis of the pre- and post-tests within the group.

From the comparison results of the pre-test and post-test within the group, it can be seen that both the experimental group and the control group showed a certain degree of improvement in their test scores after the teaching intervention. This indicated that in the normal teaching process, students' reading abilities will gradually develop as the learning time increases. However, there were still certain differences in the magnitude and trend of the score changes between the two groups. Compared with the control group, the average score improvement of the students in the experimental group was more significant in the post-test, indicating that the teaching intervention had accelerated the development process of students' reading abilities to a certain extent.

Analysis of Reading Motivation / Willingness Questionnaire

Overall, the experimental group exhibited a notable improvement in reading motivation following the teaching intervention. Most students reported a rise in interest in English reading activities in the questionnaire and held more positive attitudes toward English reading tasks. Particularly in items regarding willingness to actively participate in classroom reading activities and continue reading English materials after class, the proportion of affirmative responses from the experimental group saw a marked increase. In contrast, the control group's reading motivation changed relatively little despite minor positive shifts in some aspects, the overall trend was flat, with students' attitudes mostly remaining unchanged, which revealed that conventional teaching failed to drive significant changes in students' reading motivation or learning attitudes.

The experimental group also showed striking positive changes in reading motivation and classroom participation. Questionnaire results demonstrated that after the intervention, these students were more willing to engage in reading-related classroom activities like group discussions, text analysis and project presentations. They generally described the classroom reading activities as more engaging and accessible to participate in, and highly appraised the interactive forms of the classroom. Additionally, some experimental group students noted in the questionnaire that project-based reading tasks gave them a clearer sense of purpose in reading, which boosted their willingness to finish reading tasks, alleviated their anxiety about reading difficulty to a certain extent and enhanced their initiative in reading participation.

By comparison, the control group had no significant changes in reading motivation. While their overall evaluation of classroom teaching stayed stable, there was no obvious growth in their active participation in class, cooperative communication with peers and persistence in completing reading tasks. The above results all indicate that the teaching intervention was effective in stimulating students' learning interest compared with the control group, the experimental group presented a far more positive development trend in reading motivation, verifying the intervention's positive role in fostering students' English reading motivation and learning initiative.

Discussion

Overview of Findings

The findings of this study indicate that the integration of Project-Based Learning (PBL) with the smart education platform had a positive impact on both reading comprehension and students' motivation. The results are presented in two main parts: (1) reading comprehension outcomes and (2) reading motivation.

Pre- and Post-test Comparison

The results showed that both the experimental and control groups demonstrated improvement in reading comprehension after the intervention. However, the experimental group achieved a greater increase, with an average improvement score of 7.18 points, compared to 5.20 points in the control group.

Although no statistical significance test was conducted, the descriptive results suggest a stronger development trend in the experimental group. This indicates that the integration of PBL and the smart education platform may have accelerated students' reading development compared to traditional instruction. At the same time, the improvement observed in both groups reflects the natural progression of reading ability over time.

Reading Motivation Results

The experimental group showed a clear improvement in reading motivation following the intervention. Most students reported increased interest in English reading and more positive attitudes toward reading tasks. In particular, there was a noticeable increase in students' willingness to participate in classroom reading activities and to continue reading outside the classroom.

In contrast, the control group demonstrated only minimal changes in motivation. While slight improvements were observed in some areas, overall student attitudes and engagement remained largely unchanged, suggesting that traditional teaching methods had limited impact on students' motivation.

Qualitative Findings

Qualitative data further supported the quantitative results. Students in the experimental group reported higher levels of engagement in activities such as group discussions, text analysis, and project presentations. They described the learning process as more interactive and meaningful. In addition, project-based tasks helped students develop a clearer purpose for reading, increased their willingness to complete tasks, and reduced anxiety related to reading difficulty.

By comparison, students in the control group showed no substantial changes in participation or engagement. Overall, these findings indicate that the integrated approach was effective in enhancing students' motivation and active involvement in reading activities.

Body of Knowledge

This study contributes to the existing literature by examining the integration of Project-Based Learning (PBL) within a textbook-centered English reading classroom supported by a smart education platform in a Chinese secondary school context. Rather than positioning PBL as a replacement for traditional instruction, the study proposes an embedded instructional model in which textbook-based learning is extended through project-oriented and technology-supported activities. This approach reflects authentic classroom conditions and provides a practical framework for integrating pedagogical innovation into established teaching systems.

The findings further highlight a shift in teachers' instructional roles. In traditional contexts, English reading instruction is often dominated by teacher explanation and exam-oriented practice. However, the implementation of PBL supported by digital platforms enables teachers to move from knowledge transmitters to learning designers and facilitators. This transformation represents not a rejection of traditional methods, but an extension that enhances teaching effectiveness through improved instructional design.

In terms of theoretical contribution, the study provides evidence that the value of integrating PBL and technology lies not only in improving learning outcomes, but also in reshaping learning processes. While both experimental and control groups showed improvement in reading comprehension, the experimental group demonstrated greater gains alongside a more substantial increase in reading motivation. This suggests that motivational development may

precede measurable cognitive gains in short-term interventions, offering insight into the different trajectories of affective and cognitive learning outcomes.

Overall, this study contributes to the body of knowledge by proposing a context-sensitive model of instructional innovation that balances traditional practices with modern pedagogical approaches. It emphasizes the importance of instructional design and teacher agency, demonstrating how innovative methods can be effectively adapted within exam-oriented educational systems.

Recommendation

The findings of this study suggest that improving English reading instruction does not require a complete shift away from existing classroom practices. In the context of Chinese secondary education, maintaining a textbook-based structure while integrating project-based reading activities offers a more practical and sustainable approach. Rather than being implemented as a separate method, Project-Based Learning (PBL) can be used to extend and deepen textbook content, enabling students to engage with reading materials in a more purposeful and meaningful way.

The effectiveness of the smart education platform depends largely on its integration with instructional design. In this study, the platform supported reading instruction by providing topic-related resources, offering graded reading materials, and facilitating collaborative learning activities. These features helped redistribute part of the learning responsibility to students while maintaining appropriate teacher guidance. However, the findings also indicate that technology alone does not automatically improve reading comprehension, highlighting the central role of teachers' pedagogical decisions.

Classroom observations further emphasize the importance of structured scaffolding during project-based reading activities. Teachers should provide explicit support, such as pre-teaching key vocabulary, guiding students in text

analysis, and offering clear instructions for group work and project tasks. In addition, setting clear learning objectives and expected outcomes can help students better manage complex reading materials. These strategies ensure that students not only participate actively but also benefit cognitively from the learning process.

At a broader level, the study highlights the need to reconsider teachers' roles in technology-supported classrooms. Professional development programs should focus on enhancing teachers' skills in instructional design, digital pedagogy, and facilitation strategies, rather than solely on technical operation. Furthermore, future implementations should consider longer intervention periods and more diverse assessment methods to better capture the long-term impact of integrating PBL and smart education platforms on students' reading development.

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