

THE APPLICATION OF PROJECT-BASED LEARNING
TO IMPROVE ENGLISH READING SKILL OF GRADE 6 STUDENTS
IN GUANGDONG PROVINCE, CHINA

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ABSTRACT

This study aimed to compare the English reading skill of Grade 6 Chinese students before and after the application of Project-Based Learning (PBL) and to assess their learning satisfaction with the PBL. In this study, 30 sixth-grade students from a compulsory school in Guangdong Province participated in practical teaching sessions. The experimental process was structured into distinct phases: a pre-test conducted before the experiment, instructional activities during the experiment, and a post-test, followed by the administration of questionnaire, semi-structured interview, and statistical analysis after the experiment. Data analysis revealed a significant difference between the pre-test and post-test scores. The average pre-test score was 10.10 while the average post-test score increased to 15.80, reflecting an average improvement of 5.70 points, the significant level was less than 0.01 (level set at $p < 0.05$). The average results of the questionnaire indicated high levels of satisfaction across all categories. Additionally, responses from the semi-structured interview revealed that students were satisfied with the application of PBL in their English reading class. The findings of the study suggest that the application of Project-Based Learning significantly improved the English reading skill of Grade 6 Chinese students.

Keywords: Project-Based Learning, English Reading Skill, Learning Satisfaction, Grade 6 Students

INTRODUCTION

Nowadays, modern society demands higher proficiency in English. Listening, reading, writing and speaking are fundamental skills in English. Among these four skills, reading occupies an indispensable position (Zhang, 2021). Reading is one of the crucial pathways for students to acquire information, accumulate knowledge and understand the external world, playing a significant role in primary school English curriculum instruction. (Fan, 2024).

Ma (2016) noted that English reading is often neglected in teaching, making it challenging for students. Additionally, the English reading skill of Chinese primary school students generally is not well, due to a lack of reading vocabulary, single reading materials and insufficient reading. (Liu, 2020).

Project-Based Learning (PBL) could be implemented into the current English reading teaching. As Zhang (2021) stated that PBL is a student-centered teaching method where students work in groups to complete projects, fostering their critical thinking and self-directed learning abilities. Teachers act as facilitators and project designers, encouraging students to solve problems and accomplish tasks.

As mentioned above, this paper was to examine that would the application of PBL help improve English reading skill of grade 6 Chinese students by comparing students' test scores before and after

applying it in English reading class and to investigate students' learning satisfaction with the application of it as well.

RESEARCH OBJECTIVES

1. To compare the English reading skill of grade 6 Chinese students before and after the application of Project-Based Learning.
2. To investigate the grade 6 Chinese students' learning satisfaction towards the application of Project-Based Learning.

LITERATURE REVIEW

1. English Learning in China

In China, the current English learning model in basic education is predominantly exam-oriented. (Zhang, 2019). From primary school to university, the traditional teaching method remains the main approach for English learning. This method places greater emphasis on the teacher's transmission of knowledge and the process of student memorization. With the implementation of the new curriculum reform, English teachers are required to develop students' comprehensive language skills. It advocates for student-centered teaching. But in fact, some teachers fail to practice in the learning management.

Additionally, Zhou (2019) stated that there are 5 kinds of obstacles

for English learning in China. 1) monotonous teaching methods; 2) low English proficiency among students. 3) neglecting students' central role. 4) dull classroom atmosphere. 5) students lack of good English learning habits.

2. The English Reading Skill

Ge (2024) pointed out that primary school stage is a crucial period for developing students' English reading skill, holding multiple developmental significance.

Liu (2020) combined the understanding of many scholars on English reading skill and based on the "China Standards of English Language Ability (2018)", summarized the reading skill as follows: 1) identification and extraction ability; 2) comprehension and recognition ability; 3) generalization and analysis ability; 4) evaluation and appreciation ability. According to many scholars' reviews, the English reading skill in this study refers to the comprehension ability of the grade 6 students in the sample group can read, retrieve basic information, make straightforward inferences, interpret and integrate information of written texts in English through the PBL.

3. Project-Based Learning (PBL)

Project-based learning (PBL) is a positive teaching method which centers on students using their existing knowledge and resources to solve problems, gaining new skills and insights in the process. With teacher guidance, PBL helps students

consolidate knowledge, enhance learning skills, and improve language comprehension through independent or cooperative efforts (Song, 2018).

Zhang (2021) stated that PBL allows students to acquire knowledge beyond textbooks and enhances their practical skills, analytical abilities, as well as interpersonal communication and collaboration skills through practical activities.

Liu & Zhong (2002) stated that project-based learning consists of four elements: content, activities, context, and outcomes. They also outlined six basic procedures for implementing PBL: selecting the project; planning; conducting activities and investigations; creating the project; presenting results; and evaluating the activities.

The application of PBL to English reading could encourage students to actively raise and solve problems, enhancing their ability to review and apply classroom knowledge, and strengthening their reading skill. In this study, the application of PBL to English reading was demonstrated in four designed lessons. Each lesson had independent topic that was set by the teacher for students to make a group of five to do a project. In the classes, there were five steps as follows. 1) Project preparation: Students engage with the lead-in

activities, learn the key words and expression, then form diverse group and select project; 2) Project implementation: Students independently gather, share and analyze English reading materials, then collaboratively create their final project with the teacher support; 3) Project presentation: Each group present their projects, teachers and classmates taking notes for evaluation; 4) Evaluation: Students discuss and share their ideas about project results with teacher and other classmates; 5) Practice on reading: Students complete textbook exercises,

then teacher give feedback and encourage them to do more reading.

CONCEPTUAL FRAMEWORK

In this study, the researcher aimed to examine the effectiveness of PBL to English reading skill and their learning satisfaction. The independent variable was the application of PBL, and the dependent variables were the English reading skill and students' learning satisfaction. Figure 1 is the illustration of the study's conceptual framework:

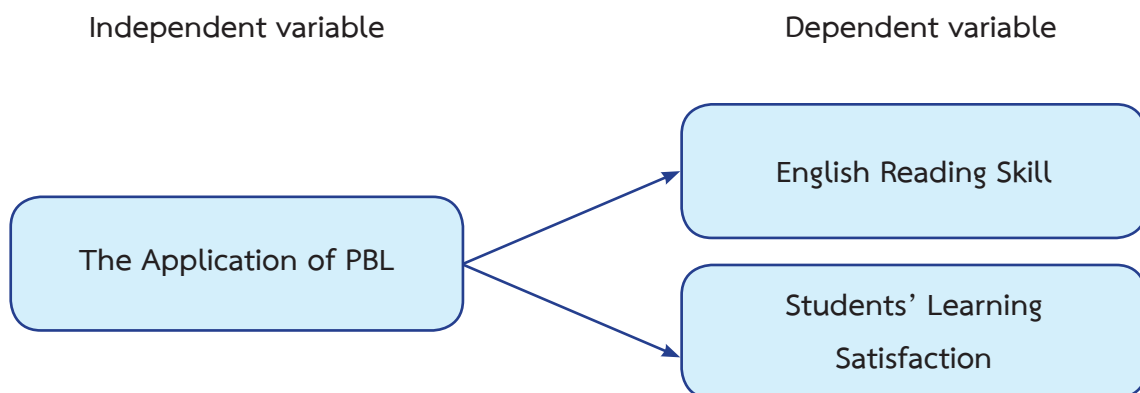


Figure 1 Independent and Dependent Variables

METHODOLOGY

This study used both quantitative and qualitative approach to collect the data. A pre-test and a post-test to assess grade 6 Chinese students' English reading skill, and then a questionnaire to indicate their learning satisfaction for collecting quantitative data. In addition,

semi-structured interview was used to collect qualitative data for supporting the students' learning satisfaction. The paired sample t-test was conducted to analyze and compare the differences between the pre-test and post-test results for the sample group. Figure 2 below describes the research design of the study.

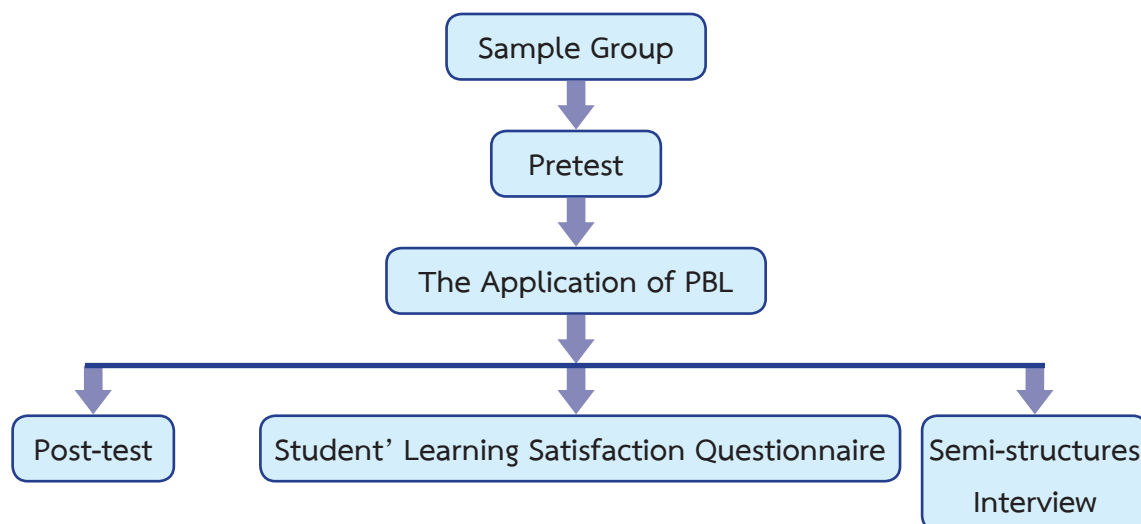


Figure 2 Illustration of Research Design

Participants

The target population of this study consisted of four classes with 120 in grade 6 students, each class with 30 students, from a compulsory school in Guangdong Province. The age range of these students was between 11 to 12 years old. The researcher used a clustered random sampling method to choose one class out of the population. There were comprised with 16 males and 14 females in different levels of English reading proficiency.

Research Instruments

Four instruments were used for collecting data for this study: lesson plans, English reading skill tests, students' learning satisfaction questionnaire and semi-structured interview.

1. Lesson Plans

The researcher designed and implemented four lesson plans in four weeks, two classes in each lesson (one class 45mins, twice a week). The topic of each lesson was based on the Elementary School English textbook for PEP Grade 6 Book 1 (for Grade 3 starting) (2012). The learning objectives are students could express the sentences with the key words, phrases from the textbook that aligns with the topics set by the teacher, and could make the projects such as tourists' guide paper, stimulation PowerPoint, poster and role-playing. The reading materials included textbook and the materials that students searched in the internet which aligned with the topics.

2. English Reading Skill Tests

To compare the English reading skill before and after the application of PBL, the tests were divided into pre-test and post-test. The test comprised of 20 English reading skill questions, each question worth one point, totaling 20 points. The tests were designed by the researcher, and the questions were based on the contents and vocabularies that the students learned during the project preparation and implementation. The questions were testing the skill of students choosing the main ideas and correct details about the short passages or forms, and inferring the suitable sentences for a dialogue.

3. Students' Learning Satisfaction Questionnaire

The students' learning satisfaction questionnaire to investigate grade 6 students' contentment towards the application of PBL to improve English reading skill. The questionnaire included three parts: students' interest and motivation, students' engagement and efficacy of PBL on student learning. The statements rated on a Likert scale ranging from 5 to 1 as follows: (1) Strongly Agree, (2) Agree, (3) Neutral, (4) Disagree, (5) Strongly Disagree.

4. Semi-Structured Interview

The researcher conducted semi-structured interview with students following the application of PBL. To select participants, the researcher used simple random sampling, choosing 1 student from each of six groups and in a total of 6 interviewees. It was divided into three sections: students' interest and motivation, students' engagement and efficacy of PBL on student learning. Each section included two questions, making a total of six questions.

5. Validity and Reliability of Research Instruments

The study used the Item Objective Congruence (IOC) index to evaluate the effectiveness of instruments, which ranges from -1 to +1. A rating of +1 indicates clearly consistent with the stated objectives, a rating of 0 indicates neutrality or uncertainty, and a rating of -1 indicates item is not consistent with the stated objectives. The acceptability of the test item value was between 0.67 and 1.00. In this study, all instruments were validated by three experienced primary English experts with the score which was higher than 0.67. The IOC result for the lesson plans was 1, English reading skill tests was between

0.67 to 1, students' learning satisfaction questionnaire was 1, and semi-structured interview was 1.

The Kuder-Richardson formula (KR-20) was used to check the reliability of the English reading skill tests, and Cronbach's Alpha was used to test the students' learning satisfaction questionnaire. The reliability coefficients for the English reading skill tests and the students' learning satisfaction questionnaires were calculated, yielding values of 0.75 and 0.97, demonstrating that the tests meet the required statistical reliability standards. Consequently, the test items were deemed reliable for data collection purposes.

1. Analysis of English Reading Skill Tests Scores

As shown in table 1, the paired-sample analysis of reading skill test scores revealed a positive improvement. The pre-test had a mean score of 10.10 with a standard deviation of 3.65, while the post-test had a mean score of 15.80 with a standard deviation of 2.70. The difference between the mean of pre-test and post-test was 5.70, and the significant level was less than 0.01 (level set at $p < 0.05$). These results indicated that after the application of PBL, the students' English reading skill has greatly improved.

RESEARCH RESULTS

Table 1 Sample t-test

Paired Sample Statistics						
	n	\bar{X}	SD	Mean difference	T	p-value
Pre-test	30	10.10	3.65	5.70	-19.51	.000**
Post-test	30	15.80	2.70			

Figure 3 below illustrates the pre-test and post-test scores of participants. The green line represents the pre-test

scores, while the purple line represents the post-test scores. All 30 participants exhibited improvement in their scores.

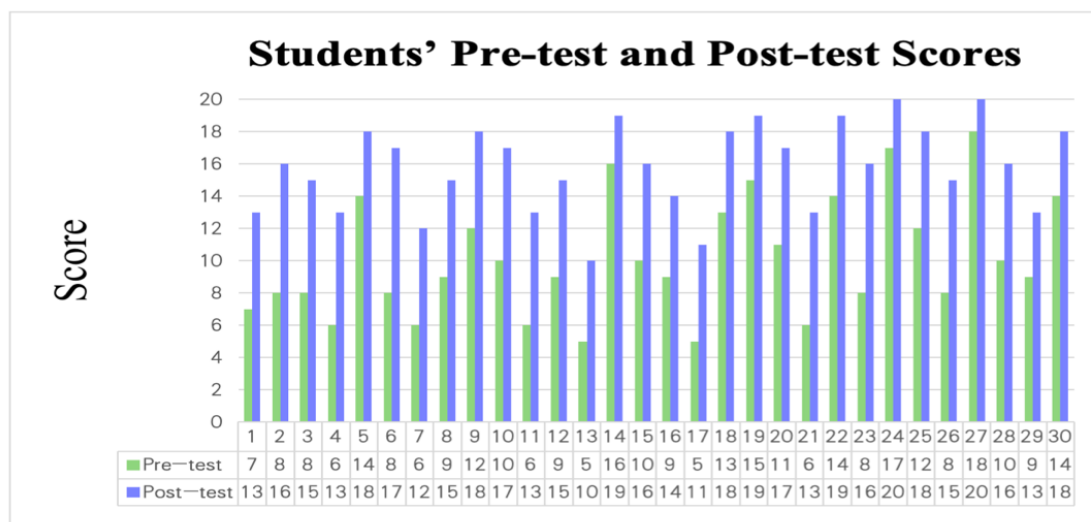


Figure 3 Graphical representation of students' pre-test and post-test score

2. Analysis of Students' Learning Satisfaction Questionnaire

A questionnaire was collected to assess students' learning satisfaction after the application of PBL to improve English reading skill. The questionnaire comprised of 15 items which was divided into three parts: Part A: Interest and motivation, Part B: Engagement and Part C: Efficacy of PBL on student learning. The researcher analyzed

the questionnaire results using mean and standard deviation for statistical description. From the table 2 below, it could be seen that the mean scores were 4.26, 4.31 and 4.27 for part A, part B and part C respectively, which were all at the highest level. The overall average was also at the highest level with the mean scores of 4.28.

Table 2 Questionnaire of the Sample Group

	n	SD	Interpretation
Part A	30	4.26	Highest
Part B	30	4.31	Highest
Part C	30	4.27	Highest
Overall	30	4.28	Highest

3. Analysis of Semi-Structured Interview

After the application of PBL, the researcher gathered useful insights into students' learning satisfaction through semi-structured interview. A random sampling method was used to select six students from participants who were divided into 6 groups for interviews (one student per group), and this data supplemented the questionnaire results to provide a more comprehensive student perspective. The interviews data was analyzed under three themes: interest and motivation, engagement, and the efficacy of PBL on student learning. Each theme is described in more detail below.

1) Part A: Interest and Motivation

Student 1:" I found PBL very interesting, especially the process of learning English reading through real projects, which motivated me to improve more." Student 2:" PBL allowed me to choose projects that I was interested in, and this autonomy gave me more motivation to learn English reading."

2) Part B: Engagement

Student 3:" I felt that every time I engaged in discussions or completed a project, my English reading skill improved." Student 4:" Using multimedia resources made the class more interesting for me.

These resources helped me better understand and remember what we've learned."

3) Part C: Efficacy of PBL on Student Learning

Student 5:" In the PBL, I learned from my mistakes, which made me realize that making mistakes is part of learning, so I felt more relaxed and confident." Student 6:" The vocabulary and phrases I learned in the project were used multiple times, making it easier for me to remember and recognize them while reading."

RESULTS CONCLUSION AND DISCUSSION

The first objective of the study was to compare the English reading skill of grade 6 Chinese students before and after the application of Project-Based Learning in Guangdong Province, China. The paired sample t-test was conducted to analyze and compare the differences between the pre-test and post-test results for the sample group. The second objective of the study was to investigate students' learning satisfaction with the application of Project-Based Learning to improve English reading skill. A questionnaire and semi-structured interview included 3 parts were used to collect the data.

In addition, there were two main findings of this study.

1) The application of PBL helped improve the English reading skill of grade 6 students in Guangdong Province, China.

2) Students were satisfied with the application of PBL to improve English reading skill.

Consequently, the objectives of this study have been achieved. A detailed discussion on how the two research questions posed in this study were addressed in the following.

The English reading skill tests results revealed that the application of PBL significantly improved English reading skill of grade 6 Chinese students. The pre-test and post-test results of the participants showed an average improvement of 5.70 points. In addition, all participants showed varying degrees of improvement, ranging from 2 to 9 points. In this study, the application of PBL to improve English reading skill was demonstrated in four designed lessons. Each lesson had different topics for students to make a group of five to do a project. For completing the projects, students cooperated with group members, read the materials to find the useful information, discussed and designed the projects. It made students read more and have their independent ideas for their projects.

Moreover, the projects were presented in the class, students could learn more diverse knowledge from others' projects. All processes of PBL asked students to cooperate with others for sharing ideas and learning English reading more, their knowledge of English increased and English reading skill improved in a subtle way. As Zhang (2023) found that PBL can significantly improve students' English reading skill. Students could learn to analyze textual information and make reasonable interpretations, which enable them to understand projects effectively. The learning atmosphere enables students to remain motivated and continually enthusiastic about English reading. Thus, students could make different remarkable improvement. An (2023) also found that PBL significantly enhanced students' engagement, understanding and retention of English reading materials, while also fostering positive attitudes and reduced anxiety towards learning. These results suggest that PBL can be a highly effective method for teaching English reading skill, promoting active learning and addressing challenges in traditional Vietnamese education methods. Additionally, Imbaquingo & Cárdenas (2023) investigated the effectiveness of PBL in enhancing English reading skill

among ninth-grade students in Quito, using a mixed-methods approach and comprehensive literature review. Observations and questionnaire revealed that PBL increased students' motivation and improved their reading skill through relevant projects. The findings suggest that PBL is an effective teaching strategy for developing English reading skill and should be widely adopted. The study emphasizes the role of educators in fostering reading skill, particularly at the early stages of education.

The students' learning satisfaction was assessed through both questionnaire and semi-structured interview. All participants expressed positive views regarding the application of PBL to English reading class. The findings from the questionnaire and semi-structured provided clear and reliable evidence to support the second research question.

The results of the questionnaire showed that all 15 items were rated "highest" and the responses of the semi-structured interview were all positive. This indicated that the students found the application of PBL engaging and effective in helping them improving English reading skill in a meaningful way. In this study, PBL aligned with cooperative learning, the processes of PBL needed

the students' cooperation in different group. The group cooperation made students feel more comfortable to complete the projects. In the group, students could complement each other's strengths and improve their English reading skill together. Furthermore, the teacher just gave some support and suggestions for their projects, the students had greater autonomy for their projects design and English reading. And the atmosphere of the PBL class was more relaxed than the traditional class. Therefore, student would be more interested in PBL, the group cooperation made them more engaged in the English reading class, and the evaluation of PBL gave them the neutral suggestions to improve their projects and English reading learning.

The result was same as Zhao's (2023) finding that the students have high satisfaction with the application of PBL to English reading class and hope that PBL could be widely applied in classroom teaching. Chen (2021) demonstrated that PBL applied in the process of English reading teaching and learning could help students improve their enthusiasm for learning English reading, so that students have a certain interest in English learning and English reading. Through the guidance of teachers, students could take the initiative to learn

and explore knowledge according to the requirements of the projects. The application of PBL could effectively improve the English reading skill and independent learning ability of students, gradually cultivate good learning habits.

This study also revealed that students did not find learning English reading with the PBL dull, which motivated them to take the initiative in improving English reading skill. This finding aligned with Li's (2020) study result, the application of PBL in English reading instruction has been well-received among students. They believe that PBL is based on their interests, significantly enhancing their desire to learn and increasing their engagement compared to before. At the same time, students feel that their choices and ability to engage in self-directed inquiry are respected and recognized. As Zhao (2023) also found that students take the lead in their learning process, which boosts their enthusiasm and engagement. Through group work and active research, their English knowledge and reading skill improved. Additionally, preparing projects enhances their confidence and independence in English reading learning. In a conclusion, students have high satisfaction towards

the application of PBL to improve English reading skill and have the motivation and enthusiasm to learning English reading better.

RECOMMENDATIONS

1. Recommendations for Implementation

1) The application of PBL to improve English reading skill has demonstrated positive results. However, this study was limited to just four weeks. To gather more comprehensive data and achieve better learning outcomes, it is suggested that schools expand the application of PBL to English reading class in other educational settings.

2) The implementation of PBL in English reading class to sixth-grade students has received favorable feedback from participants. So the researcher recommends that English teachers across all grade levels integrate the PBL into their teaching practices to boost student engagement and motivation in learning English reading.

3) As an essential component of English learning, reading skill has been successfully improved with the application of PBL, so that PBL can also be applied to improve other areas of English learning skill, such as listening, speaking, and writing.

2. Recommendations for Future Research

Considering some limitations of this study, the researcher had recommendations for future research.

1) This study was conducted with 30 sixth-grade students from a compulsory school in Guangdong Province. Since different regions and grade levels may yield varying results, it is recommended to expand the sample size and conduct similar studies across different grades to ensure more robust and reliable findings.

2) The process of becoming familiar with the application of the PBL to learn English reading requires significant

time for both teachers and students to adapt. However, due to the short duration of the experiment, the results may have been somewhat impacted. To obtain more accurate data, it is suggested that the research period be extended.

3) Mastery of English knowledge and improvement in reading skill may vary depending on the topics and the different types of projects used. In this study, just four topics and four types of projects were included. So, a wider variety of topics and project formats could be selected to better stimulate students' interest in learning English reading and improve their reading skill.

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