



THE INFLUENCE OF PROJECT-BASED LEARNING TECHNIQUE AND READING INTEREST ON STUDENTS' READING COMPREHENSION

Shelvi Carmelya¹, Hanni Yukamana², Mulyadi³

^{1,2,3}Universitas PGRI Palembang

E-mail: ^{1,2,3}shelvicarmelya9@gmail.com

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Corresponding Author:
Shelvi Carmelya

Email Corresponding :
shelvicarmelya9@gmail.com

ABSTRACT

This study investigated the influence of Project-Based Learning (PjBL) and students' reading interest on reading comprehension among senior secondary learners. It also examined the interaction effect between instructional technique and reading interest on students' reading achievement. The study employed a quantitative experimental design involving an experimental group taught using Project-Based Learning and a control group taught through conventional instruction. Data were collected using a reading comprehension test and a reading interest questionnaire and analyzed through analysis of variance (ANOVA). The findings revealed that students taught through Project-Based Learning achieved significantly higher reading comprehension scores than those taught using conventional methods. In addition, students with high reading interest demonstrated better performance compared to those with low reading interest. The analysis further indicated a significant interaction effect between instructional technique and reading interest on reading comprehension. These findings suggest that Project-Based Learning can serve as an effective instructional strategy for improving students' reading comprehension, engagement, and motivation in English language learning. This study contributes to the development of innovative teaching strategies by highlighting the combined role of instructional methods and learner motivation in enhancing reading achievement in EFL classrooms.

Keywords: Project-Based Learning, Reading Interest, Reading Comprehension, EFL Learning, Student Engagement, Experimental Study

1. INTRODUCTION

Reading comprehension is widely recognized as one of the most essential skills in English as a Foreign Language (EFL) learning. Through reading, learners gain access to knowledge, develop vocabulary, and enhance their ability to interpret written texts. Effective reading comprehension enables students to identify main ideas, understand detailed information, make inferences, and critically evaluate textual content. Because of its importance, reading is often considered a foundational skill that supports academic

achievement across different disciplines (Duke & Cartwright, 2021; Grabe & Stoller, 2022; Koda & Yamashita, 2021).

Despite its significance, many EFL students continue to face difficulties in understanding written texts in English. These challenges may arise from limited vocabulary knowledge, inadequate grammar understanding, and ineffective reading strategies. In addition, motivational factors also play an important role in determining how actively students engage with reading tasks (Schiefele et al., 2022; Wigfield et al., 2023;

Vol 8, No 2 (2025): ESTEEM

Guthrie et al., 2022; Linnenbrink-Garcia et al., 2021). Students who lack motivation or interest in reading often demonstrate lower comprehension performance because they tend to approach reading activities passively (Guthrie et al., 2022; Wigfield et al., 2023).

One of the key motivational factors influencing reading comprehension is reading interest. Reading interest refers to the degree of enthusiasm, curiosity, and personal engagement that learners experience during reading activities. When students have strong interest in reading, they are more likely to invest time and cognitive effort in interacting with texts. Conversely, students with low reading interest may avoid reading tasks or engage with them superficially. Research has shown that reading interest significantly contributes to students' reading engagement, comprehension ability, and overall academic achievement (Schiefele et al., 2022; Wigfield et al., 2023; Renninger & Hidi, 2022).

In classroom contexts, reading instruction typically involves several stages, including pre-reading, while-reading, and post-reading activities. The pre-reading stage is particularly important because it aims to activate students' prior knowledge and stimulate their curiosity toward the topic of the text. At this stage, teachers attempt to generate students' interest and encourage them to engage with the reading material. When students are interested in the topic of a text, they tend to read more attentively and process information more effectively (Afflerbach et al., 2022).

However, in many educational settings, reading instruction is still dominated by traditional teacher-centered approaches. Teachers often focus on explaining vocabulary and asking students to answer comprehension questions without providing opportunities for deeper engagement with the text. Such practices may limit students' motivation and reduce their active participation in reading activities. As a result, students may read texts mechanically without fully understanding the content (Kim & Park, 2021; Teng, 2022).

To address these challenges, educators have increasingly explored innovative

instructional approaches that encourage active learning and student participation. One instructional strategy that has gained considerable attention in recent years is Project-Based Learning (PjBL). Project-Based Learning is a student-centered instructional approach in which learners acquire knowledge and skills by working on meaningful projects that address real-world problems. Through collaborative investigation, discussion, and presentation, students develop critical thinking, problem-solving, and communication skills (Kokotsaki et al., 2021; Guo et al., 2022).

In the context of reading instruction, Project-Based Learning offers several advantages. By integrating reading materials into project activities, students are encouraged to explore texts more deeply and connect the information they read with real-life contexts. This approach promotes active learning because students must analyze information, synthesize ideas, and present their findings. Consequently, Project-Based Learning may contribute to improved reading comprehension and increased student engagement in reading tasks (Condliffe et al., 2021; Han & Hiver, 2022).

Another important consideration in reading instruction is the interaction between teaching strategies and learner characteristics. Students possess different levels of reading interest, motivation, and learning preferences. These differences may influence how students respond to particular instructional methods. For instance, students who already have high reading interest may benefit more from interactive learning strategies such as Project-Based Learning because they are more willing to engage with reading materials. Therefore, examining the relationship between instructional techniques and reading interest is essential for understanding how to improve students' reading comprehension outcomes (Schiefele et al., 2022; Wigfield et al., 2023).

Based on these considerations, this study investigates the influence of Project-Based Learning and students' reading interest on reading comprehension. Specifically, the study aims to examine whether Project-Based Learning leads to better reading comprehension compared to conventional instructional methods. In addition, the study

Vol 8, No 2 (2025): ESTEEM

explores whether students with higher reading interest demonstrate better reading comprehension performance than those with lower interest. Finally, the study analyzes whether there is an interaction effect between instructional technique and reading interest in influencing reading comprehension.

The results of this study are expected to contribute to the development of effective instructional strategies in EFL reading classrooms. By identifying the role of Project-Based Learning and reading interest in improving reading comprehension, the findings may provide practical guidance for teachers in designing engaging reading activities. Furthermore, this study may offer insights for educators and researchers who are interested in exploring innovative approaches to language teaching and learning.

2. LITERATURE REVIEW

Reading interest is an important psychological factor that influences students' engagement with written texts. It refers to an individual's curiosity, motivation, and positive attitude toward reading activities. Students who possess strong reading interest tend to read more frequently and interact more deeply with textual materials, which contributes to better comprehension and academic achievement (Schiefele et al., 2022; Wigfield et al., 2023). From a motivational perspective, reading interest is closely associated with intrinsic motivation. Intrinsically motivated readers engage in reading because they enjoy the activity itself rather than because of external rewards or academic requirements. According to Guthrie et al. (2022), students with higher intrinsic reading motivation demonstrate stronger persistence, greater cognitive engagement, and more effective use of comprehension strategies (Schiefele et al., 2022; Taboada Barber et al., 2021). Similarly, Krapp's theory of interest development explains that interest emerges when learners perceive learning activities as personally meaningful and emotionally engaging (Krapp & Ryan, 2022). Recent studies also emphasize that students' interest and motivation significantly influence their engagement and comprehension outcomes in reading activities (Wigfield et al., 2023; Klauda & Guthrie,

2023). Reading interest involves both affective and cognitive components: the affective component refers to feelings of enjoyment and satisfaction while reading, whereas the cognitive component relates to the desire to acquire new knowledge through reading. When both components are present, learners are more likely to demonstrate sustained attention and deeper processing of textual information (Schiefele et al., 2022). Furthermore, environmental factors, such as the availability of reading materials, teacher encouragement, and supportive classroom environments, play an important role in shaping reading interest (Sun et al., 2023; Klauda & Guthrie, 2021). In language learning contexts, teachers who design engaging reading activities and provide relevant texts can stimulate students' curiosity and sustain their interest in reading (Sun et al., 2023).

Reading comprehension is a complex cognitive process that involves constructing meaning from written texts. It requires readers to integrate linguistic knowledge, background knowledge, and strategic processing in order to understand and interpret information presented in a text. Reading comprehension occurs through the interaction between the reader, the text, and the reading context (Duke & Cartwright, 2021; Koda & Yamashita, 2021). Recent research highlights that reading comprehension involves multiple cognitive processes such as decoding, vocabulary recognition, inferencing, and comprehension monitoring. Skilled readers actively interpret textual information by making predictions, identifying main ideas, and connecting new knowledge with prior experiences (Grabe & Stoller, 2022). In second language learning, these processes may become more challenging because learners must simultaneously process linguistic structures and meaning (Nation, 2022). Several levels of comprehension are commonly identified in reading research: literal comprehension involves understanding explicitly stated information, inferential comprehension requires readers to interpret implicit meanings within the text, and critical comprehension involves evaluating the author's arguments and connecting textual information with broader knowledge. In educational contexts, reading comprehension plays a fundamental role in students' academic success. Students who possess strong

Vol 8, No 2 (2025): ESTEEM

comprehension skills are better able to analyze information, interpret arguments, and develop critical thinking abilities, making the improvement of reading comprehension a major goal in language education.

Project-Based Learning (PjBL) is a student-centered instructional approach that emphasizes learning through meaningful projects and real-world problem solving. Instead of relying on traditional lecture-based instruction, PjBL encourages students to investigate authentic questions, collaborate with peers, and produce tangible outcomes that demonstrate their understanding (Kokotsaki et al., 2021). The theoretical foundation of PjBL is rooted in constructivist learning theory, which suggests that learners actively construct knowledge through experience and interaction with their environment. In PjBL environments, students are encouraged to explore topics independently, gather information from various sources, and apply knowledge in practical contexts (Guo et al., 2022). In language learning, PjBL promotes active engagement with reading materials because students must read articles, reports, and other texts to gather information for their projects. This purposeful reading encourages deeper comprehension as reading becomes connected to real-world tasks (Han & Hiver, 2022). Moreover, PjBL supports the development of 21st-century skills such as collaboration, critical thinking, creativity, and communication.

Reading interest, instructional strategies, and comprehension outcomes are closely interconnected in language learning. Students who are interested in reading tend to engage more deeply with texts and use more effective comprehension strategies. When teachers apply engaging instructional methods such as Project-Based Learning, students' motivation and participation in reading activities may increase (Teng, 2022). PjBL creates meaningful contexts in which students read not merely for academic tasks but to solve problems and produce projects. This purposeful reading encourages students to analyze information critically and synthesize ideas from multiple sources, enhancing both reading engagement and comprehension performance (Condliffe et al., 2021).

Numerous studies have examined the relationship between instructional strategies, motivation, and reading comprehension (Mokhtar et al., 2022; Sari & Widodo, 2022; Teng, 2022). For instance, Aulia et al. (2022) investigated the effectiveness of Project-Based Learning in improving students' reading comprehension and found that students taught using PjBL achieved significantly higher scores compared to those taught through conventional methods. Similarly, Fatmawati (2024) reported that PjBL improved students' cognitive learning outcomes and metacognitive skills, suggesting that project-based activities encourage deeper engagement and higher-order thinking. Research by Guo et al. (2022) also demonstrated that PjBL enhances student engagement and learning outcomes across various subjects, including language learning. Studies focusing on reading motivation have reported similar findings, showing that students with higher reading interest demonstrate stronger comprehension abilities and higher academic achievement (Schiefele et al., 2022; Sun et al., 2023).

Although many studies have explored the effectiveness of Project-Based Learning and reading interest separately, relatively few have examined the interaction between these variables in influencing reading comprehension. Some research has focused primarily on instructional strategies, while others have concentrated on motivational factors. For example, Aulia et al. (2022) primarily examined PjBL as a teaching method, whereas Schiefele et al. (2022) focused on motivational aspects such as reading interest and engagement. While both studies provide valuable insights, they do not fully explain how instructional strategies and motivational factors interact to influence comprehension outcomes. Similarly, Rahmawati and Lestari (2023) reported that PjBL can improve reading comprehension through active learning activities. Kim and Park (2022) found that students with higher reading interest achieve better comprehension results. Pratama et al. (2021) highlighted that student-centered approaches like PjBL increase engagement in reading activities, while Guthrie and Klauda (2022) emphasized the importance of reading engagement in improving comprehension. Likewise, Hidayati and Susanto (2024) showed that strong reading

Vol 8, No 2 (2025): ESTEEM

interest supports deeper understanding of texts. This distinction highlights the need to examine both variables simultaneously for a more comprehensive understanding of students' reading development.

Despite growing research on PjBL and reading motivation, several gaps remain. Many previous studies have examined the effectiveness of PjBL in general learning contexts without specifically focusing on reading comprehension. Studies on reading interest often examine its direct relationship with comprehension but rarely analyze how instructional strategies influence this relationship. Furthermore, limited research has investigated the interaction effect between PjBL and reading interest in improving reading comprehension. Understanding this interaction is important because instructional methods may have different effects depending on students' motivational characteristics. Therefore, this study seeks to fill this gap by examining the influence of Project-Based Learning and reading interest on reading comprehension simultaneously, providing a more comprehensive understanding of how instructional strategies and learner motivation contribute to reading comprehension development.

3. METHODS

Research Design

This study employed a quantitative experimental research design to investigate the influence of Project-Based Learning (PjBL) and students' reading interest on reading comprehension. Quantitative experimental research is appropriate when researchers aim to examine causal relationships between variables through controlled interventions and statistical analysis (Creswell & Creswell, 2021). In this study, the independent variables were the instructional method (Project-Based Learning and conventional instruction) and students' reading interest, while the dependent variable was reading comprehension performance.

The research applied a 2×2 factorial experimental design, which allows researchers to examine not only the individual effects of independent variables but also their interaction effect on a dependent variable (Fraenkel et al.,

2021). In this design, students were grouped based on two teaching methods and two levels of reading interest (high and low). The factorial design enabled the study to determine whether the effectiveness of Project-Based Learning differed depending on students' level of reading interest.

Table 1 illustrates the factorial structure used in this study.

Table 1 Factorial Design of Teaching Method and Reading Interest

Teaching Method	High Reading Interest	Low Reading Interest
Project-Based Learning	X1Y1	X1Y2
Conventional Method	X2Y1	X2Y2

In this design, X1 represents the Project-Based Learning method, while X2 represents the conventional teaching method. Meanwhile, Y1 refers to students with high reading interest, and Y2 refers to students with low reading interest. This factorial design allows the researcher to examine both the main effects of teaching methods and reading interest as well as the interaction effect between the two variables.

4. RESULTS AND DISCUSSION

This chapter presents the results of the research and discusses the findings obtained from the analysis. The findings section includes the description of the data, statistical analyses, and hypothesis testing. Meanwhile, the discussion section interprets the results and relates them to previous studies and relevant theoretical perspectives.

Results

Data Description

This research aimed to investigate the influence of Project-Based Learning (PjBL) and students' reading interest on the reading comprehension of eleventh-grade students at SMK Negeri 7 Palembang. The data were collected through a reading comprehension test (pre-test and post-test) and a reading interest questionnaire.

Vol 8, No 2 (2025): ESTEEM

The questionnaire consisted of 30 statements, including positive and negative items designed to measure students' reading interest. Based on the results, students were categorized into high-interest and low-interest groups. Students who obtained higher scores on positive statements and lower scores on negative statements were categorized as having high reading interest, while those with the opposite pattern were categorized as low reading interest.

The sample consisted of 48 students, divided into an experimental group and a control group, each consisting of 24 students.

Descriptive Statistics

The descriptive statistics showed the distribution of pre-test and post-test scores for both groups.

In the experimental group, the pre-test mean score was 65.69, while the post-test mean score increased to 75.00. This improvement suggests that students experienced significant progress after receiving instruction using the Project-Based Learning (PjBL) method.

Meanwhile, in the control group, the pre-test mean score was 62.17, and the post-test mean score increased to 70.17. Although the scores improved, the increase was smaller compared to the experimental group.

These findings indicate that students who were taught using PjBL achieved better improvement in reading comprehension than those taught using conventional methods.

Further analysis based on reading interest levels showed additional differences.

Students with high reading interest in the experimental group achieved a mean post-test score of 85.00, while students with high interest in the control group obtained a mean score of 77.33.

Similarly, students with low reading interest in the experimental group obtained a mean post-test score of 73.00, while those in the control group scored 63.00.

These results demonstrate that PjBL improved reading comprehension for both high- and low-interest students, although students with higher interest achieved better results overall.

Normality and Homogeneity Tests

Before conducting hypothesis testing, the researcher examined the assumptions of normality and homogeneity.

The Shapiro–Wilk test was used to determine whether the data were normally distributed. The results showed significance values greater than 0.05 for both the experimental and control groups (0.142, 0.139, 0.076, and 0.069). Therefore, the data were considered normally distributed.

The homogeneity test using Levene's test also showed significance values greater than 0.05. This indicates that the variance between groups was homogeneous, meaning the data met the requirements for parametric statistical analysis.

Hypothesis Testing

Several statistical analyses were conducted to test the research hypotheses.

First, the independent sample t-test revealed that students with high reading interest taught using PjBL achieved significantly higher reading comprehension scores than those taught using conventional methods. The significance value was $p < 0.05$, indicating a statistically significant difference.

Second, the analysis showed that students with low reading interest also experienced significant improvement when taught using PjBL. The mean score difference between the experimental and control groups was 10 points, indicating that PjBL helped improve reading comprehension even among students who initially lacked interest.

Third, the comparison between high-interest and low-interest students in the experimental group revealed that students with high interest performed better. This result indicates that reading interest plays an

Vol 8, No 2 (2025): ESTEEM

important role in reading comprehension achievement.

Fourth, the comparison within the control group also showed that students with high reading interest obtained higher scores than those with low interest. This suggests that reading interest influences reading performance regardless of the teaching method used.

Finally, the two-way ANOVA analysis examined the interaction between the teaching method (PjBL) and students' reading interest. The results showed that both variables had significant effects on reading comprehension ($p < 0.05$). However, the interaction between the two variables was not statistically significant ($p = 0.346$).

This means that although both PjBL and reading interest significantly influenced reading comprehension, their combined interaction effect was not statistically strong.

Discussion

The findings of this research indicate that Project-Based Learning (PjBL) significantly improves students' reading comprehension. Students who were taught using PjBL achieved higher post-test scores compared to those taught using conventional teaching methods.

This finding supports the theory that student-centered learning approaches encourage active engagement and deeper understanding. PjBL allows students to explore reading materials through projects, collaboration, and problem-solving activities. Such activities help students connect reading materials with real-life situations, which enhances comprehension.

Another important finding is that reading interest plays a crucial role in students' reading comprehension. Students with higher reading interest consistently achieved better scores than those with lower interest levels. This result is consistent with the view that reading interest increases motivation and encourages students to engage more deeply with texts (Schiefele et al., 2022).

Furthermore, the results showed that students with low reading interest also benefited from the PjBL method. The improvement observed in the experimental group suggests that PjBL can help motivate students who initially lack interest in reading. Through collaborative activities and real-world tasks, students become more engaged in the learning process.

These findings are consistent with previous studies. For example, Fatmawati (2024) reported that PjBL improves students' reading comprehension and critical thinking skills. Similarly, Chen and Yang (2023) found that project-based learning encourages students to interact with texts more actively, leading to better comprehension outcomes.

Another study conducted by Sari and Widodo (2022) also showed that integrating project-based learning in English classes significantly increases students' motivation and reading performance. Students become more enthusiastic about learning because they participate actively in meaningful tasks.

The findings of this study also support the constructivist learning theory, which states that learners construct knowledge through active experiences and interaction with learning materials (Hmelo-Silver & Chinn, 2022). In the PjBL approach, students actively explore texts, discuss ideas with peers, and apply their understanding through projects.

Moreover, self-determination theory suggests that students are more motivated when learning activities support autonomy, competence, and collaboration (Ryan & Deci, 2022). Project-based learning fulfills these conditions by allowing students to take responsibility for their learning and work collaboratively with classmates.

Overall, the results of this research confirm that both teaching methods and students' reading interest significantly influence reading comprehension. However, the use of interactive and student-centered methods such as PjBL can enhance learning outcomes more effectively than traditional instruction.

Vol 8, No 2 (2025): ESTEEM

Therefore, teachers are encouraged to integrate project-based learning activities into reading instruction to increase students' engagement and comprehension skills.

5. CONCLUSION

This study investigated the influence of Project-Based Learning (PjBL) and students' reading interest on the reading comprehension of eleventh-grade students at SMK Negeri 7 Palembang.

The findings revealed that students taught using the PjBL method achieved significantly higher reading comprehension scores than those taught using conventional teaching methods. In addition, students with high reading interest consistently performed better than those with low interest.

The results also showed that PjBL improved reading comprehension for both high- and low-interest students. Although reading interest influenced students' performance, the implementation of PjBL helped increase engagement and learning outcomes across groups.

Overall, the research objectives were successfully achieved. The study demonstrates that project-based learning is an effective instructional approach for improving students' reading comprehension.

The findings imply that teachers should adopt student-centered learning strategies, such as PjBL, to encourage active participation and increase students' interest in reading. Future researchers are encouraged to explore other factors influencing reading comprehension, such as motivation, digital literacy, or collaborative learning strategies.

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Vol 8, No 2 (2025): ESTEEM

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