

THE EFFECT OF PROJECT-BASED LEARNING ON STUDENTS' SPEAKING SKILLS AND LANGUAGE LEARNING STRATEGIES IN THE SENIOR HIGH SCHOOL CONTEXT

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ABSTRACT

This study investigates the effect of Project-Based Learning (PjBL) on senior high school students' language learning strategies and speaking skills. While previous studies have largely focused on students' speaking performance, this study highlights how instructional approaches can shape students' strategic behavior during speaking activities. The research employed a quasi-experimental design with two groups consisting of 35 students each. The instruments included a language learning strategies questionnaire adapted for speaking contexts and a speaking performance test. The data were analyzed using descriptive statistics, paired-samples t-test, independent-samples t-test, and correlation analysis. The finding revealed that students in the experimental group showed a significant improvement in their use of language learning strategies compared to those in the control group ($p < 0.05$). A strong positive correlation was also found between strategy use and speaking performance. The effect size indicated a substantial impact of Project-Based Learning. The study contributes to the existing literature by highlighting how Project-Based Learning enhances students' strategic competence in speaking, not merely their speaking outcomes. Therefore, teachers should integrate project-based approaches to promote both strategic learning and communicative ability.

Keywords: Project-Based Learning, Language Learning Strategies, Speaking Skills, EFL, Strategy Competence.

INTRODUCTION

In the context of English as a Foreign Language (EFL), speaking is considered one of the most challenging skills for students. Many students have difficulty expressing their ideas fluently because of limited vocabulary, low confidence, and insufficient opportunities to practice speaking in meaningful contexts. (Leong & Ahmadi, 2020) (Harmer, 2007). As a productive skill, speaking requires not only linguistic knowledge but also the ability to use appropriate strategies to communicate effectively.

Language learning strategies play an important role in helping students manage their learning process and improve their speaking performance. (Wahyuni & Putra, 2023). Through the use of strategies, students can plan what to say, monitor their speech, overcome communication difficulties, and evaluate their speaking progress. Therefore, students' success in speaking is not only influenced by their language competence but also by how they apply learning strategies during speaking activities (Oxford, 1990); (O'Malley & Chamot, 1990); (L. Cohen et al., 2007)).

Previous studies have shown that Project-Based Learning can improve students' speaking performance,

motivation, collaboration, and classroom engagement in EFL learning. However, most studies have mainly focused on speaking outcomes, such as fluency, accuracy, pronunciation, and confidence. Limited attention has been given to how Project-Based Learning influences students' language learning strategies in speaking activities. This gap is important because speaking improvement is not only reflected in performance scores but also in students' ability to use effective strategies during the learning process ((Kokotsaki et al., 2021); (Oxford, 1990).

Based on this gap, this study aims to investigate the effect of Project-Based Learning on students' language learning strategies and speaking skills at SMA Negeri 13 Makassar. By examining both strategic behavior and speaking performance, this study is expected to provide a broader understanding of how Project-Based Learning supports students in becoming more effective and confident English speakers. This study also contributes to the existing literature by highlighting the relationship between instructional approach, language learning strategies, and speaking skills in the senior high school EFL context ((Oxford, 1990); (Thomas, 2000); (Kokotsaki et al., 2021).

REVIEW OF RELATED LITERATURES

2.1 Speaking Skills in the EFL Context

Speaking is widely recognized as one of the most complex skills in learning English as a Foreign Language (EFL), as it requires learners to process language in real time while maintaining fluency and accuracy (Nguyen, 2021). Unlike reading and writing, speaking involves immediate interaction, which demands not only linguistic competence but also confidence and communicative ability (Leong & Ahmadi, 2020). In many classroom contexts, students tend to understand grammatical structures but struggle to use them spontaneously in communication, which often leads to hesitation and reduced participation (Harmer, 2007). This condition indicates that mastering speaking requires more than linguistic knowledge; it also involves the ability to apply that knowledge in authentic situations (Wahyuni & Putra, 2023).

In addition, the development of speaking skills is strongly influenced by the learning environment provided by the teacher. In traditional classrooms, speaking activities are often limited to repetition and controlled exercises, which

do not allow students to express their own ideas freely. As a result, students have fewer opportunities to engage in meaningful interaction, which is essential for communicative competence. Recent studies suggest that students' speaking ability improves significantly when they are actively engaged in interactive, communicative tasks that reflect real-life situations (Nguyen, 2021). Therefore, it is important to create learning environments that encourage active participation and meaningful communication.

2.2 Language Learning Strategies in Speaking

Language learning strategies (LLS) are the specific actions and techniques learners use to enhance their learning. According to (Oxford, 1990). These strategies help learners become more effective, independent, and self-directed in acquiring a new language. Similarly, (A. D. Cohen, 2011) emphasizes that language learning strategies enable learners to regulate their learning by selecting appropriate techniques to understand and use the target language. These strategies are essential in helping learners overcome

difficulties and improve their performance.

In the context of speaking, language learning strategies play a crucial role in facilitating communication (Ibrahim & Limbong, 2022). Students may use strategies such as planning their speech, organizing ideas, selecting appropriate vocabulary, and monitoring their performance during communication (A. D. Cohen, 2011). Learners who actively apply these strategies tend to be more confident and better able to maintain interaction. Research has shown a strong relationship between the use of language learning strategies and speaking performance, with strategic learners better able to manage communication challenges (Pham & Renshaw, 2022).

Furthermore, language learning strategies are commonly categorized into cognitive, metacognitive, social, and affective strategies. Cognitive strategies involve practicing and processing language, while metacognitive strategies focus on planning and evaluating learning. Social strategies emphasize interaction with others, and affective strategies help learners manage emotions such as anxiety and motivation (O'Malley & Chamot, 1990). In speaking activities, these

strategies work together to support effective communication. However, in many classroom settings, students are not explicitly taught how to use these strategies, which limits their ability to become strategic learners (Sari et al., 2020).

2.3 Project-Based Learning (PjBL)

Project-Based Learning is a student-centered instructional approach that engages learners in meaningful tasks and real-world problem-solving activities. According to (Thomas, 2000) Project-Based Learning involves students in a complex project that requires investigation, collaboration, and presentation. This approach shifts the focus of learning from teacher-centered instruction to student-centered exploration, allowing learners to actively construct knowledge through experience.

One of the key strengths of Project-Based Learning is its ability to create an interactive and engaging learning environment (Guo et al., 2020). Students are encouraged to work collaboratively, explore ideas, and produce tangible outcomes. (Bell, 2010) argues that PjBL helps students develop essential skills such as communication, collaboration, and critical thinking, which

are necessary for focus in the 21st century. In language learning contexts, these skills are closely related to the development of speaking ability.

Recent research also highlights the effectiveness of project-Based Learning in improving students' academic performance and engagement. (Guo et al., 2020) found that PjBL promotes deeper learning and increases students' motivation. Similarly, (Rahman (2022) reported that students who learn through project-based activities demonstrate better communicative competence compared to those who learn through traditional methods (Zare-Behtash & Sarlak, 2017). These findings suggest that Project-Based Learning is a promising approach for enhancing language learning outcomes.

2.4 Project-Based Learning in Speaking Activities

In speaking classrooms, Project-Based Learning provides meaningful opportunities for students to use language in authentic contexts (Zhang & Hyland, 2022). Students are required to communicate with peers, present their ideas, and solve problems collaboratively. These activities encourage students to use English for real communication rather than memorization. As a result, students

become more confident and fluent in speaking (Zare-Behtash & Sarlak, 2017).

In addition, project-based tasks such as video production, presentation, and group discussion allow students to practice speaking repeatedly. This repeated practice helps improve pronunciation, fluency, and overall speaking performance. Studies have shown that students who engage in project-based speaking activities tend to demonstrate significant improvement in their speaking ability (Sari et al., 2020). This improvement is largely due to increased opportunities for interaction and meaningful communication.

Moreover, project-based learning fosters a learner-centered environment in which students take responsibility for their learning. According to (Kokotsaki et al., 2021) This autonomy encourages students to explore ideas, take risks, and express themselves more freely. As a result, students become more active participants in the learning process.

2.5. The Integration of Project-Based Learning and Language Learning Strategies

Project-Based Learning not only enhances speaking skills but also promotes the development of language

learning strategies (Chen & Yang, 2019). During project activities, students are required to plan their tasks, organize information, monitor their progress, and evaluate their performance. These processes reflect the use of metacognitive strategies, which are essential for effective learning (Oxford, 1990).

In addition, collaboration within project groups encourages the use of social strategies, as students interact, negotiate meaning, and exchange ideas (Pham & Renshaw, 2022). At the same time, affective strategies are developed as students learn to manage anxiety and build confidence during presentations. This indicates that Project-Based Learning

provides a learning environment where multiple strategies are used simultaneously (Zare-Behtash & Sarlak, 2017).

Research suggests that students who engage in strategy-based learning environments tend to achieve better learning outcomes. (Zhang & Hyland, 2022) found that the use of language learning strategies significantly contributes to the development of speaking skills in EFL learners. Therefore, integrating Project-Based Learning with language learning strategies can lead to more effective language learning.

.METHODS

3.1 Research Design

This study employed a quantitative approach using a quasi-experimental design, specifically a non-equivalent control group design. This design was chosen to examine the effect of project-based learning on students' language learning strategies in speaking activities (Creswell, 2012)(L. Cohen et al., 2007).

Two groups were involved in this study: an experimental group and a control. Both groups were given a pre-test

and a post-test. However, only the experimental group received treatment through Project-Based Learning, while the control group was taught using conventional teaching methods.

The design of the study can be illustrated as follows:

Experimental Group: $O_1 - X - O_2$

Control Group: $O_1 - O_2$

Where:

- O_1 = Pre-test (LLS in speaking)

- **X** = Treatment using Project-Based Learning
- **O₂** = Post-test

3.2 Population and Samples

The population of this study consisted of twelfth-grade students at SMA Negeri 13 Makassar. The sample included 70 students divided into two groups: 35 students in the experimental group and 35 students in the control group. The participants were selected using purposive sampling by considering the similarity of students' English appropriate because the study required participants with specific characteristics relevant to the research objectives (Creswell, 2012).

3.3 Research Instruments

Two instruments were used to collect the data: *a language learning strategies questionnaire* and *a speaking test*. The language learning strategies questionnaire was used to measure students' use of strategies in speaking activities. The questionnaire was adapted to the speaking context and focused on students' strategic behaviors before, during, and after speaking tasks.

The speaking test was used to measure students' speaking performance as supporting data. Students' speaking

performance was assessed based on several aspects, including pronunciation, fluency, grammar, vocabulary, and comprehension. These two instruments were used to provide a balanced measurement of students' strategic competence and speaking performance.

3.4 Data Collection Procedure

The data collection procedure was conducted in three stages: First, both the experimental and control groups were given a pre-test. The pre-test consisted of the language learning strategies questionnaire in the speaking context and a speaking test. This stage aimed to identify students' strategy use and speaking performance before the treatment.

Second, the experimental group received treatment through Project-Based Learning, while the control group was taught using conventional teaching methods. The implementation of Project-Based Learning included introducing the topic, formulating guiding questions, conducting group discussions, developing a project, such as a speaking video, and presenting the final project.

Third, after five meetings of treatment, both groups were given a post-test. The post-test used the same

questionnaire and speaking test to measure changes in students' language learning strategies and speaking performance after treatment.

3.5 Data Analysis Technique

The data obtained from the questionnaire and speaking test were analysed quantitatively using SPSS software. Descriptive statistics were used to describe students' scores before and after the treatment. A normality test and a homogeneity test were conducted to ensure that the data met the assumptions for parametric testing (Creswell, 2012).

A paired-samples t-test was used to examine the differences between pre-test and post-test scores within each group. An

independent-samples t-test was used to compare the results between the experimental and control groups. In addition, correlation analysis was conducted to examine the relationship between students' use of language learning strategies and their speaking performance. Effect size analysis was also used to determine the magnitude of the effect of Project-Based Learning. The significance level was set at $p < 0.05$ (Pallant, 2016).

Based on these analyses, conclusions were drawn regarding the effectiveness of Project-Based Learning in improving students' language learning strategies and speaking skills.

RESULTS AND DISCUSSION

4.1 Results

This section presents the study's findings from statistical analyses examining the influence of Project-Based Learning on the language-learning strategies and speaking skills of eleventh-grade students at SMAN Negeri 13 Makassar. The results are presented in three main parts: descriptive statistics, hypothesis testing, and correlation analysis.

4.1.1 Descriptive Statistics

Descriptive statistics were used to describe students' performance before and after the treatment. The pre-test scores show the students' ability, while the post-test scores indicate their achievement after the instructional process.

Table 1. Descriptive Statistics of Pre-test and Post-test Scores

Group	Pre-test Mean	Post-test Mean
Control	60.9	63.9
Experimental	60.8	76.8

As shown in Table 1, the control group and experimental group had almost similar pre-test mean scores. The control group obtained a mean score of 60.9, while the experimental group obtained 60.8. This indicates that both groups had comparable students' abilities before the treatment.

After the treatment, the post-test scores showed a clear difference between the two groups. The control group improved slightly from 60.9 to 63.9, with a mean gain of 16.0 points. This larger improvement suggests that students who learned through Project-Based Learning achieved better progress than those who received conventional instruction.

Although the exact effect size for the mean difference cannot be calculated without standard deviation values, the difference in mean gain indicates practical significance. The experimental group's improvement was substantially greater than that of the control group, showing that project-Based Learning had a meaningful impact on students' learning outcomes.

4.1.2 Paired Sample t-test

The paired-samples t-test was conducted to compare pre- and post-test scores within each group. This analysis aimed to determine whether students'

scores improved significantly after the treatment.

Table 2. Paired Sample t-test Results

Group	Sig.
Control	0.041
Experimental	0.000

As shown in Table 2, the control group obtained a significance value of 0.041, which is lower than 0.05. This means that there was a statistically significant improvement in the control group, although the increase was relatively small.

The experimental group obtained a significance value of 0.000, which was also lower than 0.05. This result indicates a highly significant improvement after the implementation of Project-Based Learning, compared with the control group. The experimental group showed a much larger increase in mean scores. Therefore, Project-Based Learning can be considered more effective than conventional instruction in improving students' performance.

4.1.3 Independent Sample t-test

The independent-samples t-test was conducted to compare post-test scores between the experimental and control groups.

Table 3. Independent Sample t-test Result

Variable	Sig
Post-test Score	0.000

Based on Table 3, the significance value was 0.000, which is lower than 0.05. This result indicates a statistically significant difference between the post-test scores of the experimental and the control group. In other words, students who learned through Project-Based Learning achieved significantly better results than those who learned through conventional methods.

This finding should not be interpreted only from the p-value. The difference between the post-test means also shows practical significance. The experimental group reached a mean score of 76.8, while the control group reached only 63.9. The 12.9-point difference suggests that Project-Based Learning produced a meaningful improvement in students' learning outcomes.

4.1.4 Correlation Analysis

Pearson Product-Moment Correlation was used to examine the relationship between students' language learning strategies and their speaking performance.

Table 4. Correlation Between Language Learning Strategies and Speaking Performance

Variable Pair	r	Sig
Post-test Score	0.78	0.000

Table 4 shows that the correlation coefficient between language learning strategies and speaking performance was 0.78. This value indicates a strong positive relationship between the two variables. The significance value of 0.000 confirms that the correlation was statistically significant.

This means that students who used language learning strategies more effectively tended to achieve higher speaking scores. Therefore, the development of learning strategies can be considered an important factor in improving speaking performance.

Overall, the results of this study indicate that Project-Based Learning had a positive and significant influence on students' language learning strategies in speaking skills. The experimental group demonstrated greater improvement than the control group, and the correlation analysis showed that better strategy use was associated with better speaking achievement.

4.2 Discussion

The findings of this study indicate that Project-Based Learning had a positive and significant influence on eleventh-grade students' language learning strategies and speaking skills at SMA Negeri 13 Makassar. Students in the experimental

group showed greater improvement than those in the control group. This improvement was evident not only in their test scores but also in their use of learning strategies during speaking activities.

The significant improvement in the experimental group suggests that PjBL creates a more effective learning environment than conventional teaching. Through projects, students were encouraged to investigate topics, exchange ideas, and present their findings. Such activities are in line with constructivist principles, where learners build understanding through active experience and social interaction. When students are directly involved in solving meaningful tasks, they are more motivated to learn and more likely to retain knowledge (Thomas, 2000).

The improvement in students' language learning strategies can also be explained through the theory of (Oxford, 1990), who emphasizes that successful learners consciously use strategies to facilitate learning. During the project process, students needed to plan tasks, organize resources, monitor progress, and evaluate their work. These processes reflect metacognitive strategies, which are strongly associated with learner autonomy and academic success. Students who

develop these strategies are generally more capable of managing speaking tasks independently (Oxford, 1990); (A. D. Cohen, 2011)).

Project-Based Learning also encouraged the use of cognitive strategies. Students practiced pronunciation, selected appropriate vocabulary, revised scripts, summarized information, and rehearsed oral presentations. These activities helped students process language input and transform it into meaningful oral output. (O'Malley & Chamot, 1990) explain that cognitive strategies are essential because they help learners understand, practice, and produce language more effectively. Therefore, repeated practice through authentic project tasks may have contributed to the higher speaking performance in the experimental group.

In addition, the collaborative nature of Project-Based Learning supported the development of social strategies. Students worked in groups, discussed ideas, negotiated meaning, and helped each other complete project tasks. Such interaction provided opportunities for students to use English in communicative situations (Oxford, 1990; Harmer, 2007).

The finding also indicates the role of affective strategies in speaking performance. Many students experience

anxiety when speaking English because they are afraid of making mistakes. However, project activities can create a more supportive learning atmosphere because students share responsibilities with their group members. As they become more familiar with presenting ideas and participating in discussions, their confidence tends to increase. This finding is consistent with the view that emotional comfort and motivation can influence students' speaking performance in the EFL classroom (Brown, 2007); (Rahman, 2022).

The statistically significant difference between the experimental and control groups indicates that the instructional approach plays a major role in shaping students' learning behaviour. Although the control group also improved slightly, the progress was more limited. This may be because conventional methods often focus on teacher explanation, textbook exercises, and individual practice. In contrast, Project-Based Learning gives students more opportunities to use language actively and strategically in a realistic context. Similar findings have been reported in previous studies showing that project-based classes tend to outperform traditional classes in

communication-related outcomes (Zare-Behtash & Sarlak, 2017); (Nguyen, 2021).

The strong positive correlation between language learning strategies and speaking performance found in this study also deserves attention. Students who used strategies more effectively tended to achieve better speaking scores. This suggests that speaking ability is not determined solely by vocabulary or grammar knowledge, but also by learners' ability to regulate their own performance. Strategic learners are usually better prepared, more flexible in communication, and more capable of overcoming speaking difficulties (A. D. Cohen, 2011); (Pham & Renshaw, 2022).

From a pedagogical perspective, the findings suggest that Project-Based Learning has meaningful value for English-speaking instruction. The experimental group's mean score increased by 6.0 points, while the control group improved by only 3.0 points. This difference shows that Project-Based Learning not only produces statistical significance but also practical significance. In classroom practice, this means that students may benefit more when they are given meaningful projects, collaborative tasks, and opportunities to use English for

real communicative purposes. (Bell, 2010);(Kokotsaki et al., 2021).

Overall, the findings confirm that Project-Based Learning is an effective approach to improving students' language learning strategies and speaking skills. Its value lies not only in improving speaking scores but also in helping students become more confident, autonomous, and strategic language learners. Therefore, Project-Based Learning can be considered a relevant and practical approach to English instruction in the contemporary secondary

CONCLUSIONS

Based on the findings of this study, it can be concluded that Project-Based Learning has a positive and significant influence on eleventh-grade students' language learning strategies and speaking skills at SMA Negeri 13 Makassar. The students who were taught through Project-Based Learning showed greater improvement than those who received conventional instruction.

The results also indicate that Project-Based Learning is effective not only in improving students' speaking performance but also in encouraging them to use language learning strategies more effectively. Through project activities,

education context (Thomas, 2000); (Guo et al., 2020).

This study contributes to the existing body of knowledge by showing that Project-Based Learning supports both speaking performance and strategic language learning. The findings provide a broader understanding of how instructional approaches can shape learners' strategic competence, which is essential for long-term language learning success.

students were able to plan, organize, practice, collaborate, and evaluate their learning process. These activities helped them become more active, confident, and strategic language learners.

Therefore, this study provides a meaningful contribution by emphasizing the importance of integrating instructional approaches with strategy development in speaking instruction. It is recommended that English teachers implement Project-Based Learning to promote both strategic learning and communicative competence in EFL classrooms.

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