

The Effect of Flipped Classroom Method in Enhancing Vocational Students' Speaking Skills in the Merdeka Curriculum

Yosy Siftia^{1*}, Ferri Susanto², Anita³

Email: yosysiftia24@mail.com * ferrisusanto@mail.uinfasbengkulu.ac.id
anita@mail.uinfasbengkulu.ac.id

^{1,2,3} Universitas Islam Negeri Fatmawati Sukarno Bengkulu, Bengkulu, Indonesia

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Abstract

This study was initiated by the low speaking skills of vocational school students, particularly at SMK Negeri 5 Seluma, which was caused by limited practice time in class and low active participation in English learning. This study aimed to investigate whether the implementation of the Flipped Classroom method has a significant effect on enhancing tenth-grade students' speaking skills within the Merdeka Curriculum framework at SMK Negeri 5 Seluma. The research design employed was a quantitative approach with a Quasi-Experimental design. The research population involved the tenth-grade students, selected through a purposive sampling technique, where Class X.TKJ (24 students) was designated as the experimental group taught using the Flipped Classroom method, and Class X.TBSM (19 students) served as the control group taught using the conventional method. Data were gathered through speaking oral tests via pre-test and post-test assessments measuring accuracy, fluency, and comprehension. The results revealed that the mean post-test score of the experimental group reached 79.5 (with scores rising from a minimum of 33 to a maximum of 100), while the control group only achieved a mean score of 46.52. The statistical analysis using the ANCOVA test via SPSS 25 yielded an F_{observed} value of 46.092, which was higher than the F_{table} value (4.00). Furthermore, the Partial Eta Squared value was 0.529, indicating that the Flipped Classroom method contributed 52.9% to the improvement of students' speaking performance. Based on these findings, it can be concluded that the Flipped Classroom method has a significant and effective impact on enhancing vocational students' English speaking skills at SMK Negeri 5 Seluma

Keywords: Project Based Learning, Flipped Classroom, Speaking Skill, English Education

INTRODUCTION

Speaking skills enable one to communicate effectively in everyday situations, as speaking is an essential skill for second language learners to communicate with native and non-native speakers and participate in real-life situations (Zhao, Y., 2024; Abdul Aziz, A., and Kashinathan, S., 2021). Speaking skills are often considered the most difficult English language skills to master. According to Alvarez, Tamayo, and dos Santos (2024), English speaking classes in many countries face significant problems that reduce opportunities to improve speaking accuracy and familiarity, such as having insufficient time, crowded classroom environments, missed opportunities to practice outside of lessons, and inefficient use of interactive media frameworks in class.

Speaking is a fundamental language skill that must be mastered by students in the learning process because the ultimate purpose of language learning is effective communication (Alvarez, Tamayo, and dos Santos, 2024). The importance of possessing English speaking skills as both a communication tool and a cognitive tool is particularly evident in English language subjects. In general, many students still find it difficult to convey ideas, thoughts, and questions using good and correct English. Furthermore, since speaking—including asking and

giving opinions is intrinsically linked to lexis and grammar, teachers need to provide a variety of phrases to students to enhance the fluency of their English-speaking skills.

There are many factors that contribute to students having low English speaking skills, such as the situation observed at SMK Negeri 5 Seluma. Some of the causes include the fact that teachers often rely on conventional teaching methods that focus on memorization and are not student-centered, which fails to actively involve students in the learning process. Additionally, the methods used by teachers are frequently not varied, with many relying heavily on the lecture method, thus providing little room for active participation and speaking practice in the classroom. Another significant problem is the students' lack of motivation to practice speaking in English, which can stem from various factors, such as fear of making mistakes and low self-esteem.

One alternative way to deal with these student challenges is by providing the Flipped Classroom method to enhance English speaking skills. The Flipped Classroom (FC) method is an important learning process that reverses the traditional approach by moving activities usually done in class to allow students to study learning materials at home (Bergman & Sams, 2024). Through FC, students are fully engaged in their learning, applying the skills and knowledge they acquire outside of class through digital resources to solve authentic problems in the classroom. The Flipped Classroom is a learning approach that focuses on shifting the teacher's role to a guide or tutor, allowing for more interactive and collaborative learning activities (Zhang, Wang, Zhang, & Sun, 2024). These activities provide students with opportunities to speak actively in role-play activities, group discussions, and presentations, which directly affect their speaking skills.

The original situation of the Flipped Classroom allows students to practice speaking spontaneously without anxiety, which enables them to develop their speaking ability naturally and fluently (Kereybayeva et al., 2024). In addition, the continuous practice facilitated by the Flipped Classroom helps students get used to conveying their ideas more confidently. Secondly, it is possible that the Flipped Classroom can improve students' pronunciation accuracy. Students are often required to convey their ideas orally during the interactive classroom process. They have the opportunity to practice using proper grammar and pronunciation through this process, and they can correct their mistakes directly with the help of the teacher or peers. Ultimately, they become more proficient in speaking (Demir & Mirzai, 2023).

Project-based learning (PjBL) methods have many benefits in learning, especially in preparing students. The Flipped Classroom method offers many benefits in learning, especially in preparing students to face the challenges of the 21st century. One of the main benefits of this approach is that it increases student engagement in learning by providing them with the opportunity to study materials before class, making them more prepared to participate in meaningful and relevant activities (Pan Qi et al., 2024). With the Flipped Classroom, students not only acquire theoretical knowledge but also essential skills for daily life. With engaging activities and adequate encouragement, students may be able to overcome these speaking challenges and improve their skills. Thus, many students currently experience difficulties in expressing their thoughts orally due to a lack of practice, low selfconfidence, and limited exposure to authentic communication activities.

In previous studies, Kereybayeva et al. (2024) found that communicative language teaching with a Flipped Classroom method can improve students' speaking skills. Demir and Mirzai (2023) also found that the implementation of the Flipped Classroom method has a positive effect on students' speaking skills compared to the traditional method. Furthermore, Chi-Chun Ruby Yang and Yuanyuan Chien (2021) found that the Flipped Classroom improved student participation and learning outcomes. Combining active Flipped Classroom tasks with relevant content enhances a more dynamic learning environment and supports the development

of language skills and soft skills such as cooperation and thinking. Research Question: Is there an effect of the Flipped Classroom method in enhancing vocational students' speaking skills in the Merdeka Curriculum at SMK Negeri 5 Seluma?

METHOD

Research Design

This study used a quantitative research, it was a numerical data-based approach to testing theories or hypotheses through statistical analysis (Creswell J.W and Gueterman T.C 2024). This research is objective and systematic, in which researchers attempt to control research variables and use validated measurement tools to collect data that can be analyzed quantitatively. There are similar opinions among other experts who state that quantitative research is a type of research in which data is collected and coded in numerical form, and its objectives include description, statistical inference, causal explanation, and prediction, using methods such as social surveys, experiments, or analysis of official data or “big data” (Williams, M. et al 2022). This study using a quasi-experimental design, it is a quantitative research approach that mimics true experiments but without random assignment (randomization). Researcher can use pre-formed groups and still conduct interventions or pre-test/post-test measurements (Creswell & Gueterman, 2024). The design used is a non-equivalent control group design, where two groups are selected through purposive sampling. This is used here to select subjects based on specific considerations, such as selecting groups with certain characteristics relevant to the quasi- experiment's objectives. The two groups, called the experimental group and the control group, will be given measurements before (pre-test) and after (post-test) the treatment.

Before the treatment, both groups underwent pre-test to measure the initial speaking skill. After that, the experimental group received the project- based learning method for meetings, while the control group followed the usual learning taught by the teacher. After the period, both groups underwent a post-test to assess changes in speaking skills.

Table 1. Non equivalent control group design.

Class	Pretest	Treat ment	Postte st
Experime nt	0 ₁	X	0 ₂
Control	0 ₃	O	0 ₄

Note:

X: Project Based Learning Method

O: Not Project Based Learning Method

0₁ : Experimental group pretest result before given treatment

0₂: Experimental group pretest result after given treatment

0₃ : Experimental group post test result before given treatment

0₄: Experimental group post test result after given treatment

Place and Time

This research was conducted at SMK Negeri 5 Seluma, located in Seluma Regency, Bengkulu Province. The selection of this institution as the research site was based on preliminary observations and informal interviews with English teachers, which revealed that students frequently encounter significant challenges in developing their speaking proficiency. These difficulties are primarily characterized by a lack of interactive classroom participation, limited opportunities for oral practice, and a reliance on traditional, teachercentered

instructional materials, such as worksheets (LKS).

The study was conducted throughout the first semester of the 2025/2026 academic year. The research timeline was structured into three distinct phases to ensure rigorous data collection and instructional consistency: the pre-test phase (1 meeting), the experimental treatment phase (4 meetings), and the post-test phase (1 meeting). During the treatment sessions, the Flipped Classroom method was systematically implemented to shift foundational cognitive content such as vocabulary acquisition and grammatical structure outside of the classroom, thereby dedicating face-to-face sessions exclusively to interactive speaking practices, role-plays, and peer-to-peer dialogue.

Population and Sample

The population of this study comprised all tenth-grade students at SMK Negeri 5 Seluma during the 2025/2026 academic year. Recognizing the need for groups with comparable academic performance to ensure internal validity, the researcher employed a purposive sampling technique. This technique allowed for the intentional selection of groups that were most relevant to the research objectives, ensuring the experimental and control classes shared similar characteristics regarding their initial speaking abilities and educational backgrounds. Based on the selection criteria, Class X.TKJ was designated as the experimental group, receiving the Flipped Classroom treatment, while Class X.TBSM was assigned as the control group, continuing with the school's established conventional teaching approach. The distribution of the research sample is detailed in the table below:

Table 2. Population data

No	Classies	Population
1.	X TKJ	30
2.	X AKT	27
3.	X TBSM	30
Total		85

Source: SMKN 5 Seluma, 2026

The sample was determined using purposive sampling technique, purposive sampling is a sample selection technique in which the researcher intentionally selects individuals or groups that are considered the most informative or relevant to the phenomenon being studied. With two classes that have similar characteristics and similar speaking skills select as the experimental and control groups. The number of students in each class is 31 students, the total sample is 62 students.

Research Instrument

The main instrument in this study was a speaking skills test, which aimed to measure tenthgrade students' speaking abilities before and after implementing the Flipped Classroom method within the Merdeka Curriculum at SMK Negeri 5 Seluma. In this procedure, the researcher collected data by providing digital instructional materials and structured learning modules outside of the classroom prior to face-to-face sessions. During the assessment, students were given speaking performance tasks evaluated through oral tests. The results of the students' oral performance were assessed according to J.B. Heaton's criteria, namely assessing accuracy, fluency, and comprehensibility. Accuracy refers to the correct use of language elements such as grammar, vocabulary, and pronunciation so that speech is linguistically correct. Fluency describes a person's ease of speaking, which is the ability to convey ideas smoothly without too many pauses, hesitations, or distracting interruptions. Meanwhile,

comprehensibility relates to the extent to which listeners can understand the speaker's meaning, whether the message is conveyed clearly and easily understood without requiring much clarification. These three aspects are used together to provide a complete and objective picture of the quality of vocational students' speaking skills during both the pre-test and post-test evaluations.

Data Analysis Technique

Before conducting the hypothesis test to determine the effect of the Flipped Classroom method on students' English speaking skills within the Merdeka Curriculum at SMK Negeri 5 Seluma, the researcher conducted several preliminary statistical analyses to validate the accuracy, normality, homogeneity, and reliability of the data collected from the tenth-grade students in the experimental and control groups. These prerequisite analyses are essential in quantitative research, particularly when employing a quasi-experimental design using SPSS 25. By ensuring that the data meets the necessary statistical assumptions such as normal distribution and variance homogeneity the subsequent ANCOVA analysis yields valid, reliable, and unbiased results regarding the improvement of students' speaking accuracy, fluency, and comprehensibility.

FINDINGS AND DISCUSSION

Findings

1. The Description of Data Findings

The data in this study were obtained through research activities conducted by the researcher at SMK Negeri 5 Seluma. The total number of research participants was 43 students, consisting of 24 students from class X.TKJ and 19 students from class X.TBSM. The purpose of this study was to present data on the effect of the Flipped Classroom method in enhancing students' speaking skills. The sampling technique used was purposive sampling, where class X.TKJ was designated as the experimental class that applied the Flipped Classroom method, while class X.TBSM was designated as the control class that used the conventional method.

The research procedure involved a series of systematic steps. Before the treatment, the researcher submitted a letter of permission to the school authorities. After obtaining permission, the researcher conducted the research according to the designed procedures in both the experimental and control classes. The research focused on implementing the Flipped Classroom method, which involved sharing video materials as a preparatory phase, followed by in-class interactive learning activities.

Before the treatment was administered, the students in both groups underwent a pre-test to determine their initial speaking skills. During the learning activities, the experimental group engaged in activities such as watching video materials shared via WhatsApp, participating in question and answer sessions to address misunderstandings, and working on collaborative tasks where the teacher provided guidance. These activities were designed to encourage active student participation and improve their speaking proficiency. After the treatment sessions were completed, students took a post-test to measure the extent of the improvement in their English speaking skills.

a. Experimental Class

Based on the data collected at SMK Negeri 5 Seluma, the instrument was tested on students in class X.TKJ and X.TBSM through pre-test and post-test assessments. The pre-test was administered before the treatment, while the post-test was administered after the treatment to assess the improvement in their speaking skills. Class X.TKJ was designated as the experimental class, consisting of 24 students. The pre-test and post-test scores were obtained based on assessments of speaking indicators: accuracy, fluency, and comprehensibility. The

scores obtained were then used to analyze the effect of the application of the FlippedClassroom method. The following research data reflects the improvement of students' speaking performance in the experimental class:

Table 3. Pre-test and Post-test Score Experimental Class

No	Name	Pre-test	Post-test
1.	Student A	50	78
2.	Student B	72	94
3.	Student C	33	78
4.	Student D	44	83
5.	Student E	61	61
6.	Student F	50	78
7.	Student G	33	89
8.	Student H	56	83
9.	Student I	67	83
10.	Student J	72	78
11.	Student K	39	67
12.	Student L	50	83
13.	Student M	39	78
14.	Student N	39	100
15.	Student O	61	67
16.	Student P	50	83
17.	Student Q	44	89
18.	Student R	33	89
19.	Student S	67	83
20.	Student T	50	83
21.	Student U	33	61
22.	Student V	56	72
23.	Student W	56	89
24.	Student X	39	83
Total		1207	1908
Mean		50,3	79,5
Min		33	61
Max		67	100

Based on the data in the above table, it is evident that the average post-test score for the experimental class was 79.5. The lowest score on the post-test was 61, while the highest score significantly increased to 100. The total score collected by all students at this stage was 1908. This indicates a significant improvement in learning outcomes after the intervention using the flipped classroom method and structured dialogue exercises in the learning process.

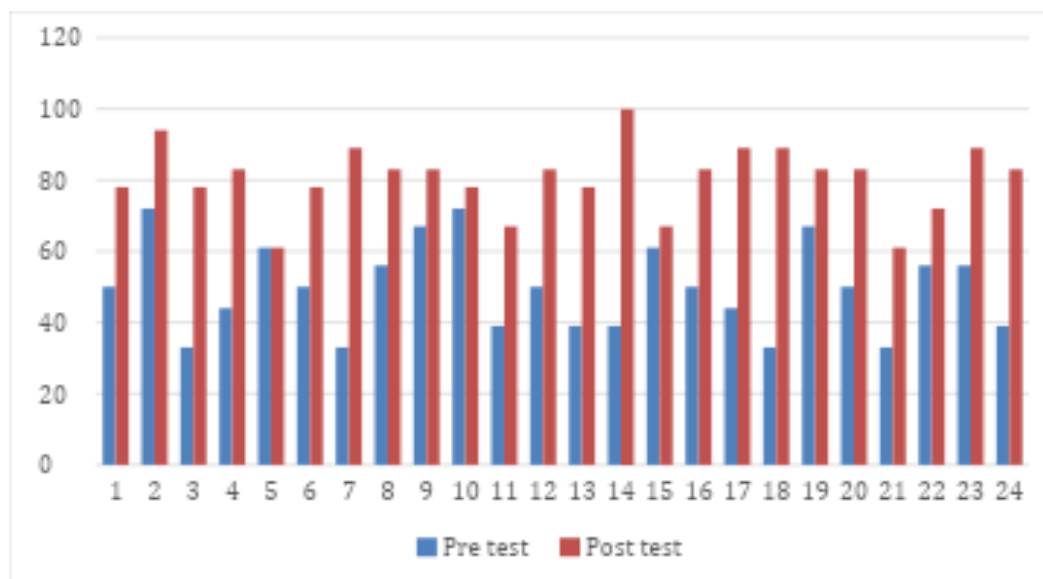


Figure 2. Bar chart of pre-test and post-test scores for the experimental

Based on the comparison graph between the pre-test and post-test scores of students in the experimental class X.TKJ, it is evident that the majority of students showed an improvement in their scores after participating in the learning process. The red line, representing the post-test scores, is generally higher than the blue line, which depicts the pre-test scores. This indicates that the learning activities conducted were effective in helping students better understand the material. Several students, such as Marpiel, Eti, Oki, Bayu, Melia, and Yesa, demonstrated significant improvement, suggesting that the learning methods used had a positive impact on their learning outcomes. Overall, the graph shows that the learning process implementation had a positive impact on improving students' speaking skills.

b. Control Class

As part of a study aiming to observe the effect of project-based learning on improving students' speaking skills, the researcher also involved a control class as a comparison group. This control class is essential to determine the extent to which the improvement in students' speaking skills can be attributed to a specific learning method. Class X.TBSM served as the control class, consisting of 19 male students. In this class, learning was conducted using the conventional method commonly used by teachers, without the application of the Flipped Classroom method. Pre-test and post-test scores were calculated based on speaking assessment criteria covering the aspects of accuracy, fluency, and comprehension. This data is used as a reference in evaluating learning outcomes using the conventional method and for comparison with the results of the experimental class. Based on the research results in the control class X.TBSM, the following scores were obtained:

Table 4. Pre-test and Post-test Score Control Class

No	Nama	Pre-test	Post-test
1.	Student A	50	67
2.	Student B	39	56
3.	Student C	67	67
4.	Student D	39	72
5.	Student E	39	61
6.	Student F	50	61
7.	Student G	33	50

8.	Student H	61	67
9.	Student I	50	61
10.	Student J	33	50
11.	Student K	44	67
12.	Student L	67	61
13.	Student M	50	67
14.	Student N	72	67
15.	Student O	39	50
16.	Student P	61	67
17.	Student Q	72	72
18.	Student R	50	67
19.	Student S	33	61
Total		931	1442
Mean		30,04	46,52
Min		13	26
Max		53	73

Based on the tables provided, it is evident that the average pretest scores in the control class were 30.04, which increased to 46.52 on the posttest. The lowest score on the pretest was 13, while the highest was 53. On the posttest, the lowest score slightly increased to 26, and the highest score rose to 73. While both classes experienced an increase in average scores from the pretest to the posttest, the experimental class's increase was significantly higher than that of the control class. This suggests that the learning method employed in the experimental class was more effective in enhancing students' English speaking abilities.

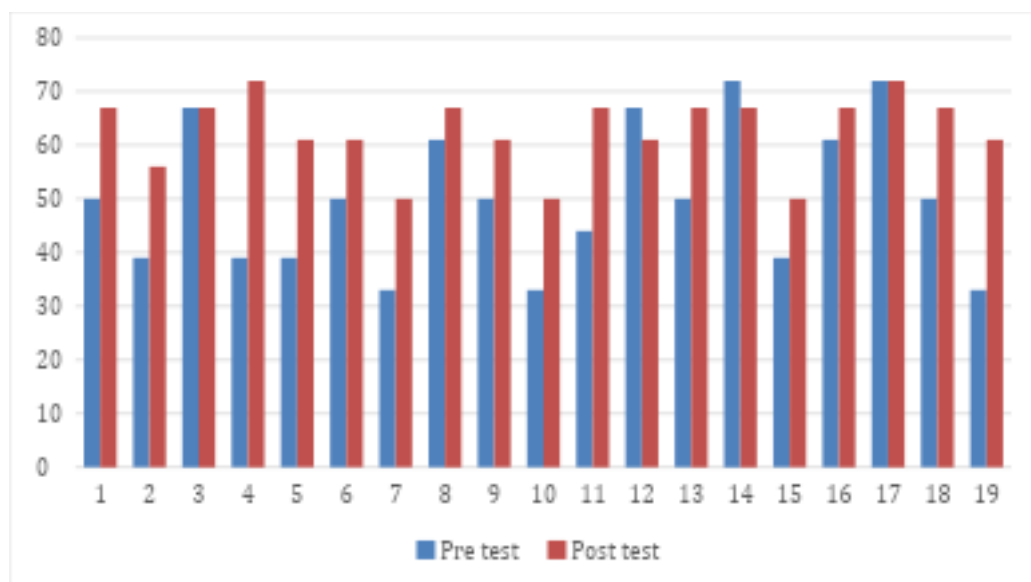


Figure 2. Bar chart of pre-test and post-test scores for the control class

This chart presents data from the control group, specifically Class X.TKJ. The blue bars indicate pre-test scores, while the red bars represent post-test scores. The chart demonstrates that most students experienced an improvement in their scores on the post-test compared to the pre-test. Generally, post-test scores were higher than pre-test scores, although the improvement was not as substantial as that observed in other groups. Interestingly, some students even scored nearly the same on both tests.

2. The Analysis of the Data

a. Normality Test

In this study, the researcher sought to determine whether the data obtained were normally distributed or not. Therefore, two hypotheses were formulated as the basis for testing: H_0 , which states that the data are normally distributed, and H_1 : which states that the data are not normally distributed. Normality tests were conducted using IBM SPSS Statistics 25, employing the Lilliefors and Kolmogorov-Smirnov tests. The Lilliefors test is used to determine whether the data are normally distributed, particularly when the sample size exceeds 50. Normality tests were conducted on the pretest and posttest data from the experimental and control classes. The criteria used in this test are as follows: if the significance value (sig.) is greater than 0.05, the data are considered normally distributed and H_1 is accepted. Conversely, if the significance value is less than 0.05, then the data is considered not normally distributed and H_0 is accepted. With the help of SPSS, the results of the normality test for the pretest and posttest data were calculated using the Kolmogorov-Smirnov formula, which is suitable for small sample sizes. From the results of this test, the researcher can determine the next steps in the analysis based on the existing data distribution.

Table 5. Test of Normality Experimental Class (VII.G)

	Normality Test					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pre-test Experimental Class	.138	24	.200*	.932	24	.107
Post-Test Experimental Class	.189	24	.026	.934	24	.123

Based on the normality test table for the experimental class above, it can be concluded that the significance value obtained from the Lilliefors test indicates that the data is significant. From the table, it is known that the significance value for the pre-test data in the experimental class is 0.107, while the significance value for the post-test data in the experimental class is 0.123. Since both significance values are greater than 0.05 (the threshold used in the normality test), the data are considered to be normally distributed. Thus, the post-test and pre-test data in the experimental class have a normal distribution. This indicates that the data are suitable for further statistical analysis.

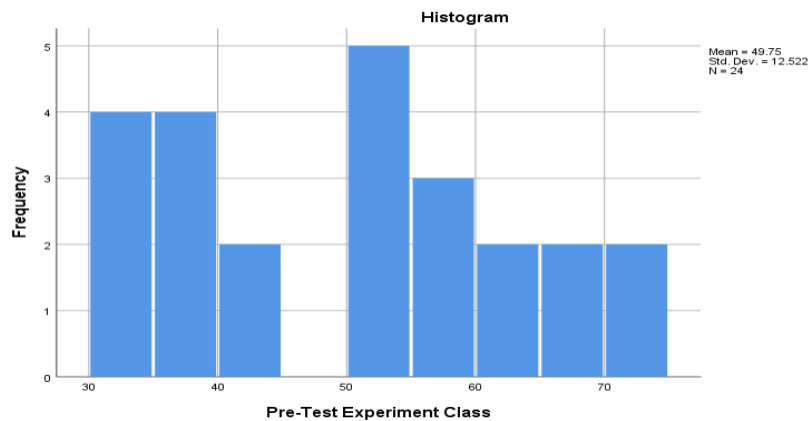


Figure 1. Histogram of Experimental Class Pre-test (VII G)

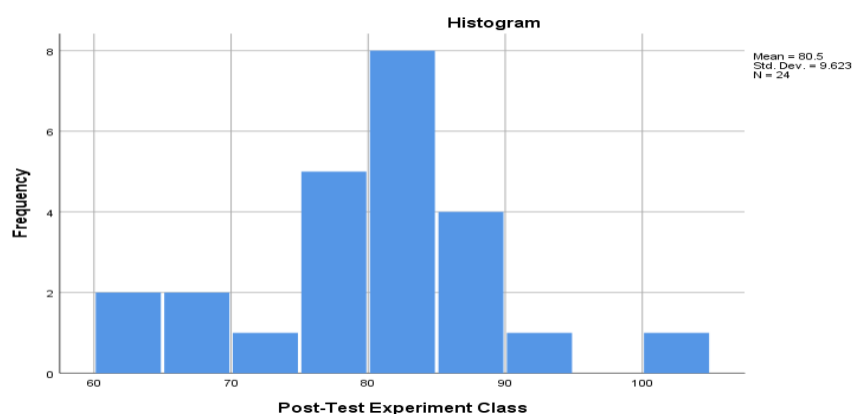


Figure 2. Histogram of Experimental Class Post-test (VII G)

Table 6. Test of Normality Control Class (VII.B)

	Normality Test					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statisti	df	Sig.	Statisti	df	Sig.
	c			c		
Pre-Test Contr ol Class	.183	19	.095	.906	19	.062
Post-Test Contr ol Class	.113	19	.200*	.962	19	.619

*. This is a lower bound of the true significance.

a.Lilliefors Significance Correction

Table 18 shows that the p-value for the pretest data in the control class was 0.062, while the p-value for the posttest data in the experimental class was 0.619. Since both p-values are greater than 0.05 (the threshold used in the normality test), the data are considered to be

normally distributed. Thus, the post-test and pretest data in the experimental class have a normal distribution.

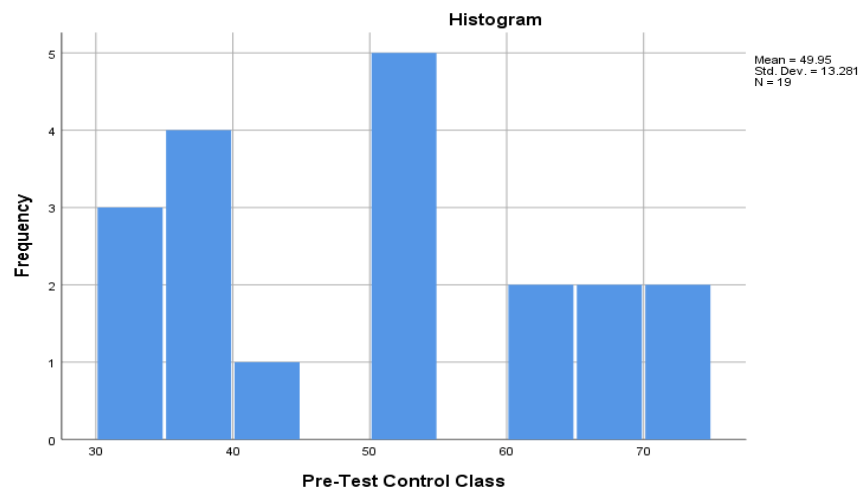


Figure 3. Histogram of Control Class Pre-test (VII B)

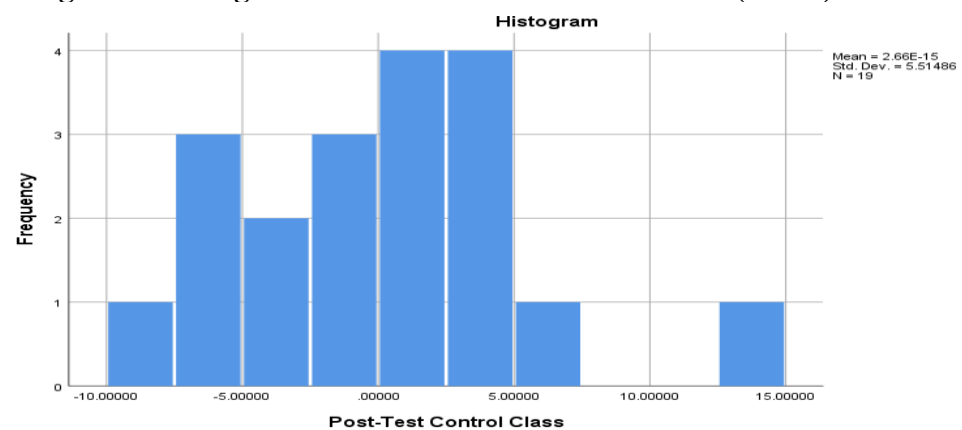


Figure 4. Histogram of Control Class Post-test (VII B)

b. Homogeneity Test

After conducting a normality test, the researchers proceeded with a homogeneity test to determine whether the variances between the experimental and control groups were comparable. This test was performed using SPSS with Levene's test, which aims to assess whether the two groups have equivalent variances. The criterion for evaluation is that if the significance value is greater than 0.05, the data are considered homogeneous. The following are the results of the homogeneity test:

Table 7. Test of Homogeneity of Variance Pre Test

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Significance
Based on Mean	.042	1	41	.838
Based on Median	.048	1	41	.827
Based on Median and with adjusted df	.048	1	40.807	.827

Pre-Test	Based on trimmed mean	.042	1	41	.839
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Table 8. Test of Homogeneity of Variance Post Test

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Post-Test	Based on Mean	1.046	1	41	.312
	Based on Median	.510	1	41	.479
	Based on Median and with adjusted df	.510	1	40.140	.479
	Based on trimmed mean	1.041	1	41	.314

Based on the results of the Levene test, it was found that the significant values for the pre-test and post-test in the experimental and control classes were greater than 0.05, meaning that both groups had homogeneous variances. In the experimental class, the significant values for various calculation methods (mean, median, and trimmed mean) ranged from 0.827, all of which exceeded the 0.05 threshold. This indicates that the variance between the two groups on the pre-test is homogeneous. Meanwhile, in the control class, the significant value obtained was also greater than 0.05, specifically 0.314. Thus, it can be concluded that the data from the experimental and control classes are homogeneous, as the significant values obtained exceeded 0.05 in the Levene test, indicating that the variances of the two groups are similar.

c. T-Test

After confirming that the data from both groups the experimental class and the control class followed a normal distribution and had homogeneous variances, the next step was to conduct a statistical analysis using a t-test. This test was used to compare the two groups, specifically to determine whether the learning outcomes of students in the experimental class were higher than those of students in the control class. Data analysis was performed using the SPSS 25 statistical software, and the data analyzed consisted of the post-test scores of both classes after the instructional intervention was administered.

Table 9. The T-Test Results

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Score	Post-Test Experiment Class	24	80.50	9.623	1.964
	Post-Test Control Class	19	62.68	6.929	1.590

Table 10. The Independent Sample Test

Independent Sample Test										
		Levene's Test for Equality of Variance				t-test for Equality of Means				
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Post-Test Score	Equal variances assumed	1.046	.312	6.789	41	.000	17.816	2.624	.000	17.816
	Equal variances not assumed			7.050	40.690	.000	17.816	2.527	.000	17.816

A final exam was administered to determine whether there was a difference in learning outcomes between the experimental class and the control class after the intervention was implemented. Based on the results in the Independent Samples T-Test table, the mean post-test score for students in the experimental class was 80.50 with a standard deviation of 9.623, while the control class achieved a mean score of 62.68 with a standard deviation of 6.929. The difference between the means of the two classes was 17.816, indicating that students in the experimental class achieved better learning outcomes after learning using the project-based learning method.

To determine whether this difference is statistically significant, an independent samples t-test was conducted. The t-test results showed a t-value of 6.789, with a significance level (Sig., 2-tailed) of 0.000. Meanwhile, the critical t-value at a 5% significance level is 1.684. Since the calculated t-value is greater than the critical t-value ($6.789 > 1.684$) and the significance level is less than 0.05 ($0.000 < 0.05$), it can be concluded that there is a significant difference between the post-test results of the two classes. Thus, the implementation of the experimental Flipped Classroom learning method has proven effective in improving students' English speaking skills.

d. F-Test

To determine whether differences in student abilities are influenced by several factors individually or collectively, an F test, which is part of covariance analysis (ANCOVA), was conducted. This test aims to ensure that the variables studied have a significant effect and do not occur by chance. The F test is very important because it shows the extent to which the treatment in the study has a real effect on improving students' vocabulary mastery. If the F test results show a significant effect, then it can be said that the treatment was successful.

**Table 11. The Ancova Test
Tests of Between-Subjects Effects**

Dependent Variable: nilai post-test						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3365.941 ^a	1	3365.941	46.092	.000	.529
Intercept	217413.569	1	217413.569	2977.169	.000	.986
Kelas	3365.941	1	3365.941	46.092	.000	.529
Error	2994.105	41	73.027			
Total	233177.000	43				
Corrected Total	6360.047	42				

a. R Squared = .491 (Adjusted R Squared = .483)

Based on the F test results in this study, the calculated F value was 46,092, while the table F value was 4.00. Therefore, it can be concluded that Ho is rejected, and Ha is accepted. This means that there is a significant effect of the application of the project-based learning method on improving students' speaking skills.

In addition, based on the Partial Eta Squared value of 0.529, it can be seen that learning with the project-based learning method has an effect of 52,9% on improving students' vocabulary mastery. This value is obtained by multiplying the Partial Eta Squared (0.529) by 100, resulting in 52,9%. Based on the interpretation of the effect size, this value falls into the category of a modest effect.

Discussion

Based on the results of data analysis of students at SMK Negeri 5 Seluma, it was found that there was a significant improvement in students' speaking skills after participating in lessons that applied the Flipped Classroom method. This indicates that this teaching method can create a more interactive learning environment while effectively improving students' verbal communication skills. In the initial phase of the study, a pre-test was administered to two classes: the experimental class and the control class. The average pre-test score for the experimental class was 50.3, while the control class achieved an average score of 30.04.

This difference reflects the initial level of speaking ability in both classes before the intervention. After implementing the Flipped Classroom method combined with structured dialogue practice over four sessions, the experimental class's average post-test score increased significantly to 79.5. Meanwhile, the control class, which used conventional methods, only increased to 46.52. Thus, the score improvement in the experimental class was far higher than that of the control class. These results prove that delivering material before class begins and focusing on dialogue practice in class is highly effective in improving students' speaking skills.

These findings align with previous studies showing that the Flipped Classroom method is effective in improving speaking skills. These findings support the results of studies conducted by Demir and Mirzai (2023) as well as Kereybayeva et al. (2024), who found a significant improvement in students' speaking performance after implementing this model. Additionally, the effectiveness of this method is consistent with the study by Zeynep Turan and

Birgul Akdağ-Cimen (2021), which emphasized the method's support for productive skills such as speaking. Despite differences in the vocational school context and technological limitations, the results of this study consistently demonstrate that learning that reverses the traditional sequence can strengthen students' language proficiency.

Furthermore, prerequisite tests for analysis were to ensure the validity of the statistical results. Normality tests were performed using the Kolmogorov-Smirnov and Shapiro-Wilk methods. The test results showed that the data from the experimental and control classes had significance values (Sig.) greater than 0.05, so it can be concluded that the data are normally distributed. Additionally, the homogeneity test results also indicated that the variance of the data across groups is equal or homogeneous. Since the assumptions of normality and homogeneity have been met, the analysis proceeded using a parametric statistical test, specifically the t-test. This methodological procedure is consistent with previous quantitative studies that used a quasi-experimental design to test the effectiveness of a learning method.

The next step was to conduct a hypothesis test to determine whether there was a significant difference between the learning outcomes of the experimental and control classes. Based on the results of data analysis using SPSS, it was found that the implementation of the Flipped Classroom method had a significant impact on improving students' speaking skills. This is evidenced by the post-test scores of the experimental class, which far exceeded those of the control class, with the highest score reaching 100. This finding reinforces the research by Chi-Chun Ruby Yang and Yuanyuan Chen (2021), who also found increased engagement and learning outcomes through this method. Thus, the results of this study convincingly demonstrate the effectiveness of the Flipped Classroom in improving speaking skills through valid quantitative data analysis.

Thus, the results of the statistical analysis indicate that the implementation of the Flipped Classroom method has a significant influence on students' speaking skills at SMK Negeri 5 Seluma. These results not only validate the research hypothesis but also reinforce constructivist theory and active learning, which emphasize the importance of student autonomy in studying material outside the classroom so that face-to-face time can be optimized for real-world communication practice. It is hoped that this study can make a positive contribution to teachers in creating more innovative and efficient English language learning, particularly in addressing the challenges of the Merdeka curriculum at the vocational school level.

CONCLUSION

Based on the results of research conducted on tenth-grade students at SMKN 05 Seluma, it can be concluded that the application of the flipped classroom method has a significant effect on improving students' speaking skills. In this study, the experimental class received treatment with the application of the flipped classroom method during four meetings, while the control class did not receive the same treatment and continued to use conventional learning methods.

In the experimental class that applied the flipped classroom method, the lowest pre-test score was 33 and the highest was 67. Then, in the post-test, the lowest score increased to 61 and the highest to 100, with an average score of 79.5. Meanwhile, in the control class that learned using conventional methods, the lowest pre-test score was 13 and the highest was 53, then increased to 26 and 73 on the post-test, with an average score of 46.52. Statistical analysis using SPSS version 25 showed a calculated F value of 46.092 with a partial eta squared of 52.9%. Since the calculated F value is greater than the table F value (4.00), it can be concluded that there is a significant effect on speaking skills between students who apply the flipped classroom method and those who do not. Thus, the application of this method is proven to be effective in improving the speaking skills of tenth-grade students at SMKN 05 Seluma.

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