

APLIKASI MEDAN VEKTOR DALAM MENGANALISIS POLA ALIRAN FLUIDA PADA RUANG TIGA DIMENSI

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh Cooperative Learning Model terhadap kemampuan siswa dalam menulis teks deskriptif pada siswa kelas X SMK Tamansiswa Sukadamai Tahun Ajaran 2025/2026. Penelitian ini menggunakan metode kuantitatif dengan desain eksperimen yang melibatkan dua kelompok, yaitu kelas eksperimen dan kelas kontrol. Teknik pengumpulan data dilakukan melalui tes menulis berupa pre-test dan post-test. Data dianalisis menggunakan uji normalitas, uji homogenitas, dan rumus uji-t. Hasil penelitian menunjukkan bahwa nilai rata-rata pre-test pada kelas eksperimen sebesar 60, sedangkan kelas kontrol sebesar 53,6. Setelah diberikan perlakuan, nilai rata-rata post-test kelas eksperimen meningkat menjadi 79,8, sedangkan kelas kontrol mencapai 64,6. Hasil uji-t menunjukkan bahwa siswa yang diajar menggunakan Cooperative Learning Model memperoleh hasil yang lebih baik dibandingkan siswa yang diajar menggunakan metode konvensional. Dengan demikian, H_a diterima dan H_0 ditolak. Dapat disimpulkan bahwa Cooperative Learning Model memberikan pengaruh signifikan terhadap kemampuan siswa dalam menulis teks deskriptif.

Kata Kunci: Cooperative Learning Model, Kemampuan Menulis, Teks Deskriptif

ABSTRACT

This study aimed to determine the effect of the Cooperative Learning Model on students' ability in writing descriptive text at Grade X of SMK Tamansiswa Sukadamai in the 2025/2026 Academic Year. This study used a quantitative research method with an experimental design involving two groups, namely the experimental class and the control class. The data collection technique was conducted through writing tests consisting of pre-test and post-test. The data were analyzed by using normality test, homogeneity test, and t-test formula. The findings showed that the mean score of the pre-test in the experimental class was 60, while the control class was 53.6. After the treatment, the post-test mean score of the experimental class increased to 79.8, whereas the control class reached 64.6. The result of the t-test indicated that the students taught by using the Cooperative Learning Model achieved better scores than those taught by using the conventional method. Therefore, H_a was accepted and H_0 was rejected. It can be concluded that the Cooperative Learning Model significantly affects students' ability in writing descriptive text.

Keywords: Cooperative Learning Model, Writing Ability, Descriptive Text

INTRODUCTION

Language plays an essential role in human life because it functions as a medium of communication, interaction, and knowledge development. In the educational field, language is used not only to convey information but also to support students in developing intellectual and social skills (Harahap et al., 2023). English, as an international language, has become one of the the important subjects taught in Indonesian schools because it is widely used in global communication, science, technology, and education (Kholdaraliyevich, 2022).

In learning English, students are expected to master four basic language skills, namely listening, speaking, reading, and writing. Among these skills, writing is often considered the most difficult skill to learn because it requires students to generate ideas, organize sentences, use appropriate vocabulary, and apply grammar correctly (Rahmah, 2023) Writing also demands critical thinking and creativity in expressing ideas clearly and systematically.

Writing ability is an important aspect in English learning because it allows students to communicate ideas in written form. Through writing, students can express opinions, experiences, and information effectively. However, many students still experience difficulties in writing activities, especially in producing descriptive texts. Descriptive text is a type of text that describes a person, place, object, or event in detail so that readers can imagine the object clearly (Nugroho & Inawati, 2024).

Based on observations conducted at SMK Tamansiswa Sukadamai, several problems were found in the teaching and learning process of writing descriptive text. Many students had difficulties in developing ideas and organizing sentences into a coherent paragraph. Students also showed limited vocabulary mastery, making it difficult for them to describe objects clearly and specifically. In addition, grammatical errors were still frequently found in students' writing, especially in the use of simple present tense, adjectives, and sentence structure.

Another problem was related to classroom learning activities. The teaching process was still dominated by teacher-centered instruction, where the teacher explained the material while students only listened and completed tasks individually. This condition caused students to become passive during learning activities and less motivated to participate in classroom discussions (Astuti & Suryana, 2024). As a result, students' writing ability did not improve optimally.

To overcome these problems, teachers need to apply an appropriate learning model that can encourage students to participate actively in the learning process. One of the learning models that can be used is the Cooperative Learning Model. Cooperative learning is a teaching approach that emphasizes collaboration and interaction among students in small groups (Bagus et al., 2024). Through group discussion and teamwork, students can exchange ideas, share knowledge, and help each other solve learning problems. The Cooperative Learning Model is considered effective in improving students' writing ability because it provides opportunities for students to learn collaboratively. Students who have better understanding can assist other group members who experience difficulties. In addition, cooperative learning creates a more active and enjoyable learning atmosphere, which can increase students' motivation and confidence in writing activities (Fitrianti, 2021). Several previous studies have shown that cooperative learning has positive effects on students' writing achievement. Students taught through cooperative learning tend to become more active, motivated, and confident during the writing process. Cooperative learning also helps students improve vocabulary mastery, grammar usage, and text organization through peer discussion and feedback (Mantra & Maba, 2025)

Based on the explanation above, the researcher was interested in conducting a study entitled "The Effect of the Cooperative Learning Model on Students' Ability in Writing Descriptive Text at Grade X of SMK Tamansiswa Sukadamai in the 2025/2026 Academic Year." This study aimed to determine whether the Cooperative Learning Model significantly affects students' ability in writing descriptive text

METHOD

This study used a quantitative research method with an experimental research design. Quantitative research is a research method that uses numerical data and statistical analysis to test hypotheses and determine the relationship between variables (Arikunto, 2006).

The research was conducted at SMK Tamansiswa Sukadamai in the 2025/2026 Academic Year. The population of this study consisted of all Grade X students at the school. According to (Arikunto, 2006). population is the whole subject of the research that becomes the focus of investigation conducted by the researcher.

The sample of the study was divided into two classes, namely the experimental class and the control class. The experimental class was taught by using the Cooperative Learning Model, while the control class was taught by using the conventional teaching method. The Cooperative Learning Model emphasized collaboration, group discussion, and peer interaction during the learning process.

The instrument used in this study was a writing test. The students were asked to write descriptive texts based on the topics provided by the researcher. The test was administered in two stages, namely pre-test and post-test. The pre-test was given before the treatment to measure students' initial writing ability. Meanwhile, the post-test was administered after the treatment to determine students' improvement after learning through the Cooperative Learning Model.

In assessing students' writing, the researcher used several aspects of writing assessment, including content, organization, vocabulary, grammar, and mechanics. These aspects were used to determine the quality of students' descriptive writing.

The procedures of the Cooperative Learning Model in the experimental class included several stages. First, the teacher communicated the learning objectives and motivated students. Second, the teacher presented the material related to descriptive text. Third, students were divided into small groups consisting of several members. Fourth, students discussed and completed writing tasks collaboratively. Fifth, students presented their work and received feedback from the teacher and classmates. Finally, the teacher evaluated students' work and provided appreciation for students' participation.

The data obtained from the pre-test and post-test were analyzed using statistical analysis. The researcher used normality test and homogeneity test to ensure that the data met the requirements for hypothesis testing. After that, the t-test formula was used to determine whether there was a significant effect of the Cooperative Learning Model on students' ability in writing descriptive text.

RESULTS AND DISCUSSION

The purpose of this study was to determine the effect of the Cooperative Learning Model on students' ability in writing descriptive text at Grade X of SMK Tamansiswa Sukadamai in the 2025/2026 Academic Year. The data of this study were obtained through writing tests consisting of pre-test and post-test administered to both the experimental class and the control class.

Before the treatment was conducted, the researcher administered a pre-test to determine students' initial ability in writing descriptive text. The result of the pre-test showed that students' writing ability in both classes was still relatively low. Most students experienced difficulties in developing ideas, organizing paragraphs, using appropriate vocabulary, and applying grammar correctly.

After conducting the pre-test, the researcher applied the Cooperative Learning Model in the experimental class, while the control class was taught by using the conventional teaching method. During the treatment process, students in the experimental class were divided into several groups and asked to discuss descriptive text materials collaboratively. Students worked together to develop ideas, arrange sentences, and correct grammatical mistakes.

The implementation of cooperative learning created a more active and interactive classroom atmosphere. Students became more confident in expressing opinions because they were allowed to discuss and share ideas with group members. In addition, students who had better understanding could help other students who still experienced difficulties during the writing process. This collaborative learning activity made students more motivated and enthusiastic during English learning. Meanwhile, the learning process in the control class was

still dominated by teacher explanation and individual tasks. Students tended to be passive during the learning process and had limited opportunities to exchange ideas with classmates. As a result, the improvement in students' writing ability was not as significant as the experimental class.

After the treatment, the researcher administered a post-test to both classes in order to determine students' improvement after the implementation of the Cooperative Learning Model.

Tabel 1. The Mean Score of Pre-test and Post-test

Class	Pre-test	Post-test
Experimental Class	60	79,8
Control Class	53,6	64,6

Based on Table 1, the result showed that the experimental class achieved higher scores than the control class. The mean score of the experimental class increased from 60 in the pre-test to 79.8 in the post-test. Meanwhile, the control class only increased from 53.6 to 64.6. The improvement in the experimental class indicated that the Cooperative Learning Model effectively improved students' ability in writing descriptive text.

The increase in students' scores occurred because cooperative learning provided opportunities for students to interact actively during the learning process. Through group discussion, students were able to exchange ideas and obtain feedback from peers. Students also became more motivated because the learning process was more enjoyable and less monotonous compared to conventional teaching methods.

In addition, students' writing ability improved in several aspects, such as content organization, vocabulary mastery, grammar usage, and mechanics. Students in the experimental class were able to write more detailed descriptions and organize paragraphs more systematically. They also showed better understanding in using simple present tense and descriptive vocabulary appropriately.

To ensure that the data fulfilled the requirements for hypothesis testing, the researcher conducted a normality test.

Tabel 2. The Result of Normality Test

Class	Significance
Experimental Class	0,340
Control Class	0,168

Based on Table 2, the significance values of the experimental class and the control class were higher than 0.05. The significance value of the experimental class was 0.340, while the control class obtained 0.168. It means that the data in both classes were normally distributed and fulfilled the requirements for further statistical analysis.

After conducting the normality test, the researcher also conducted a homogeneity test to determine whether the variances of both classes were homogeneous.

Tabel 3. The Result of Homogeneity Test

Data	Sig.
Based on Mean	0,310

Based on Table 3, the significance value was higher than 0.05, indicating that the data were homogeneous. After conducting the normality and homogeneity tests, the researcher analyzed the hypothesis by using the t-test formula.

Tabel 4. The Result of Hypothesis Test

Description	Score
Sig. (2-tailed)	< 0,001
t- test	-5,999
Mean Difference	-17,107

Based on Table 4, the significance value was lower than 0.05. The result of the t-test showed that Sig. (2-tailed) was <0.001, which means that there was a significant effect of the Cooperative Learning Model on students' ability in writing descriptive text. Therefore, the alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected.

The result of this study proved that the Cooperative Learning Model was more effective than the conventional teaching method in improving students' writing ability. The positive effect of cooperative learning occurred because students were directly involved in the learning process through group discussion and collaborative activities.

These findings are supported by previous studies stating that cooperative learning improves students' participation, motivation, and academic achievement in writing activities (Mantra & Maba, 2025). Cooperative learning also creates a collaborative learning environment where students can share ideas, provide feedback, and solve learning problems together.

Furthermore, cooperative learning helped students become more confident in expressing ideas in written form. Students were not afraid of making mistakes because they could discuss their writing with peers before submitting the final work. This condition created a supportive learning environment and encouraged students to participate actively during classroom activities.

Based on the findings above, it can be concluded that the Cooperative Learning Model is an effective teaching strategy that can improve students' ability in writing descriptive text at Grade X of SMK Tamansiswa Sukadamai.

CONCLUSION

Based on the results of the research conducted at Grade X of SMK Tamansiswa Sukadamai in the 2025/2026 Academic Year, it can be concluded that the Cooperative Learning Model has a significant effect on students' ability in writing descriptive text. The implementation of the Cooperative Learning Model was able to improve students' writing achievement compared to the conventional teaching method.

The findings of the study showed that the students in the experimental class achieved better scores in the post-test after receiving treatment through the Cooperative Learning Model. The mean score of the experimental class increased from 60 in the pre-test to 79.8 in the post-test. Meanwhile, the control class only increased from 53.6 to 64.6. This improvement indicates that cooperative learning activities helped students develop ideas, organize sentences, and improve vocabulary and grammar usage in writing descriptive text.

The results of the statistical analysis also proved that the Cooperative Learning Model gave a significant effect on students' writing ability. The hypothesis testing showed that the significance value was lower than 0.05, which means that the alternative hypothesis (Ha) was

accepted and the null hypothesis (Ho) was rejected. Therefore, the Cooperative Learning Model can be considered effective in teaching writing, especially descriptive text.

In addition, the implementation of cooperative learning created a more active, interactive, and enjoyable learning atmosphere in the classroom. Students became more confident in expressing ideas and participating in group discussions. Through collaboration with peers, students were able to exchange opinions, provide feedback, and solve learning difficulties together. This learning process also increased students' motivation and participation during English lessons.

Based on the findings above, it can be concluded that the Cooperative Learning Model is an effective teaching strategy that can be applied by English teachers to improve students' writing ability. Therefore, this learning model is recommended to be used in the teaching and learning process, especially in teaching descriptive text at senior high school level.

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