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ENHANCING EFL STUDENTS' WRITING PROFICIENCY THROUGH TECHNOLOGY SUPPORTED COMPARE DIAGNOSE OPERATE STRATEGY

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Abstract
The aims of this research are to know: 1) The extent of application of Technology Supported Compare Diagnose Operate (CDO) strategy in teaching writing, 2) The extent of the students' writing proficiency before and after using Technology Supported CDO strategy, 3) Whether there is significant of using Technology Supported CDO strategy on students' writing proficiency. This research uses experimental method with the pre-experimental design by using one group pre-test and post-test design. The population is seventh grade students consists 140 students, then uses purposive sampling technique to get the 28 students. In collecting the data, the researcher uses observation sheet and test as the instruments. The use of technology supported CDO in teaching writing was 85%, it was 'Very Good', 2) The extent of the students' writing proficiency before and after using technology supported CDO strategy, it can be seen from the students' frequency before using technology supported CDO strategy was 'Unacceptable-not' and after using technology supported CDO strategy was 72.11 it is categorized 'Good to adequate', 3) There is a significant effect of using technology supported CDO strategy on students' writing proficiency.

Keywords: compare diagnose operate, descriptive text, teaching strategy, technology supported, writing proficiency

Introduction

Teachers need to provide the purpose of writing, particularly the writing guidelines before learning English writing skills. Despite the fact that writing is a crucial ability for students to learn, they still struggle with it. It is a complicated process that calls for a variety of abilities (Heffernan & Lincoln, 1994), (Silalahi et al., 2022). mastering writing ability might be challenging, particularly for EFL students in Indonesia, as Bahasa and English differ in terms of grammatical and structural concepts and styles. Additionally, in order to avoid awkward writing and to make the material understandable to readers, particularly native speakers, the students must be able to translate or transfer the meaning from Bahasa to English context.

The main objective of teaching students English, which is thought to be the most widely used language in the world, is to help them become more proficient communicators so they can share their thoughts and information with others in everyday situations (Marleni, 2020).

When teaching writing to EFL students, the teachers are not always able to employ writing instruction, such as asking students to write one or two paragraphs on a certain subject. There is more to teaching writing than just that conventional exercise. The teacher cannot just gather the students' writing and mark it; by doing so, he ignores the process, which is the most crucial component. When

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responding to students' writing, teachers often try to minimize grammatical errors and correct grammatical.

By moving the focus from product-oriented evaluation to a process-oriented approach to teaching writing, this study addresses the field of EFL writing. This study emphasizes the value of including students in the writing process itself, whereas conventional methods typically place more emphasis on error correction and final written products. The study offers factual proof of how organized feedback and guided rewriting can improve students' writing skills by using the Compare Diagnose Operate (CDO) technique into practice which combines a structured metacognitive writing strategy with integration of technology to improve students' writing skills in English as a Foreign Language (EFL).

Literature Review

Students who do not learn to write properly will not be able to fully utilize the power of writing to extend and assist learning because it has become so essential to daily life (Graham, et. al; 2024) because writing is a technical ability that is helpful and essential in many facets of one's personal, academic, and professional life (Rubin & Land, 2026).

Even writing a single paragraph might be challenging for EFL students. Writing in a foreign language (FL) is significantly more challenging because it requires a particular level of background information on the language (Failasofah & Alkhrisheh, 2018) because writing is a challenging task (Nguyen, 2009), students often overlook it (Writing has become so important to everyday life, that students who do not learn to write well are not able to fully draw on its power to facilitate and extend learning (Makmur et al., 2016), (Situmorang, 2018).

This indicates that teaching writing to EFL students presents some difficulties. In fact, teaching writing skills in English involves developing linguistic and communicative competence of the learner which makes it quite a challenging task (Bilal et al., 2013).

Examining the difficulties teachers face while teaching writing is crucial to understanding the present and future need for proficient writing abilities. In actuality, effective writing must take into account a number of factors, including grammar, vocabulary, mechanics, substance, and organization.

Writing descriptive text is one of the ability requirements for students in junior high school. Descriptive text is one that seeks to explain or describe something. According to Gerot and Wignell in (Jayanti, 2019) descriptive text is used to describe how something looks, smells, feels, acts, tastes, or sounds. Unfortunately, students at the seventh grade of Batang Angkola is low in writing descriptive text. They have struggle in vocabulary, lack of ability to write. The challenges include having trouble articulating the concepts in writing and being unable to write effectively due to a limited vocabulary and incorrect words options.

Techniques, approaches, and procedures that teachers and students employ to improve the writing process in English language learning are referred to as writing strategies. These techniques assist students in efficiently organizing, planning, drafting, revising, and editing their work. Teachers frequently use a variety of writing strategies to help students overcome obstacles. Teachers employ strategies in teaching writing to help students improve their writing skills (Annisa & Yunita, 2025).

One of the strategies that can be applied to resolve such a problem is revision. The three recursive mental operations that make up the revision utility will operate in stages using self-regulated techniques. Scardamalia and Bereiter refer to each stage as "Compare," "Diagnosis," and "Operate" and the overall approach is known as CDO (Scardamalia & Bereiter, 1999).

The following procedures are part of the CDO Strategy: Compare. After explaining the descriptive text content, the teacher will give the students a story map and ask them to fill it up as a draft of decriptive text. In this step, the instructor will next assign the students to compose a descriptive text based on the pictures given. The students then carefully and thoroughly write the text. The instructor will then ask the students to identify any discrepancies between what was written and what the author intended to write. Then instructor give them some opinions.

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Make a diagnosis. The students identify the cause of such variations. The instructor invites the students to identify a specific explanation for the variations they discovered when comparing steps. They have to proofread the material for problems and correct them without erasing them.

Work. After asking the students to answer the problem, the teacher assesses whether the modification is beneficial for writing. The students use one of six perspectives to make the necessary adjustments.

The updated text will then be rewritten. Lastly, the instructor can view the outcome of the students' composing a descriptive text. The instructor will assist and keep an eye on students throughout the process.

Golley (2019) adds that CDO strategy is one that focuses on rewriting and editing work to improve its quality. This technique will assist students understand what they need by allowing them to begin revisions.

The CDO strategy guides students through three key stages: compare, where learners examine their writing against model texts or peers' work; diagnose, where they identify errors or weaknesses in aspects such as grammar, vocabulary, organization, and coherence; and operate, where they revise and improve their writing based on the identified issues. When integrated with technology, this process becomes more effective and interactive, as students can use platforms like Google Docs for collaborative editing and real-time feedback, or tools such as Grammarly to support error detection and revision.

This approach not only enhances students' writing accuracy and organization but also develops their critical thinking and self-regulation skills. Technology plays a crucial role by providing immediate feedback, revision history, and opportunities for peer collaboration, making the learning process more transparent and reflective. As a result, students become more aware of their writing strengths and weaknesses and are better able to produce well-structured and coherent texts over time.

Research Method

According to (Sugiyono, 2021) research method are scientific methods used to collect data for certain aims and uses. Based on, there are four keys that need to be considered: scientific methodology, data, purpose, and use. The researcher employed the pre-experimental design with a one-group pretest-posttest design. The researcher wanted to see if using the CDO strategy had a substantial influence on students' descriptive text writing abilities. According to (Sugiyono, 2020), this design includes a pretest before receiving treatment.

The researcher carried out this investigation at SMP Negeri 1 Batang Angkola, Sigalangan, Kecamatan Batang Angkola, Kabupaten Tapanuli Selatan.

A population is a group of units or parts created as the object of inquiry. Population is a key component in conducting research, particularly quantitative research. According to (Sugiyono, 2013), population is a generalization region consisting of objects/subjects with a given quantity and feature that researchers use to study and draw conclusions. It signifies that a population is an object or subject with a specific number and characteristics that the researcher uses to study.

A sample is a subset of the larger topic of research that is thought to represent a true picture of the population. According to Suryanı and Hendryadi (2015: 192), a sample is a subset of the population employed for research, and the results are considered representative of the entire population. This study's sampling technique was purposive sampling. A researcher's instrument must be reliable and valid. According to (Arikunto, 2012), a research instrument is a tool or facility used by the researcher to collect data in order to facilitate the process and produce better results. In a nutshell, it is complete and methodical, making it easier to examine. This study used an observation sheet and a test as its instruments.

The rubric of writing can be seen as follows:

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Content	30-27 Excellent to very good: knowledgeable, substantive Good to average: some knowledge of subject – adequaterange 21-17 Fair to poor: limited knowledge of subject – little substance 16-13 Very poor: Does not show knowledge of subject – non substantive
Organization	20-18 Excellent to very good: fluent expression – ideas clearlystated Good to average: somewhat choppy – loosely organized butmain ideas stand out 3-10 Fair to poor: not fluent – ideas confused or disconnected 9-7 Very poor: Does not communicated – not organization
Vocabulary	20-18 Excellent to very good: Sophisticated range – effectiveword/ idiom choice and usage 17-14 Good to average: Adequate range – occasional errors ofword/ idiom form, choice, usage of meaning not obscured 13-10 Fair to poor: Limited range – frequent errors of word/idiomform, choice, usage 9-7 Very poor: Essentially translation – little knowledge ofEnglish grammar
Language use	25-22 Excellent to very good : effective complex construction 21-18 Good to average : effective but simple construction 17-11 Fair to poor : Major problem in simple/complex construction 10-5 Very poor : Virtually no mastery of sentence construction rules
Mechanics	5 Excellent to very good : Demonstrates mastery ofconventions 4 Good to average : Occasional error of spelling, punctuation 3 Fair to poor : Frequent errors of spelling, punctuation,capitalization 2 Very poor : No mastery of conventions – dominated by errors of spelling, punctuation, capitalization, paragraphing

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Note :

C	: Content (30)
O	: Organization (20)
V	: Vocabulary (20)
L	: Language (25)
M	: Mechanics (5)

Result and Discussion

Application of Technology Supported Compare Diagnose Operate (CDO) Strategy in Teaching Writing

Based on the analysis of data from the observation sheet regarding the use of technology supported CDO strategy in teaching writing descriptive text, English teachers served as research observers in applying the technology supported CDO Strategy to write descriptive text. Out of 15 aspects observed, the researcher received a total score of 64. It was 85% and classed as "Very Good."

Students' Writing Descriptive text Before using Technology Supported CDO Strategy

After administering a pretest in the form of a descriptive essay, the mean was 42.33 (unacceptable-not), the median was 42.50 (unacceptable-not), and the mode was 40. The researcher displays the computation specifications in the table below:

Table 1
The Pretest Score of Mean, Median, Mode of The Students' Writing Descriptive Text before applying Technology Supported CDO Strategy

No	Criteria	Score	Category
1	Mean	42.32	unacceptable-not
2	Median	42.50	unacceptable-not
3	Mode	40	unacceptable-not

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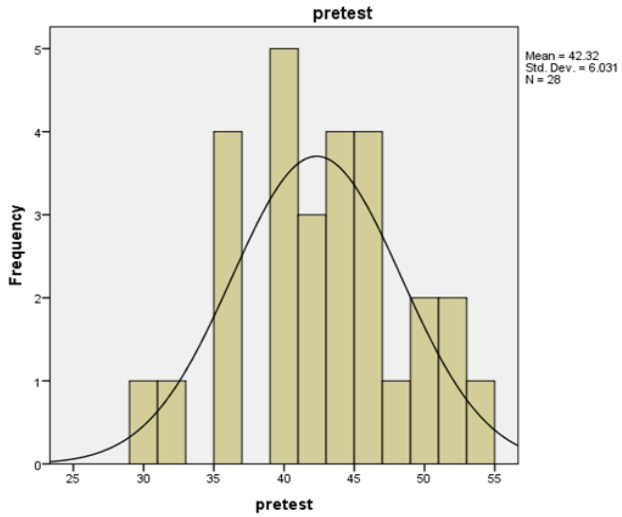


Figure 1: The Histogram of Students in Writing Descriptive Text Before applying Technology Supported CDO Strategy

Based on the previous histogram, it is clear that the students' descriptive writing is unacceptable. This means that the students' writing procedure content should be influenced by the offered treatment or the technology supported CDO strategy.

1. Students' Writing Descriptive Text After applying Technology Supported CDO Strategy

After collecting the data, the researcher administered a posttest to students composing descriptive language using technology supported CDO strategy. The study discovered that the highest student score was 87, while the lowest score was 55. The researcher discovered that the average score was 72.11, the median score was 72.50, and the mode score was 70. The researcher presents the computation specification in the table below:

Table 2
The Posttest Score of Mean, Median, Mode of The Students' Writing Descriptive Text after applying Technology Supported CDO Strategy

No	Criteria	Score	Category
1	Mean	72.11	Good to adequate
2	Median	72.50	Good to adequate
3	Mode	70	Good to adequate

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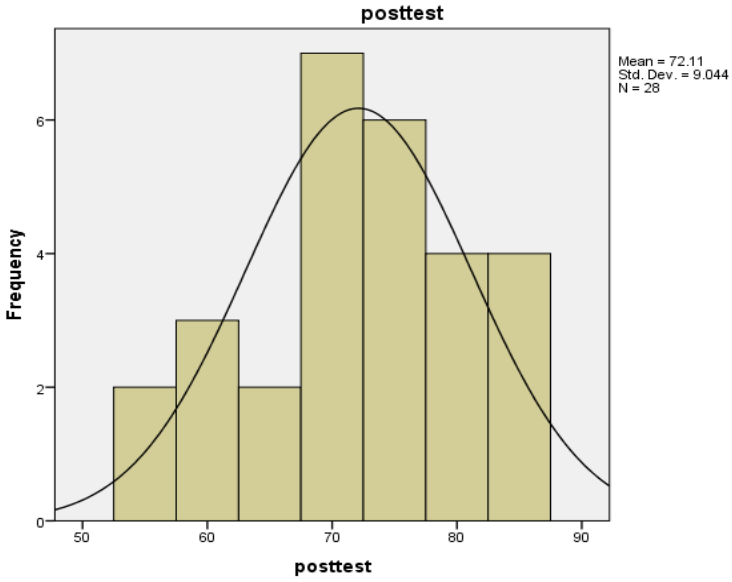


Figure 2: The Histogram of Students in Writing Descriptive Text after using CDO Strategy

Based on the histogram above, it can be concluded that the students writing descriptive text after applying technology supported CDO strategy.was affected.

2. Hypothesis Testing

To answer the hypothesis, the researcher used a paired sample t-test. Before doing the paired sample test, the researcher was first to use the test requirement or assume a classic test.

Table 3
Result of Normality Test

Description	Formulated			Explanation
	KS	SW	Value	
Pre-test	0.200	0.617	>	The data is normal distribution
Post-test	0.072	0.198	>	The data is normal distribution

Based on the Kolmogrov-Smirnov formula, significance score on the pretest was 0.200(0.200>0.05). In the form of Shapiro-Wilk, the significance score of the pretest is 0.617(0.617>0.05), so that it can be concluded that the pretest data is normal distribution. Next, posttest significance score based on Kormogrov-Smirnov is. 0.072(0.072>0.05). In the form of Shapiro-Wilk, posttest significance score is 0.198(0.198>0.05). Based on the formula Kormogrov - Smirnov and Shapiro-Wilk, the data of posttest is normal distribution.

a. Pair sample T_{test}

That is one of the statistics for finding the truth of data and hypotheses. Used to know the significance of the strategy in this study.

Ha: If sig (2-tailed) <0.05 there is any significant difference between writing descriptive text on pretest and posttest.

Ho: If sig (2-tailed)>0.05 there is no any significant difference between writing descriptive text on pretest and posttest.

In this case, the researcher used the paired sample t-test as follows:

Table 4
Paired Sample Test

Pair pretest-posttest	t	df	Sig.(2-tailed)
	-19.965	27	<0.00

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Based on the above, it can be seen that its significance is less than 0.05 (0.00<0.05). Then, Ha accepted. That means, there is a significant effect the applying of technology supported CDO strategy.on students writing descriptive text at seventh grade of SMP Negeri 1 Batang Angkola.

Based on result of the applying of technology supported CDO strategy.in effect the writing descriptive text, the researcher obtained an average score of 72.11 (good to adequate category). Next, the result of writing descriptive text before giving treatment applying technology supported CDO strategy.is 42.32 (Unacceptable-not category). The result of learning writes descriptive text after treatment applying technology supported CDO strategy.is 72.11. It can be concluded that after applying technology supported CDO strategy.in teaching writing descriptive text gives quite a good effect, it can be seen from the average value after applying technology supported CDO strategy.higher than before applying CDO strategy in the seventh-grade students of SMP Negeri 1 Batang Angkola.

Conclusion

Based on the research, the researcher outlines the conclusion that the teaching results of applying technology supported CDO strategy.in writing descriptive text was 89%, (very good categorized), students' writing descriptive text after using CDO was good to adequate. It shows that technology supported CDO strategy.in teaching writing brings significant effect on students' writing ability. It is recommended that English teachers can implement the technology supported CDO strategy. Strategy in teaching writing, particularly descriptive text, as it has been proven to significantly improve students' writing ability by emphasizing the writing process rather than merely focusing on grammatical correction. Students are encouraged to actively participate in each stage of the strategy by comparing, diagnosing, and revising to develop their writing skills more effectively.

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