American Journal of Open Research, 4 (8), August, 2025,
E-ISSN: 2834-7668

# The Efficacy of COW Strategy in Teaching Writing to Civil Engineering Students: A Case Study

**Shanty Halim*, Sitti Sahriana, Mastang Mastang**
Politeknik Negeri Ujung Pandang, Indonesia
Email: shantynurul@poliupg.ac.id*

***Abstract:*** *This study examines the effectiveness of the Collect, Organize, write strategy (hereafter referred to as COW) in improving the descriptive writing skills of Building Construction students in the Engineering department of Ujung Pandang State Polytechnic (PNUP) in teaching Technical English in vocational higher education in Indonesia. The research design used was pre-experimental with a pre-test, treatment, and post-test approach. A total of 27 students participated in the study, which focused on improving writing skills across five dimensions: content, organization, grammar, vocabulary, and mechanics. The COW strategy was applied during five instructional sessions, covering topics such as workshop equipment and heavy equipment description. Data were collected through student writing assessments that were analyzed using statistical tests, including t-tests and frequency distributions. The results showed a significant improvement in students' writing ability from pre-test to post-test. The average score increased from 33.85 in the pre-test to 51.77 in the post-test, with marked improvement in all five dimensions of writing. The greatest improvement was seen in content and vocabulary skills, where 59.26% of the students achieved the "Good" or "Fair" classification after the intervention. Meanwhile, grammar skills showed a bimodal distribution, and mechanics showed uniform improvement across all participants. Assessment was conducted using a rubric that measured each writing dimension separately.*
***Keywords:*** *COW strategy; descriptive writing skills; technical English,*

## INTRODUCTION

Speaking, listening, reading, and writing are the four main components in learning English as a foreign language. Due to the complementary nature of these four skills, they are generally viewed as part of an integrated system (Ayu, 2020; Hartono, Widiyati, & Anwar, 2023; Nishanthi, 2018; Wijayanto, 2020). Despite this, students in Indonesia often face certain challenges, especially when it comes to writing. Writing is considered the most challenging skill, as it requires various stages of improvement such as idea gathering, information organization, and text drafting (Setyaningsih & Larassati, 2021; Ado & Alsheyab, 2019; Aiyub et al., 2022). This shows that writing is not just about putting words on paper, but involves the process of thinking about what to write and how to express it before it is written down. After writing, a person will usually re-edit the text to improve and perfect it. Therefore, writing is a continuous process, not just a single action. Most English learners, especially engineering students, often struggle to master this skill. Writing is an activity that requires the ability to produce good texts (Ariyanti, 2018). In a teaching context, writing instruction should involve strategies that can help students improve their skills (Arthur, 2002; Mohseniasl, 2014; Maharani et al., 2018). English teachers can meet this challenge by developing effective teaching methods, including using creativity in selecting and organizing teaching materials (Jima, 2008; Graham, 2019).

Previous research has explored various strategies to improve writing skills, including the COW (Collect, Organize, Write) method. For instance, Lionukas (2016) demonstrated the efficacy of COW in enhancing writing proficiency among high school students, with pre-test and post-test scores rising from 26 to 51. Similarly, Sari (2017) found that the COW strategy accounted for 69% of the improvement in students' descriptive writing performance. However, these studies primarily focused on general education contexts, leaving a gap in understanding the strategy's applicability to technical English for engineering students. Additionally, while the COW strategy has shown promise, its effectiveness in addressing specific challenges such as vocabulary limitations and grammatical accuracy in technical writing remains underexplored (Ghazali et al., 2022; Shanty, 2018).

In the pedagogical realm, various approaches have been developed to improve students' writing skills. One of the most effective methods is the COW (Collect, Organize, Write) strategy, which is designed to facilitate the writing process in a more structured way. This method emphasizes the importance of the pre-writing phase, where students are encouraged to collect and organize their ideas before starting to write. Through this approach, students are expected to generate a comprehensive list of ideas, which then eases them into the writing stage (Ghazali et al., 2022; Lionukas, 2016; Sartika & Nurdin, 2019).

Based on this, research in this area has generated the main question: "What is the effectiveness of the *COW* strategy in improving the descriptive writing ability of Civil Engineering students at Ujung Pandang State Polytechnic in the context of Technical English teaching?" This question highlights the importance of evaluating the effectiveness of the *COW* strategy in a more specific context, especially in technical language learning.

This research aims to fill these gaps by evaluating the *COW* strategy's effectiveness in improving the descriptive writing skills of Civil Engineering students at Ujung Pandang State Polytechnic. By focusing on technical English, this study provides insights into how structured writing strategies can address the unique challenges faced by engineering students. The findings will contribute to the development of tailored pedagogical approaches, offering practical benefits for educators and students alike in enhancing technical communication skills.

**Current state**

In this section, researchers describe several previous studies that have been conducted which have differences and similarities with the research conducted by researchers. This can be seen in the table below:

| Title | Author/Year | Research Results |
|---|---|---|
| "Teaching Writing by Using COW (Collect, Organize, and Write) Strategy to Improve Students' Writing Skills." | YP Lionukas / 2016 | This study aims to evaluate the efficacy of COW (Collect, Organize, Write) methodology in improving students' writing proficiency. Using a Pre-Experimental Research design, the study was conducted over a series of ten sessions with participants from SMAN 1 Soe in the South-Central East district of NTT. The effectiveness of the approach was evidenced by the statistically significant difference between the participants' mean scores in the pre-intervention and post-intervention assessments. Prior to the implementation of the strategy, the group's mean score was 26, which then increased to 51 after the intervention. |
| "The Effect of Collect-Organize-Write (COW) Strategy on Students' Achievement in Writing Descriptive Text" | Sari / 2017 | Empirical data showed that learners' performance in composing descriptive text using the COW approach showed far superior results compared to those achieved without its application. Analysis of the results showed that the application of the COW strategy accounted for 69% of the observed improvement, while the remaining 31% was due to external variables. |

## MATERIALS AND METHODS

This investigation was conducted in the domain of Technical English education, focusing on pedagogical units devoted to describing technical objects. The research design incorporated a unique element in which a group of service students doubled as both subjects and research assistants. These student assistants were excluded from the submission of certain tasks due to their participatory status in the research. Methodologically, this investigation adopted a pre-experimental approach, which was structured in three sequences: pre-assessment, intervention, and post-assessment. This design allowed

for a nuanced examination of the intervention's efficacy in improving students' descriptive writing skills in a technical context.

Systematic execution of experiments – This experiment used a pre-experimental design, which did not involve a strict control group. The main stages were: Pre-assessment – a baseline test was administered to measure students' initial abilities; Intervention – a teaching process (pedagogical unit) that focused on the skill of describing technical objects, during which teaching techniques or experimental materials were provided; Post-assessment – after the intervention, the test was administered again to determine any changes or improvements in skills. The participants of the research were students studying Technical English, some of whom also served as research assistants. The researchers likely recruited them through approaches such as class announcements, direct instruction, or participatory research programs that attracted students. In pre-experimental designs, a formal control group is usually absent; in this case, only one group went through all stages (pre-assessment, intervention, and post-assessment). For greater methodological robustness, it would be preferable to add a control group for a more objective comparison. As for grouping based on students' strengths (strong and weak), the researchers may or may not have formally classified participants according to their initial abilities. However, for fairness and intervention effectiveness, there could be adjustments in materials or activities; for example, stronger students might receive more challenging tasks, while weaker students could be given additional guidance or support.

The following are explanations of the research procedures and instruments:

1. Essay Writing Instructions – Sample Essay Writing Task Learners were asked to write an essay on the theme of technical tools and procedures. Example instruction: *Instructions*: Write an essay of at least 300 words on one of the following topics: (a) Description and function of heavy equipment such as a bulldozer, excavator, or tower crane; (b) Procedures for using a particular workshop tool. The structure of the essay should include: Introduction – briefly explain the importance of the tool being discussed; Content – provide a detailed description of the tool or procedure and its function; Conclusion – summarize the benefits and impact of the tool or procedure. The assessment considered organization of ideas, use of technical vocabulary, grammar, and clarity of writing.

   The initial stage of data collection involved administering a writing assessment designed to establish a baseline measure of students' descriptive writing proficiency prior to the intervention. This pre-intervention evaluation, allocated 90 minutes, required participants to write an original descriptive essay on the theme *"Days as a Civil Engineering Student."* The assessment criteria covered five different dimensions of writing competence: content relevance and depth, organizational coherence, grammatical accuracy, lexical sophistication, and mechanical precision. This multifaceted evaluation framework allowed for a comprehensive assessment of students' initial writing abilities across different linguistic and rhetorical domains.
2. Providing Care – The intervention phase of the study included five instructional sessions, each carefully structured to gradually introduce and reinforce the COW strategy. The opening session served as an introductory platform, explaining the principles of effective descriptive essay writing in English, with a particular focus on technical writing. Students then engaged in practical exercises centered on the depiction of workshop tools, systematically applying the COW strategy: information gathering, idea organization, essay writing, and peer feedback exchange. The assessment test was adopted from Hughes (2003) and was based on the five criteria: content, organization, vocabulary, grammar, and mechanics (Arthur, 2002).

**Table 1. Pre-test Writing Assessment Results**

| Assessment Aspect | Classification | Number of Students | Percentage (%) | Description |
|---|---|---|---|---|
| **Content** | Good (14-17 points) | 16 | 59,26% | Improved from the pre-test, showing students' ability to develop ideas. |
| | Bad | 11 | 40,74% | There are still challenges for some participants. |
| **Organization** | Fair (10-13 points) | 4 | 14,81% | There was improvement, but the majority of students remained in the "Poor" category. |
| | Bad | 23 | 85,19% | The majority of students struggle with the organization of their writing. |
| **Vocabulary** | Simply | 16 | 59,26% | Reflects improvement in vocabulary use. |
| | Bad | 11 | 40,74% | There were no students in the "Very Poor" category post-intervention. |
| **Grammar** | Very good (18-20 points) | 16 | 59,26% | Most students demonstrated mastery of grammar. |
| | Bad | 11 | 40,74% | There are still skill gaps within student groups. |
| **Mechanics** | Very good | 27 | 100% | All students achieved mastery of the mechanics aspect after the intervention. |
| **Final Score Result** | - | - | - | **Average score:** 51,78<br>**Highest score:** 62<br>**Lowest score:** 41 |
| **Conclusion** | - | - | - | Despite the general improvement, the results show that there are variations in students' abilities and the need for continuous intervention in organization and grammar. |

Source: Adapted from Hughes (2003) assessment criteria

## RESULTS AND DISCUSSION

This study used a pre-experimental design with statistical analysis to answer the formulated research questions. Quantitative methods were used to interpret the results of the analysis. The main statistical tool was the t-test, supplemented by frequency distribution tables, fair gain classification, and percentage analysis of student scores. The assessment criteria included content, organization, grammar, vocabulary, and mechanics in the pre-test and post-test evaluations. The results include a comparative analysis of pre-test and post-test scores, categorized by criteria and presented in percentages.

### Student scores on the initial test

The pre-test results revealed significant challenges faced by students in all aspects of writing evaluation. In terms of content, the majority of students struggled to fully develop and express their ideas within the paragraph structure. No students achieved the classification of "excellent" or "good", with 12 students categorized as "fair" and 15 as "poor ". Regarding organization, most students showed difficulty in structuring their thoughts effectively, with 24 students classified as "fair" and 3 as "poor". The use of vocabulary proved to be a universal challenge, as all 27 students were classified in the "poor" category, indicating a very limited lexical range in their writing.

The following table corresponds to the reading description above regarding the results of the pre-test evaluation of students' writing:

**Table 2. Distribution of Students' Writing Skills in Pre-Test Evaluation**

| Evaluation Aspect | Category | Number of Students | Description |
|---|---|---|---|
| **Content** | Very good | 0 | No students achieved this category. |
| | Good | 0 | No students achieved this category. |
| | Simply | 12 | The majority of students have difficulty in developing and expressing ideas. |
| | Bad | 15 | |
| **Organization** | Very good | 0 | There was no mention of students who achieved this category. |
| | Good | 0 | There was no mention of students who achieved this category. |
| | Simply | 24 | Most students struggle to organize their thoughts effectively. |
| | Bad | 3 | |
| **Vocabulary** | Very good | 0 | All students struggled with vocabulary usage. |
| | Good | 0 | |
| | Simply | 0 | |
| | Bad | 27 | Very limited vocabulary in student writing. |
| **Grammar** | Very good | 0 | Grammar is a common problem for all students. |
| | Good | 0 | |
| | Simply | 0 | |
| | Bad | 27 | Difficulty with sentence structure and other grammatical elements. |
| **Mechanics** | Very good | 0 | Mechanics is the most significant problem among students. |
| | Good | 0 | |
| | Simply | 0 | |
| | Very Bad | 27 | Problems with punctuation, capitalization, and other technical elements of writing. |
| **Average Score** | - | - | The overall average score of students was 32.25. The score range is from 31 to 43. |

Source: Original data collected during the pre-test phase

This table reflects the distribution of students in different aspects of the writing assessment as well as an emphasis on the main weaknesses that need to be improved, particularly in grammar and mechanics. Grammar and mechanics emerged as the most problematic areas for the group. All 27 students were classified as "poor" in grammar, indicating widespread difficulties with sentence structure, tense usage, and other grammatical elements. The situation was even clearer in mechanics, where every student received a "very poor" classification, indicating widespread problems with punctuation, capitalization, and other technical aspects of writing. These results underscore the critical need for purposeful instruction and practice in basic writing skills.

Analysis of the overall scores across all five components (content, organization, vocabulary, grammar, and mechanics) further emphasizes the challenges of student writing. The average score was 32.25, with individual scores ranging from a low of 31 to a high of 43. This narrow range of scores, most of which were at the lower limit of the evaluation scale, highlights the homogeneity of students' writing ability at this stage. The data strongly suggests that comprehensive intervention strategies are needed to address deficiencies in all aspects of writing, with particular emphasis on grammar and mechanics, which are in dire need of improvement.

**Student scores on the post test**

The post-test results of the writing assessment showed significant improvement across multiple dimensions of students' writing ability after the implementation of the COW (Collect, Organize, Write) strategy. Analysis of the five core components - content, organization, vocabulary, grammar, and mechanics - showed varying degrees of progress among the 27 participants.

**Table 3. Post-Test Writing Performance After COW Intervention**

| Assessment Aspect | Classification | Number of Students | Percentage (%) | Description |
|---|---|---|---|---|
| **Content** | Good (14-17 points) | 16 | 59,26% | Improved from the pre-test, showing students' ability to develop ideas. |
| | Bad | 11 | 40,74% | There are still challenges for some participants. |
| **Organization** | Fair (10-13 points) | 4 | 14,81% | There was improvement, but the majority of students remained in the "Poor" category. |
| | Bad | 23 | 85,19% | The majority of students struggle with the organization of their writing. |
| **Vocabulary** | Simply | 16 | 59,26% | Reflects improvement in vocabulary use. |
| | Bad | 11 | 40,74% | There were no students in the "Very Poor" category post-intervention. |
| **Grammar** | Very good (18-20 points) | 16 | 59,26% | Most students demonstrated mastery of grammar. |
| | Bad | 11 | 40,74% | There are still skill gaps within student groups. |
| **Mechanics** | Very good | 27 | 100% | All students achieved mastery of the mechanics aspect after the intervention. |
| **Final Score Result** | - | - | - | **Average score:** 51,78<br>**Highest score:** 62<br>**Lowest score:** 41 |
| **Conclusion** | - | - | - | Despite the general improvement, the results show that there are variations in students' abilities and the need for continuous intervention in organization and grammar. |

Source: Original data collected during the post-test phase

Grammar proficiency showed a striking bimodal distribution in the post-test. Most of the class (59.26% or 16 students) demonstrated mastery, achieving an "Excellent" classification with scores between 18-20 points. In contrast, the remaining 40.74% (11 students) were classified as "Poor," highlighting a noticeable skills gap within the group. The most uniform improvement was observed in mechanics, where 100% of students (all 27) achieved the "Excellent" classification, indicating that the COW strategy was highly effective in improving students' understanding of writing conventions and technical aspects. The overall post-test results showed an average score of 51.78, with individual scores ranging from a low of 41 to a high of 62. While these figures show a general upward trend in writing proficiency, they also underscore the heterogeneous nature of students' progress and the need for sustained and targeted interventions to address areas of persistent difficulty, particularly in terms of organization and grammar for low-achieving students.

**Mean and Standard Deviation of Pretest and Post-test Student Vocabulary Achievement**

After a thorough examination of the students' pre-test performance, a comprehensive statistical analysis was conducted to ascertain the baseline proficiency levels of both experimental and control

groups. The resulting data, which includes measures of central tendency and dispersion, are carefully presented in Table 4 below.

**Table** 4. **Mean scores and standard deviations of students on pretest and posttest**

| | Pre-test | Post-test |
|---|---|---|
| Means | 33.85 | 51.77 |
| Standard development. | 3.08 | 8.60 |
| Maximum | 43 | 62 |
| minutes | 31 | 32 |

Source: Statistical analysis of pre-test and post-test results

Careful examination of the quantitative data revealed significant variation between the pre-test and post-test performance metrics. The pre-test yielded a mean score of 33.85 (SD = 3.08), while the post-test showed a marked improvement with a mean score of 51.77 (SD = 8.60). This substantial improvement in measures of central tendency and dispersion strongly suggests that the implementation of the Collect, Organize, write (COW) strategy had a positive impact on students' writing proficiency, particularly in the realm of descriptive paragraph writing.

The efficacy of the COW strategy was particularly evident among fourth-semester students in the Building Construction Engineering program. The impact of the strategy was mixed, improving five different aspects of writing competence. The striking difference between pre-test and post-test scores ($\Delta = 17.92$) indicated a statistically significant improvement in overall writing performance.

## CONCLUSION

The empirical investigation yielded statistically significant differences between pre-intervention and post-intervention assessments, indicating the efficacy of the *Collect, Organize, Write* (*COW*) strategy in improving students' writing ability. This pedagogical approach shows particular utility in expanding students' lexical resources for written expression. The structured nature of the *COW* protocol appears to facilitate increased student engagement and a more systematic progression through the stages of writing. The initial evaluation revealed deficiencies in vocabulary usage, with participants often resorting to their native language due to limited English lexical knowledge. The data collected strongly supports the conclusion that the implementation of the *COW* strategy resulted in measurable improvements in students' writing proficiency across a range of evaluative criteria. These findings underscore the importance of purposeful pedagogical interventions in the domain of writing instruction. While various methodologies exist for teaching written composition, the *COW* approach emerges as a highly effective method for facilitating the formation and expression of ideas. The positive outcomes observed suggest that this technique deserves serious consideration for integration into the writing curriculum, especially in contexts where students face challenges in conceptualizing and articulating their thoughts in written form. To further enhance the effectiveness of the *COW* strategy, future implementations could benefit from extending the intervention period, providing differentiated instruction to address individual student needs, incorporating more peer-review sessions, and conducting follow-up studies to assess long-term retention. These measures would help solidify gains in writing proficiency and ensure the strategy's broader applicability in technical education.

## REFERENCES

Ado, M. A., & Alsheyab, M. O. A. (2019). Level of knowledge awareness and use of planning as a writing strategy by international EFL students in UUM's intensive English course. *Journal of English Language Teaching and Linguistics*, *4*(3), 319–336. https://doi.org/10.21462/jeltl.v4i3.318

Aiyub, A., Meutia, P. D., Suryani, S., & Dauyah, E. (2022). Writing strategies: An analysis of Malahayati English Council English learners' success in writing. *Jurnal Ilmiah Iqra*, *16*(2), 167. https://doi.org/10.30984/jii.v16i2.2042

Ariyanti, A. (2018). Effectiveness of indirect written correction on English writing skills. *Jurnal English Akademik Spesifik Ungu*.

Arthur, H. (2002). *Testing for language teachers* (2nd ed.). Cambridge University Press.

Ayu, M. (2020). Online learning: Leading e-learning at higher education. *The Journal of English Literacy Education: The Teaching and Learning of English as a Foreign Language*, *7*(1), 47–54.

Ghazali, M. A. I. M., Ali, Z., & Rahim, A. A. A. (2022). Adopting design and development research (DDR) approach in framing the roles and responsibilities of prospective English teachers to teach writing skills. *Journal of Pharmacy Negative Results*.

Graham, S. (2019). Changing the way we teach writing. *Review of Research in Education*.

Hartono, H., Widiyati, E., & Anwar, C. (2023). Group work in Zoom breakout rooms to enhance English-speaking self-efficacy for active learning activities. *Studies in English Language and Education*, *10*(1), 137–154. https://doi.org/10.24815/siele.v10i1.26021

Hughes, A. (2003). *Testing for language teachers* (2nd ed.). Cambridge University Press.

Jima, D. (2008). *Classroom authoring: Guided writing grade 2*. Teacher Created Resources, Inc.

Lionukas, Y. P. (2016). Teaching writing by using COW (Collect, Organize, and Write) strategy to improve students' writing skills. *Ideas Journal*, *4*(1).

Maharani, S., Fauziati, E., & Supriyadi, S. (2018). An investigation of writing strategies used by students against language proficiency and gender perspectives. *International Journal of Multicultural and Multireligious Understanding*.

Mohseniasl, F. (2014). Examining the effect of strategy instruction on writing comprehension and writing achievement of English as a foreign language (EFL) learners. *Theory and Practice in Language Studies*.

Nishanthi, R. (2018). The importance of learning English in today world. *International Journal of Trend in Scientific Research and Development*, *3*(1). https://doi.org/10.31142/ijtsrd19061

Sari, D. A. (2017). *The effect of Collect-Organize-Write (COW) strategy on students' achievement in writing descriptive text at Nurul Hasanah Junior High School, Jalan Amal Baksti Pasar VII Tembung* [Unpublished undergraduate thesis]. Faculty of Teacher Training and Education, Muhammadiyah University of North Sumatra.

Sartika, N., & Nurdin, M. (2019). Students' ability in writing descriptive text based on its generic structure in class X students of vocational high school. *PROJECT (Professional Journal of English Education)*.

Setyaningsih, N., & Larassati, A. (2021). Umm, you know... Speaking or writing? Examining EFL students' writing style in argumentative essays. *ELSYA: Journal of English Language Studies*.

Shanty, H. (2018). The efficacy of using the Collect, Organize, Write (COW) strategy in teaching argumentative essay writing to English as a foreign language (EFL) students in Indonesia. In *TEFLIN International Conference*.

Wijayanto, M. E. (2020). The integration of Islamic values in implementation of learning English: Islamic education students perspective. *ETERNAL (English, Teaching, Learning, and Research Journal)*, *6*(1), 18–30.