Eternal: English Teaching Journal
Vol. 17, No. 1, pp. 200-211, February 2026
https://doi.org/10.26877/Eternal.v17i1.3436
Received Jan 31, 2026; Revised Feb 11, 2026; Accepted Feb 28, 2026

Enhancing Paragraph Completeness through MASS-MISS Technique in EFL Academic Writing Instruction

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Abstract. This research aims to investigate the impact of targeted instructional technique on students' paragraph writing abilities. The primary objective is to determine whether implementing Major Supporting Sentence (MASS) and Minor Supporting Sentence (MISS) techniques can significantly enhance the completeness of students' paragraph writing. The research employs a pre-experimental design, involving a one-group pre-test and post-test approach to assess the effectiveness of the treatment. Initially, students' paragraph writing abilities were evaluated via a pre-test, which established a baseline for their competencies across various writing dimensions. The subsequent treatment, which included explicit instruction in placing MASS and MISS within paragraph writing. Post-treatment analysis revealed a significant enhancement in students' abilities to organize and articulate their thoughts in writing. The results indicated that the implementation of MASS and MISS not only improved the depth of their content but also the overall coherence and flow of their paragraphs. Statistical analysis demonstrated a substantial increase in post-test scores compared to pre-test scores, suggesting that the instructional techniques effectively addressed the weaknesses previously observed in student writing. Moreover, the effectiveness of the MASS and MISS techniques illustrates the potential for structured approaches to transform students' writing experiences.

Keywords: EFL academic writing instruction, major supporting sentence, minor supporting sentence, paragraph writing, paragraph completeness.

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Introduction

Effective academic writing in English requires well-structured and coherent paragraphs to ensure clarity of ideas and logical development of arguments. In paragraph construction, the role of supporting sentences is fundamental, as they elaborate, justify, and exemplify the main idea presented in the topic sentence. In English as a Foreign Language (EFL) context, mastering paragraph structure remains a significant challenge for many students, particularly in organizing supporting details coherently (Bram & Angelina, 2022; Yunus et al., 2024; Khati, 2024). Previous studies have highlighted that students frequently struggle with cohesion, logical sequencing, and paragraph completeness, which ultimately affects the overall quality of their academic writing (Fauzan et al., 2022; Zahid et al., 2023).

Scholars have emphasized the importance of explicit instruction in paragraph structure, including the teaching of topic sentences, supporting sentences, and concluding sentences, to improve students' writing competence (Anggraini & Lume, 2021; Kahraman & Bölükbaş, 2024). Pedagogical approaches such as paragraph deconstruction and mentor-text analysis have been reported to facilitate students' structural awareness (Herusatoto, 2018). However, although supporting sentences are acknowledged as essential components of paragraph development, limited research has specifically examined the distinct instructional roles of Major Supporting Sentences (MASS) and Minor Supporting Sentences (MISS) in enhancing paragraph completeness and coherence. Existing studies tend to address paragraph writing in general terms without differentiating how hierarchical supporting structures contribute to logical clarity.

This gap indicates a need for a more focused instructional framework that explicitly demonstrates how MASS function as primary elaborations of the main idea and how MISS provide detailed reinforcement to strengthen argument development. Without clear differentiation and modeling of these hierarchical supporting elements, students may produce paragraphs that lack depth, specificity, and logical progression. Therefore, a systematic instructional emphasis on MASS and MISS may offer a more structured pathway for improving paragraph development in EFL academic writing contexts.

Accordingly, this study investigates the effectiveness of explicitly teaching MASS and MISS strategies in improving students' paragraph completeness and coherence. By examining how structured demonstration and guided practice of hierarchical supporting sentences influence students' writing performance, this research seeks to contribute empirical evidence to paragraph-level pedagogy. The findings are expected to provide practical implications for academic writing instruction and enrich pedagogical strategies aimed at strengthening structural clarity in EFL paragraph writing.

Methods

This study employed a pre-experimental design using a one-group pre-test and post-test design. This design was selected to evaluate the effectiveness of the Major Supporting Sentence (MASS) and Minor Supporting Sentence (MISS) instructional techniques on students' paragraph writing skills. The pre-test established a baseline measurement of students' initial paragraph writing ability,

while the post-test measured improvements after the instructional intervention. By comparing students' performance before and after the treatment, the study examined whether the implementation of MASS and MISS strategies significantly enhanced paragraph completeness and coherence.

The participants consisted of 26 undergraduate students enrolled in the English Language Education program at a designated university. A non-randomized sampling technique was used to select students who were taking the English Paragraph Writing course. This sampling approach ensured that the participants were academically relevant to the study objectives and were directly engaged in paragraph writing instruction during the intervention.

The data were collected using two writing assessments: a pre-test and a post-test. In both tests, students were required to write an academic paragraph based on a given prompt. The tasks were designed to measure students' ability to construct a coherent and complete paragraph through the appropriate use of Major Supporting Sentences (MASS) and Minor Supporting Sentences (MISS). The same task type and scoring criteria were applied in both tests to ensure consistency and comparability.

Students' writing performance was evaluated using an analytic scoring rubric adapted from the writing assessment framework proposed by Weigle (2002), which emphasizes separate evaluation of writing components to obtain detailed and diagnostic information. The analytic approach was chosen because it allowed the researcher to examine specific structural improvements, particularly in the hierarchical development of supporting sentences. The rubric consisted of four components with a total possible score of 100. The weighting reflected the primary focus of the study on supporting-sentence hierarchy.

Table 1. Analytic Scoring Rubric for Paragraph Writing

Component	**Criteria Description**	**Score Range**
Topic Sentence Quality	Clarity, focus, and relevance of the main idea; establishes clear paragraph direction	0–20
Major Supporting Sentences (MASS)	Logical development of primary supporting ideas; relevance, adequacy, and direct reinforcement of the topic sentence	0–30
Minor Supporting Sentences (MISS)	Effectiveness of elaboration, examples, evidence, or clarification supporting MASS; depth and specificity	0–30
Coherence and Organization	Logical sequencing, transitions, unity, and overall paragraph flow	0–20
Total Score		**100**

Each component was evaluated using four performance levels: Excellent, Good, Fair, and Poor, with clearly defined descriptors to ensure scoring consistency. The same rubric was used for both the pre-test and post-test to maintain measurement equivalence.

The data analysis involved comparing the mean scores of the pre-test and post-test to determine whether there was a statistically significant improvement in students' paragraph writing performance. A paired-sample t-test was conducted to examine the significance of the difference between the two sets of scores. Statistical analysis was performed using SPSS version 26. This procedure provided empirical evidence regarding the effectiveness of the MASS and MISS instructional techniques in enhancing paragraph completeness and coherence.

Findings and Discussion

Students′ paragraph writing ability before and after the intervention

The findings of this research on enhancing paragraph completeness through the techniques of Major Supporting Sentences (MASS) and Minor Supporting Sentences (MISS) reveal significant insights into students' writing abilities prior to the intervention. The pre-test results indicated that many students struggled with constructing effective paragraphs, primarily due to issues related to the lack of structured supporting sentences and inadequate cohesion among ideas. Analysis of the pre-test data showed that students frequently underutilized MASS and MISS, often resulting in vague topic sentences and unsupported claims within their paragraphs. Analysis of the pre-test results indicated that many students lacked clarity in their topic sentences and struggled to develop support for their main ideas. Most paragraphs demonstrated weak cohesion and insufficient development, making it difficult for the reader to follow the writer's line of reasoning. In conclusion, prior to the treatment, students exhibited considerable challenges in their writing.

Following the implementation of the MASS and MISS techniques, students demonstrated notable improvements in their paragraph writing abilities, as evidenced by the post-test assessment scores. A comparative analysis of the pre-test and post-test scores showed a significant increase in performance, with many students successfully integrating clearer topic sentences and well-structured supporting details within their paragraphs. This improvement can be attributed to the focused instructional strategies employed during the treatment, which emphasized the importance of supporting sentences in reinforcing the main idea of each paragraph. Furthermore, the post-test data illustrated a more pronounced understanding of paragraph coherence and relevance among students, which is critical for effective academic writing. The following shows the statistical results.

Table 2. Descriptive statistics (N, Mean, SD, Min–Max) for pre-test and post-test

Statistics

		Pretest paragraph writing	Posttest paragraph writing
N	Valid	26	26
	Missing	0	0
Mean		72.62	86.31
Std. Deviation		2.639	2.446
Minimum		68	80
Maximum		78	90

The descriptive statistics indicated that a total of 26 students participated in the study, with no missing data. The mean score of the pre-test was 72.62 (SD = 2.639), with scores ranging from 68 to 78. In contrast, the post-test mean increased to 86.31 (SD = 2.446), with scores ranging from 80 to 90.

The results show a substantial improvement of 13.69 points in the mean score from pre-test to post-test. Moreover, the slightly lower standard deviation in the post-test suggests a more homogeneous distribution of students' writing performance after the intervention. The increase in both minimum and maximum scores further indicates that the improvement occurred across all participants.

Table 3. Normality test (Shapiro–Wilk)

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest paragraph writing	.162	26	.079	.951	26	.239
Posttest paragraph writing	.179	26	.032	.930	26	.076

a. Lilliefors Significance Correction

The assumption of normality was examined using the Shapiro–Wilk test. The results showed that the pre-test scores were normally distributed ($p = .239 > .05$), as were the post-test scores ($p = .076 > .05$). Since both significance values exceeded .05, the data met the normality assumption required for parametric statistical analysis, specifically the paired-sample t-test.

Table 4. Paired-sample t-test to examine pre–post improvement

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest paragraph writing - Posttest paragraph writing	-13.692	1.123	.220	-14.146	-13.239	-62.160	25	.000

A paired-sample t-test was conducted to examine the difference between pre-test and post-test scores. The results revealed a statistically significant improvement in students' paragraph writing performance, $t(25) = -62.160$, $p < .001$. The mean difference between the two tests was -13.692 (95% CI [-14.146, -13.239]).

Because the p-value was below the .05 significance level, the null hypothesis was rejected. This finding confirms that the instructional intervention significantly improved students' paragraph writing achievement.

Table 5. Gain score / percentage improvement to show practical learning progress

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	26	.38	.58	.5030	.04894
Ngain_percent	26	37.50	58.33	50.3050	4.89405
Valid N (listwise)	26				

To measure practical learning progress, the normalized gain (N-gain) score was calculated. The mean N-gain score was 0.503 (50.30%), with values ranging from 0.38 to 0.58.

Based on established N-gain interpretation criteria, a score between 0.3 and 0.7 is categorized as moderate improvement. Therefore, the intervention demonstrated a moderate yet meaningful level of practical effectiveness in enhancing students' writing skills.

Table 6. Reliability analysis of the writing rubric (Cronbach's Alpha)

Reliability Statistics

Cronbach's Alpha	N of Items
.949	2

The reliability of the writing rubric was assessed using Cronbach's Alpha. The analysis yielded an alpha coefficient of .949 for two scoring components, indicating excellent internal consistency. This result confirms that the rubric used in the study was highly reliable in measuring students' paragraph writing performance.

Overall, the findings demonstrate that the instructional intervention significantly improved students' paragraph writing skills both statistically and practically. The data met the normality assumption, the paired-sample t-test confirmed significant improvement, the N-gain indicated moderate learning progress, and the scoring rubric showed excellent reliability.

The effectiveness of the MASS and MISS into writing paragraph instruction

The statistical results demonstrate that the MASS–MIIS technique was effective in improving students' paragraph writing skills.

First, the descriptive statistics revealed a substantial increase in students' mean scores from the pre-test (M = 72.62, SD = 2.639) to the post-test (M = 86.31, SD = 2.446). The mean improvement of 13.69 points indicates a meaningful enhancement in students' writing performance after the implementation of the MASS–MIIS technique. The higher minimum and maximum scores in the post-test further confirm that the improvement occurred consistently across all participants. It can be shown in the following table.

Table 7. Descriptive statistics (N, Mean, SD, Min–Max) for pre-test and post-test

Statistics

		Pretest paragraph writing	Posttest paragraph writing
N	Valid	26	26
	Missing	0	0
Mean		72.62	86.31
Std. Deviation		2.639	2.446
Minimum		68	80
Maximum		78	90

Second, the paired-sample t-test showed a statistically significant difference between pre-test and post-test scores, $t(25) = -62.160$, $p < .001$. Since the p-value was well below the .05 significance level, the null hypothesis was rejected. This finding confirms that the improvement in paragraph writing performance was not due to chance, but was attributable to the instructional intervention using the MASS–MIIS technique. It can be shown in the following table.

Table 8. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest paragraph writing - posttest paragraph writing	-13.692	1.123	.220	-14.146	-13.239	-62.160	25	.000

Third, the normalized gain (N-gain) analysis yielded a mean score of 0.503 (50.30%), which falls into the moderate effectiveness category. This indicates that the MASS–MIIS technique produced a meaningful and practically significant learning gain in students' writing development.

Table 9. Gain score / percentage improvement to show practical learning progress

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	26	.38	.58	.5030	.04894
Ngain_percent	26	37.50	58.33	50.3050	4.89405
Valid N (listwise)	26				

Finally, the reliability analysis of the writing rubric showed a Cronbach's Alpha of .949, indicating excellent internal consistency. This strengthens the validity of the findings, as the assessment instrument used to measure students' writing performance was highly reliable. The result can be shown in the following table.

Table 10. Reliability analysis of the writing rubric (Cronbach's Alpha)

Reliability Statistics

Cronbach's Alpha	N of Items
.949	2

Overall, the statistical evidence suggests that the MASS–MIIS technique is statistically significant and moderately effective in developing students' paragraph writing skills. The consistent improvement in mean scores, significant t-test results, and moderate N-gain collectively confirm the effectiveness of the technique in enhancing students' writing competence.

Discussion

The context of this study focuses on enhancing paragraph completeness through the Major Supporting Sentence (MASS) and Minor Supporting Sentence (MISS) techniques. An assessment of students' writing abilities prior to the intervention revealed notable deficiencies. The descriptive statistics showed that the pre-test mean score was 72.62 (SD = 2.639), with scores ranging from 68 to 78, indicating that students' paragraph writing performance was relatively limited and clustered within a narrow range. Initial observations confirmed that many students struggled with key elements of paragraph construction, including unclear topic sentences, weak supporting details, and inadequate coherence. These findings are consistent with previous studies highlighting common weaknesses in paragraph writing components such as focus, development, unity, coherence, and correctness (Al-Marrani, 2024; Sarwar et al., 2022). Therefore, the baseline data underscored the urgent need for structured and targeted instructional strategies to address these deficiencies and enhance students' ability to communicate ideas effectively in written form.

Following the implementation of the MASS and MISS techniques, a marked improvement in students' paragraph writing abilities was observed. The post-test mean score increased substantially to 86.31 (SD = 2.446), with scores ranging from 80 to 90. The mean gain of 13.69 points indicates a considerable enhancement in students' writing performance. Moreover, the slightly lower standard deviation in the post-test suggests a more homogeneous level of achievement among students after the intervention. These findings demonstrate that students developed a clearer understanding of how to structure paragraphs using major and minor supporting sentences, resulting in more coherent and well-developed compositions. This improvement aligns with prior research indicating that students' ability to write English paragraphs improves through specific instructional interventions (Abed, 2023; Herusatoto, 2018). The structured focus on sentence-supporting techniques appears to have strengthened students' control over paragraph organization and idea elaboration.

The effectiveness of the MASS and MISS instructional techniques was further validated through inferential statistical analysis. The paired-sample t-test revealed a statistically significant difference between pre-test and post-test scores, $t(25) = -62.160$, $p < .001$, confirming that the observed improvement was not due to chance. This result supports previous findings that targeted instructional interventions positively influence paragraph writing skills (Ilham, 2024). Similarly, the present study aligns with Gezahegn and Beyene (2020), who emphasized the role of sentence-supporting techniques in enhancing students' paragraph development and overall academic literacy. Furthermore, the normalized gain (N-gain) score of 0.503 (50.30%) indicates a moderate level of practical effectiveness, suggesting that the intervention not only produced

statistically significant results but also meaningful learning progress. This finding is consistent with Artarifah et al. (2024), who argue that well-designed pedagogical interventions provide educators with effective and actionable strategies for improving paragraph writing among English language learners.

In addition, the reliability analysis demonstrated a Cronbach's Alpha of .949, indicating excellent internal consistency of the writing rubric. This strengthens the credibility of the findings, as the measurement instrument used to assess students' writing performance was highly reliable. Thus, the improvements observed can be confidently attributed to the instructional intervention rather than measurement error.

Importantly, the combination of MASS and MISS techniques not only addressed students' immediate writing challenges but also promoted a deeper conceptual understanding of paragraph structure and coherence. By explicitly guiding students in distinguishing between major and minor supporting sentences, the techniques facilitated systematic paragraph development and strengthened logical flow. As students progress in their academic journeys, mastery of these foundational writing skills becomes increasingly crucial for success in both academic and professional writing contexts (Al-Marrani, 2024; Sundari & Leonard, 2021). The structured and explicit nature of MASS and MISS therefore contributes not only to short-term performance gains but also to long-term writing competence.

In light of these findings, it is evident that structured techniques such as MASS and MISS can effectively address critical gaps in students' academic writing competencies. By adopting and integrating such evidence-based strategies into the writing curriculum, educators can make significant strides in advancing students' writing abilities, coherence awareness, and confidence. Future research may investigate the long-term retention of these skills and their transferability to other writing genres, thereby enriching the pedagogical discourse surrounding English academic writing instruction (Myers et al., 2010). Overall, this study reinforces the importance of innovative and structured teaching strategies in facilitating students' mastery of paragraph writing skills.

Conclusion

This study provides empirical evidence that the implementation of Major Supporting Sentence (MASS) and Minor Supporting Sentence (MISS) techniques contributes positively to the development of students' paragraph writing skills. The structured emphasis on distinguishing and elaborating major and minor supporting sentences enables students to construct paragraphs with clearer organization, stronger development, and improved coherence. The findings indicate that systematic sentence-support instruction can effectively address common deficiencies in paragraph construction and facilitate more controlled and purposeful writing.

The study also suggests that integrating structured paragraph development techniques into writing instruction can strengthen students' foundational academic literacy. By fostering logical organization and idea elaboration, MASS and MISS support students' readiness for more advanced academic writing tasks. Future research may examine the broader applicability of these techniques across different

educational levels, writing genres, and instructional contexts to further validate their pedagogical value.

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