GRAPHIC ORGANIZERS THROUGH FACEBOOK MESSENGER IN TEACHING WRITING: BASIS FOR WRITING ENHANCEMENT AND INTERVENTION

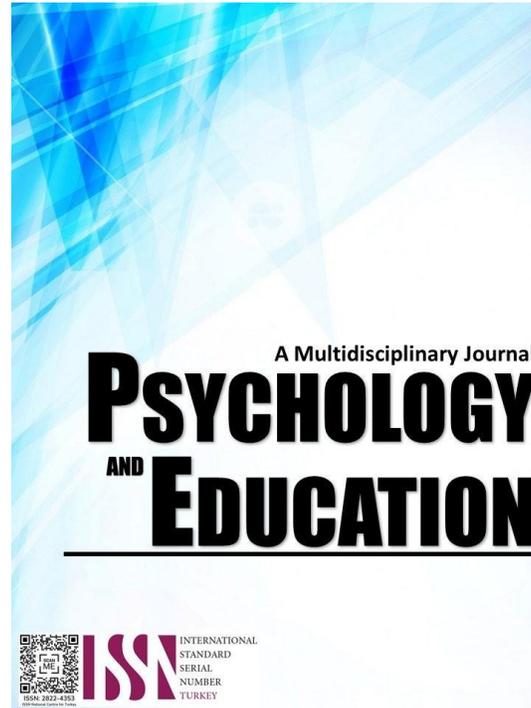# Graphic Organizers Through Facebook Messenger in Teaching Writing: Basis for Writing Enhancement and Intervention

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Abstract

This study examines the effectiveness of using graphic organizers through Facebook Messenger as a tool for enhancing students' writing skills, particularly in coherence, emphasis, variety, content, and mechanics. Writing proficiency is crucial for effective communication and academic success; numerous students find it challenging to organize their thoughts and structure their writing. The study utilized a quasi-experimental pretest-posttest design and involved 30 college students. They were divided into two groups: the experimental group used graphic organizers via Facebook Messenger, while the control group received traditional instruction. The quantitative results showed a statistically significant improvement in the experimental group's posttest scores, indicating that the intervention was effective in improving writing structure, organization, and clarity. It advises that technology-driven strategies in language instruction should continue to be explored further to improve students' writing proficiency in digital learning environments.

Keywords: *writing skills, graphic organizers, facebook messenger, digital learning, student engagement, MAEd English, Cebu, Philippines*

Introduction

Writing skills are of paramount importance to everyone, as they form the foundation for effective communication in various personal and professional contexts. One's writing skills pave the way for the exchange of ideas and information and enhance the clarity and impact of one's messages across diverse platforms. As an individual develops his or her writing skills, thoughts and feelings are conveyed more precisely, contributing to successful collaborations, business transactions, and interpersonal interactions. Moreover, employers prefer a person with exemplary writing ability, especially those who prioritize effective written communication in the rapidly evolving digital landscape. Most importantly, investing time and effort to improve one's writing skills is advantageous for academic success, personal growth, and career advancement. By fostering creativity, imagination, and critical thinking, these skills empower individuals to express themselves confidently and persuasively, enabling them to navigate modern society's complexities quickly (Jenkins, 2023).

For Deane (2018, as cited in Sarwat et al., 2021), writing is an imperative skill for successful language development. The need for it increases as the English language becomes increasingly used for international communication and for the comprehension of the required knowledge. English writing has a significant impact on the entire education system because it is the primary source of world knowledge. It is also the most significant development in human history. It is a way of exchanging knowledge, information, thoughts, and opinions with other countries in the world from one generation to another. Moreover, writing is a multifaceted skill central to the development of communication and critical thinking. Improving it would mean a person can write for different audiences and purposes, including to persuade, explain, and convey real or imagined experience.

Writing is an indispensable tool in changing the world. Considerably, good writing skills have become a well-known vehicle for progress. In 2016, the United Nations launched the 17 Sustainable Development Goals. Among the goals listed are Quality Education, Peace and Strong Institutions, and Partnerships. These goals, in one way or another, benefit from writing. Although writing is not a panacea for the world's problems, it may significantly improve the quality of education. Furthermore, compelling writing can foster fruitful partnerships in both foreign and local settings. Also, it provides opportunities to resolve conflicts and helps people to forgive and reconcile.

An emphasis on practical writing skills is warranted because poor writing indicates confused thinking. The US National Assessment of Educational Progress, in 2020, revealed that two-thirds of K-12 students are not writing at the level expected for their grade. The results of the said writing inventory were attributed to the fact that writing has not been given the same attention as math and reading. Edyburn (2020) further asserts that when writing is not a priority in elementary school, it becomes difficult to teach in middle school when large class sizes are the norm. This calls for the use of strategies delivered through online platforms to improve learners' writing skills.

As with other learning-related problems, poor writing skills can be devastating to a learner's education and self-esteem. When the learner falls short in developing basic skills, he or she becomes unable to write at the speed and fluency required to excel as these demands increase. As such, the writing process itself interferes with learning. Interestingly, writing problems rarely occur in isolation, and improvements in writing go hand in hand with the development of other non-writing-specific skills. Thus, a problem with the development in one of these areas is likely to interfere with one's ability to write (Levine, 2022).

From the global scenario, the study entitled "Problems and Factors Affecting Students' English Writing Skills" by Sarwat et al. (2021) investigated the writing problems and factors that hamper their English writing skills. In the study, writing is regarded as one of the most important skills that learners sometimes find very difficult to develop. Using a random sample of 155 students and 32 English teachers, the study found that the majority of students are unable to write grammatically precise English paragraphs. The study has also disclosed that the main problems in students' English writing are poor command of English tenses, grammar, and syntax, and insufficient vocabulary.

Lack of creative ideas, writing anxiety, weak structural organization, and dependence on L1 are also the primary causes of learners' poor writing in English. Similarly, the study by Moses and Mohamad (2019) on the Challenges Faced by Students and Teachers on Writing Skills in ESL Contexts found that improving learners' writing skills is a significant challenge ESL teachers face in most schools today. Writing has been reported as a significant difficulty for students in English language learning, while teachers are also facing challenges in teaching writing skills. As a result, the researchers have called for up-to-date, technology-driven interventions to enhance the quality of students' writing.

From tertiary students' perspectives, the study published by Bulquiyah, et al. (2021) revealed that tertiary students' problems in essay writing may come in different forms such as; affective problems which raise from students' and lecturers' attitude while teaching and learning Essay Writing Course; cognitive problems which pertain to the difficulties in the areas of writing viewpoint, transferring language, and the process of writing, and linguistic problems in the area of lexico-grammar, vocabulary, and the structure of the essay. In view of the foregoing, it is imperative to give serious attention to academic writing to overcome these problems. The study has implications for teaching writing, as it proposes material improvements and the integration of technology in language and education. Given the aforementioned recommendation, Zhang (2019) reported that the use of online resources grounded in systemic functional linguistics (SFL) affects college students' writing practices. Through qualitative analyses of in-class discussions, students' interviews and reflections, as well as their written pieces gathered in a Chinese university, the results of the case study has demonstrated that the students were able to overcome their fears with writing construction associated with their dearth of practical knowledge, by utilizing the knowledge imparted through online resources, actively and confidently participating in unpacking written discourse and effectively constructing their own writing. The study has shown that harnessing the power of online resources and platforms can help alleviate students' anxieties while providing the knowledge needed for effective written communication.

In the Philippine context, Saavedra and Barredo (2020) conducted a study aimed at exploring the "Factors that Contribute to the Poor Writing Skills in Filipino and English of Elementary Pupils." Since English is by far the most widely used language in the country, English-language writing has always been a challenge for second-language students to master. Developing students' writing skills is also a significant challenge faced by teachers in most schools. Using purposive sampling, 43 language teachers teaching English and Filipino who have been teaching the subjects for 5 years or more were selected as respondents. They, too, are teaching in different public elementary schools in the same Division. A standardized survey questionnaire that had undergone validation, reliability testing, and pilot testing served as the study instrument. The Philippine-based study revealed that language teachers considered five factors to have influenced the poor English and Filipino writing skills of elementary pupils. Based on their experiences and observations while teaching writing to the pupils, the following was recorded: 1) lack of vocabulary in the target language; 2) difficulty in conveying and organizing ideas; 3) pupils' perception that writing is a challenging task; 4) lack of motivation and interest in writing; and 5) the difficulty in spelling, grammar and sentence construction are the reasons why many elementary pupils have poor writing skills in English and Filipino. These factors can be attributed to the pupils' first languages (Chabacano, Bahasa Sug, and Cebuano), where English and Filipino are considered L2 only. Despite teachers' efforts, elementary pupils' writing skills still did not meet the standard.

Improving the Basic Writing Skills of Grade 7 Learners in Filipino: An Action Research in Filipino Language (N Hikmah, A Akmal, F Buffe, 2019)Ahmad Dahlan International (2019). The study examines the writing skill competence of Grade 8 students at The University of Saint Anthony, The Philippines. It aims to determine the level of writing skill competence in terms of grammar (organization, content, mechanics, and style); identify standard grammar and mechanics errors in essay writing; and propose writing activities based on the findings. This research used a quantitative, descriptive-evaluative method. The respondents of this research were 20 Grade 8 students from Junior High School enrolled in the Summer Enrichment Class at the University of Saint Anthony during the school year 2018- 2019. The statistical tools used were Frequency and Weighted Mean. Among the findings are: 1) The students are good in writing contents, style and organization but they are still poor in mechanics and grammar; 2) The students have more errors in grammar aspects such as the usage of subject and verb, proper usage of tenses, organization of thoughts, contracted words, distribution of thoughts per sentence, and on mechanics wherein students have errors on usage of punctuation, capitalization of proper nouns, proper indention of the paragraph and sentence breaks, and 3) The supplementary learning material must be developed to improve the writing skills competence of the students.

Focusing on Filipino senior high school students, a descriptive-qualitative study examined the difficulties students face in writing academic essays and the overall quality of their essays. Using the random sampling technique, the academic essays of 227 Grade 11 senior high school students in the Schools Division of Laoag City were selected and analyzed for the study. Evaluating the essays was done using the Standardized Rubric for Evaluating Academic Essays of Jacobs (1981), which was later enriched by Valdez in 2016. Pablo and Lasaten (2018), have found that student difficulties in writing academic essays are caused by a myriad of factors, such as the lack of variety of ideas in terms of content and ideas, the lack of connectives in terms of organization, incorrect word or idiom and

word usage in terms of vocabulary and word choice, and poor sentence structures in terms of language use. Notably, teachers are encouraged to use a variety of activities, provide consistent academic writing practices and drills, and develop technology-based materials to address the identified difficulties of Senior High School students in the digital age.

There is no better time to emphasize and address Filipino learners' writing skills. While teaching how to write is one story, ensuring that the learner masters the skill of writing is another. Given students' poor writing skills, as suggested by both local and foreign sources, it is imperative to pursue a study on this. As the post-pandemic and digital age present an all-new learning environment, the researcher believes that the use of online platforms like Facebook Messenger should be emphasized in instruction. Finally, the dearth of existing studies and literature on the writing skills of students at the tertiary level has enabled the researcher to identify an empirical research gap that the researcher intends to address.

Research Questions

This study sought to determine students' writing skills and how these skills can be improved through the use of graphic organizers in Facebook Messenger. As an output of the study, the researcher intended to propose an intervention to improve students' writing competencies. Specifically, this study aimed to answer the following questions:

1. What is the pretest performance of the students in the following writing competencies:
    1.1. coherence;
    1.2. emphasis;
    1.3. variety;
    1.4. content; and
    1.5. mechanics?
2. After using, what is the posttest performance of the students in the aforementioned competencies?
3. Is there a significant difference between the pretest and posttest writing performance of the students?

Literature Review

Importance of Writing Skills

Writing skills are of paramount importance to everyone, as they form the foundation for effective communication in various personal and professional contexts. One's writing skills pave the way for the exchange of ideas and information and enhance the clarity and impact of one's messages across diverse platforms. As an individual develops his or her writing skills, thoughts and feelings are conveyed more precisely, contributing to successful collaborations, business transactions, and interpersonal interactions. Moreover, employers prefer a person with exemplary writing ability, especially those who prioritize effective written communication in the rapidly evolving digital landscape. Most importantly, investing time and effort to improve one's writing skills is advantageous for academic success, personal growth, and career advancement. By fostering creativity, imagination, and critical thinking, these skills empower individuals to express themselves confidently and persuasively, enabling them to navigate modern society's complexities quickly (Jenkins, 2023). Several studies emphasize that public speaking enhances not only communication abilities but also cognitive and affective learning outcomes. For instance, Tong et al. (2022) found that students who received formal public speaking instruction showed notable academic improvements across subjects. Zhang et al. (2020) supported these findings by demonstrating that such training significantly boosts students' self-efficacy, which is strongly linked to better academic performance.

For Deane (2018, as cited in Sarwat et al., 2021), writing is an imperative skill for successful language development. The need for it increases as the English language becomes increasingly used for international communication and for the comprehension of the required knowledge. English writing has a significant impact on the entire education system because it is the primary source of world knowledge. It is also the most significant development in human history. It is a way of exchanging knowledge, information, thoughts, and opinions with other countries in the world from one generation to another. Moreover, writing is a multifaceted skill central to the development of communication and critical thinking. Improving it would mean a person can write for different audiences and purposes, including to persuade, explain, and convey real or imagined experience.

As with other learning-related problems, poor writing skills can be devastating to a learner's education and self-esteem. When the learner falls short in developing basic skills, he or she becomes unable to write at the speed and fluency required to excel as these demands increase. As such, the writing process itself interferes with learning. Interestingly, writing problems rarely occur in isolation, and improvements in writing go hand in hand with the development of other non-writing-specific skills. Thus, a problem with the development in one of these areas is likely to interfere with one's ability to write (Levine, 2022).

Writing is an Indispensable Tool

Considerably, good writing skills have become a well-known vehicle for progress. In 2016, the United Nations launched the 17 Sustainable Development Goals. Among the goals listed are Quality Education, Peace and Strong Institutions, and Partnerships. These goals, in one way or another, benefit from writing. Although writing is not a panacea for the world's problems, it may significantly improve the quality of education. Furthermore, compelling writing can foster fruitful partnerships in both foreign and local settings.

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Writing Skills Play a Critical Role in Academic Success

Many students struggle to organize their ideas, maintain coherence, and apply proper grammar and mechanics in their writing. Traditional writing instruction often lacks the structured support students need to develop these skills, leading to frustration and disengagement. Additionally, the increasing reliance on digital communication necessitates integrating technology-driven strategies to enhance writing proficiency.

Writing Skills in the Philippine Education Context

A study aimed at exploring the "Factors that Contribute to the Poor Writing Skills in Filipino and English of Elementary Pupils" was conducted by Saavedra and Barredo (2020). Since English is by far the most widely used language in the country, English-language writing has always been a challenge for second-language students to master. Developing students' writing skills is also a significant challenge faced by teachers in most schools. Using purposive sampling, 43 language teachers teaching English and Filipino who have been teaching the subjects for five years or more were selected as respondents. They, too, are teaching in different public elementary schools in the same Division. A standardized survey questionnaire, which had undergone validation, reliability testing, and pilot testing, served as the study instrument. The Philippine-based study revealed that language teachers considered five factors to have influenced the poor English and Filipino writing skills of elementary pupils. Based on their experiences and observations while teaching writing to the pupils, the following was recorded: 1) lack of vocabulary in the target language; 2) difficulty in conveying and organizing ideas; 3) pupils' perception that writing is a challenging task; 4) lack of motivation and interest in writing; and 5) the difficulty in spelling, grammar and sentence construction are the reasons why many elementary pupils have poor writing skills in English and Filipino. These factors can be attributed to the pupils' first languages (Chabacano, Bahasa Sug, and Cebuano), where English and Filipino are considered L2 only. Despite teachers' efforts, elementary pupils' writing skills still did not meet the standard.

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Identified Gap and Relevance of the Study

There is no better time to emphasize and address the writing skills of Filipino learners. While teaching how to write is one story, ensuring that the learner masters the skill of writing is another. Given students' poor writing skills, as suggested by both local and foreign sources, it is imperative to pursue a study on this. As the post-pandemic digital age presents a new learning environment, the researcher believes that the use of online platforms such as Facebook Messenger should be emphasized in instruction. Finally, the dearth of existing studies and literature on the writing skills of students at the tertiary level has enabled the researcher to identify an empirical research gap that the researcher intends to address.

Applying it to the context of this study, in order to develop the writing skills among college students, a pre-organized set of knowledge (schema) through words and imagery (dual coding) should be present. The use of graphic organizers, for one, creates both organized knowledge about a topic and a mental image to associate with the word, phrase, or sentence, which can be used in future writing. Rather than starting from scratch, students can write about a topic they know. Students, too, would feel at ease with the visual image left by the graphic organizer, which guides their ideas in writing. Taken collectively, the use of both theories is considered instrumental in enhancing students' writing skills.

Methodology

Research Design

This study utilized the quasi-experimental pretest-posttest research design. For Thomas (2023), quasi-experimental research is a type of quantitative design comparable to experimental research because it uses an intervention as its independent variable. However, this

type of design stands out for what it lacks. Quasi-experimental research does not employ random selection, as participants are assigned to fixed groups. In this study, the researcher introduced the use of graphic organizers via Facebook Messenger as an intervention to improve students' writing skills. Causation was established between the use of graphic organizers and students' writing skills, as evidenced by their scores before and after the intervention. A quasi-experimental design was preferred because an actual experiment cannot be conducted in this case due to practical constraints, such as existing sectioning and student scheduling.

To address the research questions raised in the preceding section of this paper, the quasi-experimental design was evolved into an explanatory sequential mixed-methods design. An explanatory sequential design starts with the quantitative phase of research. Data gathering was reinforced through a qualitative method to enrich the study's findings (Toyon, 2021).

Respondents

The respondents in this study were a representative sample of college students from one of the local colleges in Talisay City, Cebu, Philippines, enrolled in the current semester of Academic Year 2023–2024. These students were taking an English subject under the instruction of one of the English faculty members. To qualify for the study, participants had to demonstrate poor writing performance, as identified through prior assessments and classwork. Additionally, they needed to have access to Facebook Messenger to participate in the intervention activities.

Instrument

This study utilized a digital postcard writing exercise as its primary data-gathering instrument. The instrument was administered via a Facebook Messenger group chat, enabling convenient, accessible participation among college students. Each digital postcard featured an image of a well-known Philippine tourist destination. Respondents were instructed to view the image and imagine themselves having visited the location. They were then asked to write a message to a friend or family member, describing their imagined vacation experience. The written responses focused on various aspects of travel, including transportation, food, activities, and overall impressions. This creative writing approach was designed to elicit rich, descriptive data that reflects participants' perceptions and narrative abilities regarding travel experiences.

Procedure

The qualitative aspect, on the other hand, explored students' experiences with graphic organizers via Facebook Messenger. The steps in gathering data were discussed below:

Instrument Development, Validation, and Reliability Testing: To collect quantitative data, the researcher adapted and modified a rubric to rate students' writing skills. A semi-structured interview guide was crafted to explore students' experiences. The rubric for rating students' writing skills underwent validation and pilot testing to evaluate its clarity, accuracy, and appropriateness in measuring writing skills. Necessary revisions were made to improve the data gathering instrument.

Participant Selection: After determining the eligible population for the study, participants were selected purposively, as the researcher reserved the right to handpick the students who participated in the study personally. The researcher, who happened to be the English instructor, approached the target students individually and provided details about the study. The researcher ensured that participants voluntarily and willingly chose to participate in the study.

Data Collection: For the pre-test, participants were asked to complete a postcard-writing exercise. Students' output was evaluated using the rubric to rate their writing skills. Numeric scores were derived from the said evaluation. Since the study used an experimental research design for quantitative data collection, an intervention consisting of graphic organizers was delivered via Facebook Messenger. After administering the intervention, students were asked to retake the postcard writing exercise. The exact process of evaluating students' writing skills was done for the post-test. The students were gathered in a Focus Group Discussion so that the semi-structured interview guide focusing on students' experiences could be administered.

Statistical Analysis: Measures of central tendency and variability were used to describe the data. To compare students' pre-test and post-test scores, a t-test was performed using statistical software such as SPSS or MS Excel.

Thematic Analysis: This method was applied to the data obtained through the semi-structured interview to analyze qualitative data. The process involved reading a set of data and looking for patterns in its meaning to identify themes. It was carried out to identify relevant codes, big ideas, central concepts, and themes encountered by students when using graphic organizers via Facebook Messenger.

Data Analysis

Descriptive statistics, including mean, standard deviation, t-tests, and percentages, were used to summarize and describe students' entry and exit levels of performance in public speaking. These measures provided a clear overview of the participants' overall performance and distribution of scores before and after the intervention. To determine whether the observed differences in students' performance were statistically significant, a paired sample t-test was employed. This test assessed the mean difference between the pretest (entry) and posttest (exit) scores, allowing the researcher to evaluate the effectiveness of the structured public speaking guidance plan.

Ethical Considerations

The study population consisted of 30 students. Considering the nature of

In a quasi-experiment, a purposive sample of 15 college students was selected. Purposive sampling was a non-probability sampling technique that focused on a specific area of interest that honestly described a particular experience (Nikolopoulou, 2023). In this sampling design, the researcher reserved the right to select the control and experimental groups personally. Complete randomization was impossible in this case, as students had pre-assigned section assignments and class schedules.

All participants were provided with a consent form explaining the purpose of the study, the procedures, and their rights before participating. Participation was entirely voluntary, and students could withdraw at any time without penalty. Personal information and responses were kept confidential and used solely for research purposes. Approval was obtained from the college's research ethics committee prior to data collection.

Results and Discussion

This section presents students' performance on the pretest.

Pretest Performance

Table 1. *Pretest Performance*

Score	Coherence f	Coherence %	Emphasis f	Emphasis %	Variety f	Variety %	Content f	Content %	Mechanics f	Mechanics %
5		0		0		0		0		0
4		0		0		0		0		0
3	1	7	3	20	1	7	1	7	1	7
0 - 2	14	93	12	80	14	93	14	93	14	93
Total										
Mean	1.73		1.80		1.53		1.80		1.53	
Std Dev	0.5936		0.7746		0.6399		0.5606		0.6399	

Students' pretest performance was assessed across five key writing components: Coherence, Emphasis, Variety, Content, and Mechanics. Coherence refers to the logical flow and connection of ideas in writing (Barroga & Matanguihan, 2021). The data shows that most students (93%) scored between 0 and 2, indicating difficulty in maintaining logical progression in their writing. Emphasis, which pertains to the ability to highlight key points effectively (Bean & Melzer, 2021), was in the lower range for 80% of students, suggesting challenges in distinguishing main ideas from supporting details. Variety, which refers to the use of diverse sentence structures and vocabulary to enhance readability (Baker, 2020), had the lowest mean score of 1.53, with 93% of students scoring between 0 and 2, implying a lack of linguistic diversity. Content, which assesses the relevance and depth of ideas presented (Bulqiyah et al., 2021), also showed that 93% of students were in the lowest range, indicating underdeveloped arguments or insufficient elaboration. Lastly, Mechanics, which covers grammar, punctuation, and spelling (Yuliawati, 2021), showed similar results, with 93% of students struggling in this area. The standard deviation values indicate some variation in performance, but overall, students exhibited significant weaknesses across all five components.

The implications of these findings are substantial. The overall low mean scores suggest that students require targeted interventions to improve their writing skills. Previous studies have highlighted the importance of direct instruction and scaffolded writing activities in developing coherence and emphasis in student writing (Rodríguez-Málaga et al., 2021). The lack of variety suggests a need for explicit instruction in sentence structure and vocabulary expansion, aligning with research that emphasizes the role of exposure to diverse texts in improving writing proficiency (Lofgren, 2023). The weaknesses in content development indicate that students may benefit from structured brainstorming and outlining techniques to enhance their ability to generate and organize ideas (Sudadi et al., 2021). Furthermore, challenges in mechanics underscore the need for grammar instruction and editing strategies, as research has shown that consistent feedback and practice improve writing accuracy (Taye & Mengesha, 2024). Addressing these areas through comprehensive writing instruction can lead to meaningful improvements in students' writing performance.

Posttest Performance

Table 2. *Posttest Performance*

Score	Coherence f	Coherence %	Emphasis f	Emphasis %	Variety f	Variety %	Content f	Content %	Mechanics f	Mechanics %
5		0		0		0		0		0
4	7	47	9	60	7	47	7	47	4	26.7
3	8	53	6	40	8	53	8	53	11	73
0 - 2		0		0		0		0		0
Total										
Mean	3.47		3.60		3.47		3.47		3.27	
Std Dev	0.5164		0.5071		0.5164		0.5164		0.4577	

Students' posttest performance was assessed across five key writing components: Coherence, Emphasis, Variety, Content, and Mechanics. Coherence, according to Barroga & Matanguihan (2021), refers to the logical flow and connection of ideas in writing. The data reveals significant improvement: 53% of students scored 3, and 47% scored 4, indicating better organization of ideas. According to Bean & Melzer (2021), emphasis pertains to the ability to highlight key points effectively. The data indicate that 60% of students scored a 4, suggesting improved ability to distinguish main ideas. Variety, which refers to the use of diverse sentence structures and vocabulary to enhance readability (Baker, 2020), was used by 53% of students, who scored 3, and 47% who scored 4, demonstrating enhanced linguistic diversity. Content, which assesses the relevance and depth of ideas presented (Bulqiyah et al., 2021), also increased, with 53% of students achieving a score of 3 and 47% scoring 4. Lastly, Mechanics, which covers grammar, punctuation, and spelling (Yuliawati, 2021), saw an improvement with 73% scoring 3 and 26.7% scoring 4. The standard deviation values indicate more consistent performance across all categories than in the pretest.

The implications of these findings highlight the effectiveness of the instructional interventions applied between the pretest and posttest. The overall increase in mean scores suggests that targeted teaching strategies positively impacted students' writing abilities. Research indicates that structured writing instruction, including modeling, guided practice, and feedback, contributes to improved coherence and emphasis in writing (Kim et al., 2021). The increase in variety suggests that exposure to diverse sentence structures and vocabulary-expansion exercises was adequate, aligning with studies that emphasize the importance of reading and linguistic modeling in writing development (Gallagher, 2023). The improvements in content development indicate that structured brainstorming and outlining techniques enhanced students' ability to generate and organize ideas (Tsai et al., 2020).

Additionally, the gains in mechanics suggest that focused grammar instruction and revision strategies helped students improve their accuracy (Rahimi, 2021). These results underscore the importance of continued and systematic writing instruction to sustain and further develop students' writing skills.

Pretest Performance Difference

Table 3. *Pretest Performance Difference*

	Group B	Group A
Mean	13.73333	13.6
Variance	5.638095	5.257143
Observations	15	15
Pearson Correlation	0.438205	
Hypothesized Mean Difference	0	
Df	14	
t Stat	0.208676	not sig
P(T<=t) one-tail	0.418853	
t Critical one-tail	1.76131	
P(T<=t) two-tail	0.837706	
t Critical two-tail	2.144787	

The table presents the comparison of pretest performance between the experimental group (Group A) and the control group (Group B). The mean scores for Group A (13.6) and Group B (13.73) are very close, indicating minimal difference in students' initial writing competency levels before the intervention. The variances (5.26 for Group A and 5.64 for Group B) suggest a similar distribution of scores within each group. The Pearson correlation coefficient (0.438) indicates a moderate positive relationship between the two sets of scores, suggesting that students' performance in both groups followed a similar pattern.

The statistical analysis shows that the t-statistic (0.2087) is much lower than the critical t-values for both the one-tailed (1.7613) and two-tailed (2.1448) tests. Additionally, the p-values (one-tailed: 0.4189, two-tailed: 0.8377) are both greater than 0.05, indicating that the difference in pretest scores between the two groups is not statistically significant. This suggests that both groups had nearly the same level of writing proficiency before the intervention.

According to Hassan et al. (2021), a non-significant t-test result in the pretest confirms that any significant differences found in the posttest can be attributed to the intervention rather than pre-existing skill levels. This strengthens the study's validity, as it ensures that the effectiveness of using graphic organizers via Facebook Messenger in teaching writing can be accurately assessed based on posttest performance.

Posttest Performance Difference

Table 4. *Posttest Performance Difference*

	Group B	Group A
Mean	12.06667	15.46667
Variance	3.352381	2.266667
Observations	15	15
Pearson Correlation	0.350676	
Hypothesized Mean Difference	0	

Df	14	
t Stat	-6.85905	sig
P(T<=t) one-tail	3.91E-06	
t Critical one-tail	1.76131	
P(T<=t) two-tail	7.82E-06	
t Critical two-tail	2.144787	

The table presents the posttest performance comparison between the experimental group (Group A) and the control group (Group B). The mean score for Group A (15.47) is significantly higher than that for Group B (12.07), indicating a notable improvement in writing performance among students who used graphic organizers via Facebook Messenger. The variance values (2.27 for Group A and 3.35 for Group B) suggest that the scores in the experimental group were more consistent, whereas the control group showed a slightly wider spread. The Pearson correlation coefficient (0.351) indicates a weak positive relationship between the two sets of scores.

The statistical analysis reveals a t-statistic of -6.8591, which is much larger in magnitude than the critical t-values for both the one-tailed (1.7613) and two-tailed (2.1448) tests. The p-values (one-tailed: 3.91E-06, two-tailed: 7.82E-06) are both far below 0.05, confirming that the difference in posttest scores is statistically significant. This means that the improvement in Group A's writing performance was not due to random variation but rather the effectiveness of the intervention.

These results suggest that using graphic organizers via Facebook Messenger had a significant positive impact on students' writing skills. This aligns with existing research that emphasizes that visual aids and structured organizational techniques enhance students' ability to develop coherent, well-structured writing (Hyland, 2019). Furthermore, the lower variance in Group A's scores suggests that students who received the intervention improved more uniformly compared to those in the control group. These findings support the effectiveness of integrating digital tools in writing instruction and highlight the potential of social media platforms as an alternative instructional medium (Galvin & Greenhow, 2020).

Conclusions

Based on the findings, the study concludes that graphic organizers through Facebook Messenger are effective tools for improving students' writing performance. The significant increase in posttest scores demonstrates that students benefited from structured visual aids, leading to improved coherence, grammar, and organization in their writing. Additionally, qualitative insights highlight students' positive experiences, particularly in boosting writing confidence, reducing anxiety, and making learning more accessible. These results affirm that integrating digital tools into writing instruction enhances student engagement and fosters a more structured and guided approach to learning. Future research may explore the long-term effects of digital graphic organizers and their application in other academic subjects and learning contexts. It is strongly recommended that an action plan integrating graphic organizers through Facebook Messenger be developed and implemented to enhance students' writing performance.

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