

EFFECTS OF MIND-MAPPING AND OUTLINING AS PRE-WRITING TECHNIQUES ON DESCRIPTIVE PARAGRAPH WRITING OF EFL STUDENTS: A CASE AT TRA VINH UNIVERSITY, VIETNAM

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Abstract – *The current study investigated the effects of pre-writing techniques, including mind-mapping and outlining on Vietnamese EFL learners’ descriptive paragraph writing at a university in Mekong Delta, Vietnam. Participants include 77 Vietnamese EFL students at Tra Vinh University. Data were collected through a test (pretest and post-test) and a questionnaire with 20 items. Quantitative data were analyzed by using SPSS. The findings showed that the students in experimental group 2 with outline condition had higher post-test scores than those in experimental group 1. Both mind-mapping and outlining achieved significant improvement in terms of grammar, mechanics, content, organization, and vocabulary; however, the development of the outline condition is more sharply observed. In addition, the results from the questionnaire administered to two groups showed that students from the two conditions think positively about the role of the pre-writing techniques in their descriptive paragraph writing performance. These insights underscore the significance of employing pre-writing techniques as a valuable tool in enhancing writing skills. Finally, some recommendations for future researchers are also mentioned.*

Keywords: *mind map, non-English majored students, outline, pre-writing techniques, Vietnamese EFL students.*

I. INTRODUCTION

Mastering English writing is among the most challenging skills, requiring learners to invest

considerable time in improvement. Nunan [1] claimed that writing is a challenging cognitive activity and the most difficult skill. Writing requires meticulous concentration, discipline, and thinking which are complex for a writer. White [2] confirmed that writing skills are complex and involve many genres including narration, exposition, description, and argumentation. Writing is used to evaluate a learner’s proficiency in English. Additionally, Rao [3] declared that writing activities help develop students’ ability to think critically, organize their thoughts, synthesize, evaluate, and criticize information. Besides writing skills, texts also have many different forms, such as descriptions, explanations, narratives, and arguments. Sirait et al. [4] mentioned that a description text describes a human personality, location, or something in life. Hence, descriptive writing is the process of mental activity to describe something, someone, or a place that captures the reader’s imagination as the reader reads it.

Fareed et al. [5] found that students often lack coherence in explaining ideas and connecting words between sentences. Rass [6] declared that writers must balance several factors in their writing, such as language, organization, content, audience, and mechanics, including proper punctuation, spelling, and capitalization.

In this paper, remarkable efforts have been made to identify the most suitable condition to aid learners in developing their writing skills and encourage their participation in pre-writing techniques in the Vietnamese context. Thus, the major goal of this research is to explore the effects of the two pre-writing techniques, mapping and outlining, on the students’ writing skills at the pre-writing stage. This study was conducted

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Received date: 05th October 2024; Revised date: 29th November 2024; Accepted date: 04th December 2024

at a university in the Mekong Delta, and the participants are first-year non-English majored students in the second semester of the 2023–2024 academic year. Owing to the importance of learning and instructing the descriptive paragraph, this research examines two study objectives. The first one is to explore the influence of the pre-writing techniques on students' quality of writing the paragraph. The second one is to examine EFL students' attitudes towards using pre-writing techniques in a writing class. Therefore, the researchers proposed two research questions as follows:

1. To what extent do mind mapping and outlining as pre-writing techniques affect non-English majored freshmen's writing performance?
2. What are the viewpoints of students towards using pre-writing techniques on the quality of their descriptive paragraph writing?

II. LITERATURE REVIEW

A. Writing

Raimes [7] agreed that writing is a strenuous activity. It is a task that involves putting thoughts, feelings, and ideas into written form. The author also stated that writing is a process that involves thinking, planning, writing, revising, and eventually establishing a cohesive style of expressing opinions. Besides, Nunan [1] confirmed that the most complicated activity is writing skill, where the writer or the student has to arrange several sentences into an essay. Brown et al. [8] emphasized that written work is frequently the outcome of thinking, writing, and revising processes that call for a specific skill that not everyone naturally acquires. The theories of writing being discussed suggested that writing is the process of coming up with new ideas, determining how to communicate them in straightforward statements and paragraphs, and then organizing them into a complete paragraph. However, it depends on which type of writing the paragraph should be performed. This study focuses on descriptive paragraph writing because it captures the readers commonly and easily and

encourages the writer's creation with organized ideas.

B. Descriptive paragraph writing

Researchers have defined a paragraph from many different perspectives. According to Bram [9], a paragraph consists of many supporting sentences to discuss a main topic and a summative sentence that signals the paragraph's ending. With a similar point of view, Rustipa [10] stated that a paragraph is composed of some sentences linked together. The writer should include many sentences in a paragraph so that readers can fully understand the paragraph's point. Moreover, Bram [9] claimed that a paragraph is an organization comprising three parts: introduction, body, and conclusion. The best paragraph consists of the topic sentence, developing sentences, and a concluding sentence.

Langan [11] claimed that a descriptive paragraph differs from other writing genres because it demands clear and vivid information, and the writer has to pay more attention to certain elements that attract the reader's senses to increase a representation of words that is as vivid and realistic as possible. Michael et al. [12] claimed three forms of descriptive writing including description of people, description of places, and description of objects.

Description of people: It expresses a person's personality, or at least the main personality traits of that person. Besides, it also describes a person's appearance, identification, and impression, but it will demonstrate what people are like rather than describe how they appear or behave.

Description of places: When describing a place, the writer is able to help listeners or readers visualize it by including a dominating idea that expresses an attitude or opinion about the location being detailed to make the paragraph more exciting. In addition, specific details of the description are logically organized and clarify the main characteristics of the place the author wants to describe.

Description of objects: When describing an object, the writer will use their creativity to give the subject life. The writer will also use suitable nouns and strong verbs to give his topics the most interesting and vivid as possible.

In this research, a mind map was drawn and discussed by teachers to guide students’ brainstorming for main ideas before writing. Then, students brainstormed ideas immediately and made an outline from the opening to the closing individually before writing. The topics are about writing the descriptive paragraphs of a friendly person or a dream job that they like most.

C. Definitions of pre-writing techniques

According to Brodney et al. [13], pre-writing has made writing more accessible for all types of texts. It is also considered an essential step of the writing process and helps writers define goals, brainstorm, organize ideas, and establish text structure. Nguyen et al. [14] define that pre-writing techniques in English L2 classes can help students overcome difficulties and improve their writing. Magulod [15] indicates some types of pre-writing techniques such as free-writing, group discussion, outlining, mind mapping, brainstorming, and listing. Among the mentioned types of techniques, mind mapping and outlining are supposed to be the most popular in the pre-writing classroom environment. Wahid et al. [16] found that mind mapping not only helps students overcome their nervousness but also scaffolds the students’ organization of ideas systematically. In addition, mind mapping helps students see the main categories and subcategories before deciding how to organize the ideas, thus promoting students’ creative thinking and encouraging brainstorming. For outlining, Limpo et al. [17] confirmed that outlining is an effective form of planning and helps writers think about the organization and structure of a desired product early in the writing process. It helps writers organize their ideas in a logical order. In this study, two different pre-writing techniques were performed, in which the experimental group 1 (EG1) used mind mapping, and the experimental

group 2 (EG2) used outlining. All students were required to undertake assignments as part of the course. However, the time, input level, and activity type for each parallel operation in the sequence of the two tasks are the same.

D. Framework of pre-writing techniques

Both mind-mapping and outline techniques scaffold for creating ideas of writing, providing classroom teachers with a variety of activities that enhance the students’ engagement in their writing. Once the learners get involved in the classroom’s activities, they continuously think of ideas and this is considered an invention activity in the classroom environment. Mogahed [18] asserted that learners need to arrange their ideas logically to efficiently write a descriptive paragraph. This point of view can be seen in the below framework which paves the way for the robust cornerstone in forming ideas for the descriptive paragraph. According to Mogahed [18], in the pre-writing

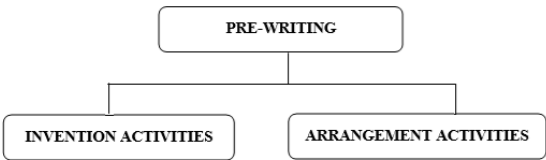


Fig. 1: The framework of pre-writing techniques [18]

techniques, the ideas generated in the first stage are organized. They include things like visual organizers, charts, webs, and others. These pre-writing techniques are vital for the learners to develop their writing abilities while also assisting them in organizing and generating ideas before writing a whole paragraph or essay. They are regarded as a method to enhance critical thinking and a source of inspiration for reluctant authors.

E. The difference between the two types of pre-writing techniques

The two mentioned techniques have fundamental differences in structure and word unit,

which are the main reasons for the researchers to compare these two techniques for this study. Mirza [19] stated that mind maps use a freer structure than outlines. The ideas in the mind mapping group are randomly arranged around the main topic in the center, and supporting ideas are presented around the central idea through branches. Besides, a mind map contains shorter word units than an outline does. For instance, the mind map presents ideas in a word or phrase whereas the outline uses a more organizational structure.

There are reasons for the selection of two pre-writing techniques for this study. Doan [20] emphasizes that mind mapping and outlining are the two most commonly used pre-writing techniques. According to Wilder [21], mind mapping and outlining are student-centered techniques that call for independent study and habits from students. They become self-directed learners, recognizing how to manage their ideas.

The mind-mapping technique is an efficient strategy to assist students in overcoming obstacles such as anxiousness and lack of confidence in order to enhance their writing abilities. Moreover, it scaffolds students in organizing systematic concepts and makes it easier for them to grasp ideas [16].

In addition to the mind map, Alamlue [22] believes that an outline is a popular form of pre-writing activity that allows students to explore relationships between ideas. In addition, Doan [20] stated that outlining improved students' performance on content and organization. Not only does it help students prepare ideas before starting to write, but it also helps them organize those ideas in partial order. Tazky [23] confirms that the student's writing will be in good order and readers can easily catch up with their ideas by outlining.

F. Related studies

Wahid et al. [16] examined the impact of mind mapping on students' writing skills in secondary schools. The respondents were 51 students at SMA Negeri Halmahera Utara North

Maluku. In this study, the quasi-experimental study was employed for both experimental and control groups. Based on pre-test and post-test scores, the findings showed that the scores of the two groups were significantly different. In addition, the mind mapping approach was also helpful in the classroom for teaching writing since it developed students' critical thinking and creativity in organizing thoughts into genuine sentences. The mind mapping technique was an efficient strategy to assist students in overcoming obstacles such as anxiousness and lack of confidence to develop their writing abilities. It also helped students organize and grasp systematic ideas.

Schweiker et al. [24] examined the effects of writing activities at the pre-test on writing performance and anxiety for at-risk students. Fifth-graders were involved in a writing program, taking advantage of pre-writing strategies. The researchers compared the students' mean scores in writing ability before and after the study. The experimental group improved from the beginning to the end of treatment. In addition, the writer's anxiety also decreased, proving the importance of the pre-writing stage. This study also showed that pre-writing can reduce students' writing anxiety.

Enighe et al. [25] explored the effects of writing activities at the pre-test on junior secondary school learners' written composition achievement. Using a simple random selection approach, one hundred fifty-nine junior students at two public secondary schools in Jos East were chosen for the research. The research was conducted using a quasi-experimental design of non-equivalent pretest and post-test. Based on the findings, pre-writing strategies significantly develop on establishing and developing students' writing skills. In addition, these teaching strategies also focus on content, organization, and language use. Through the benefits of pre-writing strategies, English language teachers use pre-writing activities when teaching writing, and more emphasis is placed on teaching strategies to help students improve their writing.

Bui et al. [26] examined the effects of visual aids and interactive activities on pre-writing. Two experimental groups exposed to either approach were studied using a cross-intervention research design. Six case-study interviews, 21 questionnaires, and eight writing tests were applied to collect the data. The results demonstrated little difference in the writing abilities of the two groups regarding the development and arrangement of ideas. The assigned topics and necessary sub-skills affected the participants’ writing ability. In-depth research revealed that while outlining was influential in organizing ideas, depicting was found to help with idea generation. Over one-third favored depicting, and almost half preferred outlining regarding participant preferences. Therefore, this study concluded that the pre-writing technique should be determined by form (organization) or fluency (idea generation).

Wu et al. [27] examined how the teaching affected the participants’ writing performances by using pre-writing and revising techniques in writing class. The researchers conducted a one-semester-long experiment aiming at improving Chinese university students in English composition writing. The findings showed that the students had increased confidence in their writing skills and English utilization.

Doan [20] investigated the effects of pre-writing techniques (mind map and outline) on students’ writing. The study examined the differences in (1) how learners perceived pre-writing techniques such as their enjoyment of writing, confidence in their ability to complete writing tasks, and participation in the writing process planning stage; and (2) how students’ performance affects their scores on organization, content and generated ideas. One hundred and ten first-year non-English major students participated in the research. This research was randomly divided into two groups: mind mapping and outlining. The findings demonstrated that while the mind map and outline improve learners’ organizational skills and content, only the outline creates students’ enjoyment and self-efficacy in writing.

In summary, numerous studies substantiated the possible effects of pre-writing techniques on students’ descriptive paragraph writing. While the mind-mapping effectively aids in learners’ critical thinking and overcomes their apprehension and lack of confidence, the outlining contributes to the organization of the students’ ideas. Consequently, these pre-writing techniques play an indispensable role in teaching writing and scaffold upon the students’ self-efficacy, enjoyment and cognition in writing the descriptive paragraphs.

III. METHODOLOGY

A. Research design

The research used writing tests to collect data to measure students’ writing ability at the pretest and post-test. In addition, a questionnaire encompassing 20 questions divided into three clusters was employed for surveying EFL students’ attitudes toward pre-writing techniques. The first cluster (13 questions) investigates the students’ efficacy. The second cluster (three questions) examines the students’ interests, and the last one (four questions) explores their cognition. Moreover, the study was designed using the EG1 (39 participants) and the EG2 (38 participants). Table 1 indicates the research design of the experimental group.

Table 1: Experimental design

Panel			
EG1 (39)	O1	Mind-mapping	O2
EG2 (38)	O1	Outlining	O2
Groups	Pretest	Intervention	Posttest

B. Research participants

This study used a convenience sampling method. According to Fraenkel et al. [27], a convenience sample is a group of individuals willing to study at their convenience. The study was conducted at a university in the southwest of Vietnam, investigating seventy-seven first-year students (aged from 18 to 19) following a general English curriculum during their freshman year at a university in the Mekong Delta of Vietnam.

These students were supposed to have a similar level of English proficiency, pre-intermediate level because they had completed Module 1 (General English– three credits) before they took part in Module 2 (General English – four credits).

This research involves university students from two instructional disciplines: Medicine and Economics (Table 2). They studied English from primary school (three years), and secondary school (four years) to high school (three years). There are 39 students in the EG1 and 38 students in the EG2. Particularly, students in the EG1 shared their ideas through mind mapping, whereas learners in the EG2 generated their ideas via the outlining technique.

Table 2: Demographic information of study participants

Variables	Sub-Variables	Major	N	Percentage
Class	A	Medicine	39	50.64%
	B	Economics	38	49.36%
Gender	Female		65	84.41%
	Male		12	15.59%

C. Instruments

In this study, writing tests (pre-test and post-test) and a 20-item questionnaire were used to measure students’ writing ability and collect data on students’ attitudes towards using the mind map and outline in their descriptive paragraph writing. The researchers designed the pre-test and post-test adapted from the book of the Cambridge Preliminary English Test. The content of the tests is relevant to the writing topics that the students had written in class.

Pre-test

In the pre-writing test, all participants of both groups wrote a descriptive paragraph to describe their dream house about 80–100 words in 30 minutes. The pre-test aims to evaluate the level of student’s writing skills and help the teachers have an overview of the students’ writing ability as well as examine the difference between the two groups. The pre-test focused on five components: grammar, mechanics, content, organization, and vocabulary. The scoring criteria (see Table 3)

range from Very good (5.0 points), Good (4.0 points), Quite good (3.0 points), Fair (2.0 points) to Poor (1.0 points). Then, two experienced lecturers were selected to rate the tests.

Post-test

In the post-writing test, all participants were asked to write a descriptive paragraph to describe their favorite coffee shop about 80–100 words in 30 minutes. Post-test was necessary to have precise evaluation criteria to get valid scores that accurately reflect students’ writing abilities. The students’ writing test focused on the five criteria mentioned in the pre-test.

Questionnaire

In addition to pre and post-tests, the researchers created a questionnaire adapted from Alharthi [28], Huynh [29] and Scales of descriptors specific to B1 and B2 CEFR levels of Cambridge assignment English to evaluate participants’ attitudes towards writing skills before and after using pre-writing techniques as mind mapping and outlining. The questionnaire consisted of 20 items on a five-point Likert scale, starting from 1 (Strongly disagree) to 5 (Strongly agree). This questionnaire is classified into three clusters, including students’ efficacy, students’ interest, and students’ cognition (see Table 4).

D. Description of intervention

The intervention lasted for two months. For the mind map, the teacher introduced a mind map to the EG1 students, gave them a descriptive sample text, and asked them to read through and underline the main ideas of the sample text. Then, students were given a model mind map of the sample text to analyze. After analyzing the model mind map, the teacher gave the students a new topic and a handout of the mind map. Finally, students followed the mind map on a piece of paper and wrote their paragraph in 30 minutes. The outline condition followed the same steps as the mind map, but after analyzing the topic’s requirements and listing the main ideas before writing, the students sketched out their ideas from the introduction to the body and the conclusion. They made their outlines using keywords or

Table 3: The scoring rubrics of the students' descriptive writing text

Very good (5.0 points)	Good (4.0 points)	Quite good (3.0 points)	Fair (2.0 points)	Poor (1.0 point)
Grammar				
Native-like fluency in English grammar: correct use of relative clauses, prepositions, modals, articles, verb forms, and tense sequencing; no fragments or run-on sentences.	Advanced proficiency in English grammar; some grammar problems do not influence communication, although the reader is aware of them; no fragments or run-on sentences.	Ideas are getting through to the reader but grammar problems are apparent and have a negative effect on communication; run-on sentences or fragments present.	Numerous serious grammar problems interfere with the communication of the writer's ideas; grammar review of some areas clearly needed; difficult to read sentences.	Severe grammar problems interfere greatly with the message; the reader cannot understand what the writer was to say, trying unintelligible sentence structure.
Vocabulary				
Precise vocabulary usage; use of parallel structure; concise; register well.	Attempts variety; good vocabulary; not wordy; register quite good, style fairly concise.	Some vocabulary is misused, lacks awareness of the register, and may be too wordy.	Poor expression of ideas; problems in vocabulary; lacks variety structure.	Inappropriate use of vocabulary; no concept of register or sentence variety.
Mechanics				
Correct use of English writing conventions; left and right margins, all needed capitals, paragraphs indented, punctuation and spelling very neat.	Some problems with writing conventions or punctuation, occasional spelling errors; left margin correct, paper is neat and legible.	Uses general writing conventions but has errors; spelling problems distract the reader; punctuation errors interfere with ideas.	Serious problems with the format of the paper; paragraph not legible; errors in sentences-final punctuation; unacceptable to educated readers.	Complete disregard for English writing conventions; paper illegible; obvious capitals missing, no margins, severe spelling problems.
Content				
The paragraph addresses the assigned topic; the ideas are concrete and thoroughly developed; no extraneous material; the paragraph reflects thought.	A paragraph addresses the issues but misses some points: ideas could be more fully developed: some extraneous material is present.	Development of ideas not complete or essay is somewhat off the topic: paragraphs are not divided exactly right.	Ideas incomplete; essay does not reflect carefully thinking or was hurriedly written; inadequate effort in the area of content	Paragraph is completely inadequate and does not reflect college-level work; no apparent effort to consider the topic carefully.
Organization				
An appropriate title, effective introductory paragraph, the topic is stated and leads to the body; transitional expressions are used; the arrangement of material shows the plan (could be outlined by the reader); supporting evidence is given for generalizations; the conclusion is logical and complete.	Adequate title, introduction, and conclusion; the body of the paragraph is acceptable but some evidence may be lacking. Some ideas aren't fully developed; the sequence is logical but transitional expressions may be absent or misused.	Mediocre or scant introduction or conclusion; problems with the order of ideas in the body; the generalizations may not be fully supported by the evidence given; problems of the organization interfere.	A vague or minimally recognizable introduction; the organization can barely be seen; severe problems with ordering of ideas; lack of supporting evidence; conclusion weak or illogical; inadequate effort at organization.	Absence of introduction or conclusion; no apparent organization of body; severe lack of supporting evidence; the writer has not made any efforts lack of support to organize the composition (could not be outlined by the reader).

Table 4: Students’ attitudes towards descriptive paragraph writing

No.	Statements
1	I think I like writing more.
2	I think I have used vocabulary appropriately for my writing.
3	I think I have used appropriate forms of grammar for my paragraph writing.
4	I think I haven’t made errors (spelling, tense, punctuation, preposition) in the writing.
5	I think the ideas in my paragraph are arranged coherently.
6	I think I am aware of the importance of linking words for my paragraph.
7	I think I have created effective ideas for my writing.
8	I think my ideas are united in the paragraph.
9	I think I can write a clear topic sentence.
10	I think I know how to develop my ideas.
11	I think I like to write a paragraph in English.
12	I think I feel more confident in writing.
13	I think I am good at gathering ideas on a topic.
14	I think I can organize the ideas in my paragraph well.
15	I think I have tried to write my paragraph by myself.
16	I think I always try to finalize my paragraph.
17	I think writing is necessary for a language learner.
18	I think my vocabulary has been improved through writing.
19	I think I have tried to arrange ideas before writing a paragraph.
20	I think I have known how to create ideas for my paragraph successfully.

phrases to help arrange their ideas when writing a paragraph. Table 5 below demonstrates the two groups’ activities.

For the EG1, the teacher introduced a 60-minute new lesson by asking questions such as ‘Where is your hometown?; Do you like your hometown? Why?; and What do you like most about your hometown?’. The students were provided 10 minutes to answer the three questions. Then, in the pre-writing activities, the teacher gave the topic of describing their hometown to students and provided them a handout of the mind map to fill in the main ideas about their hometown. This step lasted 10 minutes to finish. In the while-writing activities, the students were asked to write a descriptive paragraph about their hometown in 30 minutes. For the post-writing activities, the teacher spent 10 minutes giving comments to students about grammar, content, and organization. Finally, the students were asked to tell their partners about their hometown in five minutes.



For the EG2, the warm-up step was similar to that of the EG1, meaning that the teacher also provided the three questions to students. However, in the pre-writing step, the students were provided with the outline handout and required to write their main ideas into the outline in 10 minutes. Next, the pre-writing activities lasted 30 minutes, asking the learners to complete a descriptive paragraph about their hometown. The while-writing activities (30 minutes) and post-writing activities (10 minutes) were the same as those of the EG1, meaning that the three components such as grammar, content, and organization were commented to the participants. After they had noted the teacher’s feedback, they had five minutes to tell their partners about their hometown.

IV. RESULTS AND DISCUSSION

A. Results

Research question 1: To what extent do mind mapping and outlining as pre-writing techniques

Table 5: Teaching scenario

Stage	Group	Experimental group 1	Experimental group 2
Warm-up		I have an interesting neighbor. His name is Max, He is a handsome, well-dressed young man in his early twenties. Max is quite tall and slim, with hazel eyes and carefully-styled light brown hair. He likes wearing expensive clothes such leather jackets silk scarves. He has a great sense of humor and is very friendly. He enjoys playing soccer on the weekend. He and I usually play soccer together. On the other hand, he likes dangerous sport as climbing high mountains. He is a great dance too. I like him because he is very nice and has a warm voice. He usually helps me when I have trouble. I wish we will have a beautiful relationship.	
		<ul style="list-style-type: none">- The instructor gave students a descriptive sample text- Students were asked to read the sample text.- Students were asked to underline some main ideas and analyzed the sample text (content, grammar, organization, mechanics, vocabulary).- Students were given a sample mind map and outline for two groups.- Students were asked to analyze the outline and mind map sample.	
Pre-writing		<p>Sample of mind map</p> 	<p>Sample of outline</p> <p>Introduction Topic: Neighbors Body paragraph General information: + Max + Interesting neighbors + Early twenties Appearance: + Handsome, well dressed + Tall and slim, blue eyes + Light brown hair Personality: + Sense of humor and friendly Hobbies: + Playing soccer, climbing high mountains + Dancing Conclusion Feeling: Nice, warm voice, kind</p>
		<ul style="list-style-type: none">- Students were given a new topic: 'Write a descriptive paragraph to describe your best friend about 80–100 words'.- Students were given a handout of a mind map and outline for each group.	
		<p>Handout of mind map</p> 	<p>Handout of outline</p> <p>Topic:..... Topic sentence: Supporting idea 1: →..... →..... →..... Supporting idea 2: →..... →..... →..... Supporting idea 3: →..... →..... →..... Supporting idea 4: →..... →..... →..... General impression: →.....</p>
While-writing		Students were asked to write the main ideas (or gists) into the handout sample in 5 minutes.	
		The instructor asked students in both groups to write a descriptive paragraph of 80–100 words about their best friend in 30 minutes.	

affect non-English majored students’ writing performance?

The quality of writing before the intervention

Inter-rater reliability at the pretest of the EG1
 After the pretest, two lecturers evaluated the data, which was gathered from the EG1. The inter-rater reliability of the pretest at the EG1 was .989, which represented a high level of reliability in the assessment of the two raters at the pretest. The result revealed a statistically significant correlation between the scores of the two raters ($r = .989$; $p = .000$), which are shown in Table 6 below.

An Independent Sample T-test was used to compare the pre-test results of the two groups in order to evaluate the quality of the student’s performance in paragraph writing. Table 7 shows its results.

Table 7 demonstrated high homogeneity based on the pre-test for the outcomes derived from the two groups. Specifically, the mean score for the EG1 was 6.09 ($M = 6.09$; $SD = 1.21$), while EG2 was 6.49 ($M = 6.49$; $SD = 1.35$). It was noteworthy that no statistically remarkable difference was observed in the abilities of students’ writing between the two groups ($t(75) = -1.34$; $p = .182$; $p > .005$). Consequently, students’ writing quality in both groups was essentially equivalent.

Writing quality after the intervention

To respond to the first research question of whether pre-writing techniques had affected students’ writing quality after the intervention, the researchers conducted an Independent Samples T-test, and the results showed a considerable difference between the mean scores of the experimental groups 1 and 2 at the post-test regarding students’ paragraph writing performance after the intervention ($p = .000 < .005$). The results of the Independent Samples T-test are presented in Table 8. Table 8 compared the two groups’ mean scores on the students’ paragraph writing performance. The mean score of the EG1 was 7.09 ($M = 7.09$, $SD = .95$), being lower than that of the EG2 ($M = 8.13$, $SD = .53$) at the post-test. The results indicated significant differences between the post-test mean scores in the EG1 and

EG2 ($p = .000 < .05$).

As can be seen in Figure 2, the difference in students’ writing ability of the two groups was remarkable due to the effects of the mind map and outline on descriptive paragraph writing after the treatment, in which the EG2 had a more substantial difference than the EG1.

Table 9 presented the mean scores reflecting students’ writing performance on each component in a paragraph. The pre-test and post-test results were compared using the Paired Sample T-test. In this assessment, the mean scores for the pre-test and post-test are analyzed across five aspects, contributing to ten marks. These aspects encompass grammar, vocabulary, mechanics, content, and organization, with each aspect being worth two scores. The results showed significant differences when comparing the pre-test scores to the post-test scores in the following areas: grammar ($t(38) = -4.30$, $p = .000 < .05$), vocabulary ($t(38) = -4.13$, $p = .000 < .05$), mechanics ($t(38) = -3.25$, $p = .002 < .05$), content ($t(38) = -6.89$, $p = .000 < .05$), and organization ($t(38) = -2.18$, $p = .035 < .05$). The results showed that the students had significant improvement in their mechanics, grammar, vocabulary, content and organization of students in the EG1.

Table 10 presented the mean scores reflecting students’ writing performance on each component in a paragraph. The pre-and post-test results were compared using the Paired Sample T-test. The mean scores between the pre-test and post-test in five components showed considerable improvement.

Besides, there was a significant difference between the mean scores of the pre-test and post-test in students of the EG2. In terms of grammar ($t(37) = -7.31$, $p = .032 < .05$), vocabulary ($t(37) = -7.01$, $p = .000 < .005$), mechanics ($t(37) = -8.19$, $p = .001 < .005$), content ($t(37) = -3.54$, $p = .000 < .005$) and organization ($t(37) = -7.23$, $p = .000 < .005$). The results proved that the students dramatically improved their paragraph writing performance, and the mean scores of the post-test were higher than those of the pre-test. It was obvious that the

Table 6: Inter-rater reliability at the pretest of the EG1 and EG2

Reliability Statistics					
Cronbach's Alpha		N of Items			
		.989	2		
		.982	2		
Correlations					
		Examiner 1	Examiner 2	Examiner 1	Examiner 2
Examiner 1	Pearson correlations	1	.978**	1	.970**
	Sig.(2-tailed)		.000		.000
	N	39	39	38	38
Examiner 2	Pearson correlations	.978**	1	.970**	1
	Sig.(2-tailed)	.000		.000	
	N	39	39	38	38

Note: **. Correlation is significant at the 0.01 level (2-tailed).

Table 7: Independent Samples T-test at the pre-test of two groups

Writing test	Group	N	M	SD	MD	t	df	Sig.(2-tailed)
Pre-test	EG1	39	6.09	1.21	-3.39	-1.34	75	.182
	EG2	38	6.49	1.35				

Table 8: Independent Samples T-test at the post-test of two groups

Writing test	Group	N	M	SD	MD	t	df	Sig.(2-tailed)
Pre-test	EG1	39	6.09	1.21	-3.39	-1.34	75	.182
	EG2	38	6.49	1.35				

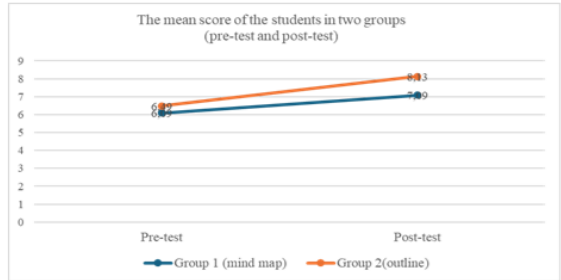


Fig. 2: The development of two conditions at pre and post-writing tests

Table 9: Students' improvement on five aspects in writing at pre-test and post-test of the EG1

Condition	Components of writing	N	M	SD	MD	t	df	Sig.(2-tailed)
Pre-test (EG1)	Grammar	39	1.02	.30				
Post-test (EG1)			1.23	.30	.03	-4.30	38	.000
Pre-test (EG1)	Vocabulary	39	1.24	.30				
Post-test (EG1)			1.46	.25	.04	-4.13	38	.000
Pre-test (EG1)	Mechanic	39	1.20	.29				
Post-test (EG1)			1.37	.24	.03	-3.25	38	.002
Pre-test (EG1)	Content	39	1.24	.32				
Post-test (EG1)			1.55	.20	.05	-6.89	38	.000
Pre-test (EG1)	Organization	39	1.38	.31				
Post-test (EG1)			1.48	.24	.07	-2.18	38	.035

Table 10: Students' improvement on five aspects in writing at pre-test and post-test of the EG2

Condition	Components of writing	N	M	SD	MD	t	df	Sig.(2-tailed)
Pre-test (EG2)	Grammar	38	1.10	.28				
Post-test (EG2)			1.13	.18	.07	-7.31	37	.032
Pre-test (EG2)	Vocabulary	38	1.26	.30				
Post-test (EG2)			1.57	.09	.05	-7.01	37	.000
Pre-test (EG2)	Mechanics	38	1.41	.25				
Post-test (EG2)			1.71	.23	.04	-8.19	37	.001
Pre-test (EG2)	Content	38	1.45	.37				
Post-test (EG2)			1.65	.12	.04	-3.54	37	.001
Pre-test (EG2)	Organization	38	1.26	.46				
Post-test (EG2)			1.77	.18	.04	-7.23	37	.000

students had highly improved on each component of the writing rubric.

Research question 2: What are learners' attitudes towards using mind mapping and outlining as pre-writing techniques in their descriptive paragraph writing?

Table 11: Cronbach's Alpha - reliability of the questionnaire

Reliability Statistics		
Stage	Cronbach's Alpha	N of Items
Pre-test	.862	20
Post-test	.906	20

The Cronbach's Alpha of the questionnaire at the pre-test and post-test accounted for .862 and .906, respectively, which is reliable enough for

further analysis.

Paired Sample T-test of each group at pre- and post-questionnaires

As can be seen in Table 12, the paired Sample T-test is used to evaluate the students’ attitudes towards using pre-writing techniques on three clusters of the questionnaire at pre- and post-questionnaires of each group.

Table 12: Paired Sample T-test of each group at pre-and post-questionnaire

	N	Mean	SD	t	df	Sig (2-tailed)
Pre-Cluster 1 (EG1)	39	3.05	.31	2.84	38	.000
Post-Cluster1 (EG1)		3.57				
Pre-Cluster 2 (EG1)	39	2.57	.56	2.30	38	.000
Post-Cluster 2 (EG1)		3.15				
Pre-Cluster 3 (EG1)	39	3.61	.30	2.01	38	.001
Post-Cluster 3 (EG1)		4.01				
Pre-Cluster 1 (EG2)	38	2.71	.51	12.06	37	.000
Post-Cluster1 (EG2)		3.72				
Pre-Cluster 2 (EG2)	38	2.96	.21	1.31	37	.198
Post-Cluster 2 (EG2)		3.01				
Pre-Cluster 3 (EG2)	38	3.77	.28	2.81	37	.008
Post-Cluster 3 (EG2)		3.90				

In cluster 1, students in both groups had self-efficacy in their writing skills. The results of the EG1 showed a significant difference between pre-questionnaire (M = 3.05) and post-questionnaire (M = 3.57), with the value of sig. (2-tailed) being .000 (p < .005). Besides, the EG2 at the pre-questionnaire was 2.71 (M = 2.71), and the post-questionnaire was 3.72 (M = 3.72), with the value of sig. (2-tailed) being .000 (p < .005). It could be shown that students in both groups remarkably improved their self-efficacy in writing skills after the intervention.

In cluster 2, students in EG1 had an interest in writing a descriptive paragraph. The results showed that there was a considerable difference in the pre-questionnaire (M = 2.57) and the post-questionnaire (M = 3.15), with the value of sig. (2-tailed) being .000 (p < .005). Students in the EG1 developed their interest in writing a descriptive paragraph. However, the results of EG2 showed that there was no significant difference in the pre-questionnaire (M = 2.96) and the post-questionnaire (M = 3.01), with the value of sig. (2-tailed) being .198 (p > .005). It could be inferred that students in the EG1 had no development in their interest in writing a descriptive paragraph after treatment.

In cluster 3, students in both groups had cognition in their writing skills. The results of the EG1 showed that there was a dramatic difference in the pre-questionnaire, which was 3.61 (M = 3.61), and post-questionnaire, which was 4.01 (M = 4.01), with the value of sig. (2-tailed) being .001 (p < .005). Besides, the EG2 on the pre-questionnaire was 3.77 (M = 3.77), and the post-questionnaire was 3.90 (M = 3.90), with the value of sig. (2-tailed) being .008 (p < .005). It could be shown that students in both groups gained a positive cognition in their writing skills after the intervention.

In summary, most students in the EG1 and EG2 attained positive attitudes towards their self-efficacy, interest, and cognition in their descriptive paragraph writing, except for several students of the EG2 who showed no significant difference in their interest in writing the descriptive paragraph after the eight weeks of the intervention.

B. Discussion

The findings revealed that both mind mapping and outlining techniques can improve students’ writing of descriptive paragraphs. Before the intervention, students in both groups had a comparable level of writing in terms of content, grammar, and vocabulary. At the end of the intervention, these students’ writing performances were better. It can be seen from Figure 2 that there is a considerable improvement in students’ pre-writing performance owing to the effects of the mind map and outline techniques. The mentioned results support the conclusions of Doan [20] and Enighe et al. [25] about students’ enjoyment of writing, confidence in their ability to complete writing tasks, and the positive effects of pre-writing techniques on content, organization, and the number of ideas generated. Doan [20] also emphasizes that both mind mapping and outlining improve learners’ writing performance on content and organization. Enighe et al. [25] assert that pre-writing techniques significantly develop students’ writing skills, focusing on content, organization, and language use. Additionally, the result aligns with the finding of Wahid et al. [16]

on the students' systematic ideas (or organization of ideas), which help them easier when writing their descriptive paragraphs.

The results showed a significant difference between the mean scores of the students' pre-test and post-test in the outline group. Students also significantly improved their ability to better organize their writing after the intervention. Besides, the ideas were collected closely related to the topic and supported each other in students' descriptive paragraph writing. Not only did students enhance their vocabulary and make fewer mistakes in mechanics such as misspelling words, punctuation, and capitalization, but they also recognized their ability to write paragraphs quickly because they had a well-organized plan of writing before completing a descriptive paragraph. These findings are consistent with some previous studies by Doan [20] and Bui et al. [26].

Regarding students' attitudes after the intervention, the results of the questionnaire show that students in both experimental groups have positive attitudes towards using pre-writing techniques and build confidence when writing a descriptive paragraph. Particularly, students increase their self-efficacy, interest, and cognition. For instance, the students become more confident using appropriate vocabulary, grammar forms, clear and coherent ideas, and well-organized ideas in their descriptive paragraph writing. Additionally, they are keen on writing in English and become more confident in their writing. Moreover, the students make great effort in arranging ideas before writing a paragraph and they have a better perception of using linking words in their writing. Therefore, these results have brought invaluable information to both EFL learners of English and EFL teachers.

However, a few findings of this current study are not completely aligned with particular previous studies [20, 24]. The results of Schweiker et al. [24] illustrate that students reduce anxiety while writing a paragraph after the intervention; on the contrary, students' anxiety is not the focus of this study. In addition, the participants of the two groups of this current study show a high level of interest, self-efficacy, and cognition; however, the findings of Doan [20] demonstrated that only outlining had a positive impact on students' enjoyment and self-efficacy in writing.

V. CONCLUSION

The results of the two writing tests have shown that students in both groups have significantly enhanced their overall descriptive paragraph quality. In particular, students of both groups improved their content, mechanics, grammar, organization, and vocabulary after the intervention, which can be seen in the discussion section.

However, the study has several limitations. First, the current study was limited by a small sample size and sampling method. Only 77 students at a university in the Mekong Delta, Vietnam participated in this study, and the number of students in each group was not the same (39 students in the EG1 and 38 students in the EG2). It is extremely difficult for the researchers to choose either a random or a systematic non-random sampling method, so they could only use convenience sampling. Therefore, the results of this study might not be transferable to all university students in Vietnam in general and in the Mekong Delta in particular. Second, this study only examined the effects of the mind map and outline on students' descriptive paragraph writing. Therefore, the researchers could not study their effects on students' performance in other kinds of writing.

Considering the limitations of this study, it is recommended that further research be undertaken with a larger sample size and a better sampling method. Additionally, future researchers should lengthen the time frame of their study and combine both quantitative and qualitative approaches. Furthermore, more research is needed to determine the effects of mind mapping and outlining on other kinds of writing.

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