

Mind Mapping: A Strategy To Enhance Essay Writing Skills of Learners of English as a Second Language

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Abstract

Essay writing is a challenging task for learners of English as a Second Language (hereafter ESL). The tasks usually involve gathering ideas to be written, planning the outline, focusing on sentence structure, choosing the appropriate expressions, and focusing on organization. These tasks can demotivate students and result in negative attitudes towards essay writing. This study investigates the impact of adopting mind mapping as a strategy in essay writing for intermediate level Second Language learners of English and an analysis of their perceptions on the efficacy of using mind mapping as a medium for writing. A mixed method research design was implemented and data was collected through a pre-test, post-test, semi-structured interviews, and a questionnaire. A random sample of 30 intermediate level ESL learners from a state school from Maharagama participated in the study. The pre-test and post-test along with the interviews were conducted using the Zoom platform. Both the control group and experimental group were expected to practice and engage actively with lessons. Findings revealed that there were statistically significant differences between scores of the experimental and controlled groups in favour of the experimental group exposed to the mind mapping strategy. Moreover, mind mapping is an effective learning setting that is appealing, motivating and an adaptable strategy that could be incorporated in teaching English.

Keywords: Mind mapping, Writing skills, ESL learner

Introduction

Writing is one of the most significant skills in education, especially in English as a second language, as it shows a student's ability to master writing techniques, to compose, and to present his or her ideas. Writing in English is complex (Kroll, 1990) and to effectively convey their

ideas, students must be aware of writing as a practical and productive process, as well as abide by writing rules and conventions such as knowledge, management, and control of techniques (Anwar, 2000). However, some experts today assert that many students lack basic writing skills (Dean, 2010). Essays are the tool of assessment and play a key role in gauging a student's standard during coursework. Unfortunately, students are only given the training to overcome the challenges of essay writing at a young age, and therefore, the techniques deemed useful to writing essays in the intermediate level are lost on some students. As a result, teachers have a responsibility to produce students competent in critical thinking, writing with coherence, linking paragraphs and capable of organizing their thoughts to write essays effectively.

Review of Literature

The skill of essay writing for a student at the intermediate level has been recognized as imperative to their academic success, as it is constantly being used as a means of assessment. According to Richards and Schmidt (2002), writing is viewed as a result of complex processes of planning, drafting, reviewing and revising. Writing is a complex cognitive skill and is one of the most difficult skills to acquire especially for ESL learners (Welsh & Bivens-Tatum, 2008); therefore, it is understood that essay writing, with its own exclusive set of rules of language manipulation requires the mastery of a distinct set of sub-skills.

Writing is one of the productive skills that should be developed in instructional activities. The teaching of writing for intermediate learners is still hampered by several issues. There is a wealth of research that highlights the issues faced by students in mastering writing skills. A study conducted by Kusumaningtyas (2005) reveals that the students' lack of skill in writing is a result of their inability to organize ideas and sentences into coherent paragraphs. Another study was conducted by Jafaruddin (2006) aimed at identifying and evaluating students' ability to write unified and coherent essays. The findings showed that most of the essays had poor coherence and unity. In addition, Nirwani (2007) found that the students' pieces of writing were overwhelmed with errors due to lack of vocabulary; besides, they did not have sufficient skill in organizing ideas into a text. Hence, students' writing ability directly affects their performance in assessments and getting good grades. In relation to the students' difficulties in writing, Mukminatien (1991) states that the difficulties are not merely students' lack of skill in writing but also caused

by the unvaried techniques of teachers when teaching writing. The lack of variety in teaching writing skills also has been identified as a cause for reduced motivation in students to improve their own skills.

Oshima and Hogue (2006) stated that an essay is a piece of writing several long paragraphs. According to him, it is important to organize and plan before beginning to write an essay. It is important to recognize that to write an effective essay, the writer must commit themselves to a process (Starkey, 2004). Writing for academic purposes is necessarily prepared since there are many aspects to be concerned. Langan (2008) defines an essay to be a relatively short piece of nonfiction in which a writer attempts to develop one or more closely related points or ideas. Essays are shorter pieces of writing that often require the student to improve several skills such as close reading, analysis, comparison and contrast, persuasion, conciseness, clarity, and exposition. As is evidenced by this list of attributes, there is much to be gained by the student who strives to succeed at essay writing.

Mind maps are also known as concept maps, semantic mapping, knowledge mapping, think-links, graphic organizers or cognitive maps (Svantesson, 1989). According to Buzan (1993), mind maps attempt, visually and graphically, to portray a relationship of ideas or concepts. It is seen as a powerful tool to help students overcome problems with the organization of their ideas and thoughts (McGriff, 2007). According to McGriff (2007, p. 9) "mind maps are an excellent way to help learners organize knowledge, to empower themselves to better comprehend the key concepts, and principles in lectures, readings, or other instructional materials". Buzan (1993) describes mind maps as a representation of cognition and comprehension in the learner, and as an excellent way to help learners to express themselves both verbally and visually. Indeed, in their mind map, learners may use graphic representation, which may help in the brainstorming process. This shows the potential importance of using this technique in writing classes, and it seems it is a useful strategy to support students during writing tasks.

Several studies have addressed the unique relationship between drawing and writing and their use during the planning phase of children's writing. A good example is a study by Norris, Mokhtari & Reichard (1998) which explored the relationship between drawing and writing. The study revealed significant differences between the treatment and the control group on all measures used. Students who drew before writing tended to produce more words, sentences, and idea units and their overall writing

performance and the writing achievement were higher. Additionally, the result showed that drawing became an effective planning strategy for the students who appeared to rely on their drawings as a reference point to prompt them toward what should come next in their writing. Integrating drawing and writing may also be used as a way of motivating students to write and the process of writing. Using mind maps to organize, generate ideas, and make associations between different topics through drawing has been investigated to test its effect on writing.

There are several advantages in using the mind map technique in writing. Zaid (1995) argued that mind mapping is an outline for the writing of a short essay on the topic, or that a segment of the map is used in the writing of a paragraph. Moreover, Mercer (2002) argued that mind mapping helps students to see the relationship among ideas and connect known information with new information. He added that mind mapping has proven useful before, during and after writing. He also mentioned that mind mapping can help writers stick to the topic by having their ideas in front of them as they are writing. It also helps the writer to write in the correct sequential order.

Therefore, mind mapping is recognized as a tool that can guide students through the four stages of the writing process namely prewriting, drafting, editing and revising (Seow, 2002, p. 316). This study finds evidence where unlike most writing processes, mind mapping supports and even encourages nonlinear thinking. It allows the map maker to be more flexible and follow their interests.

Research Questions

This study attempts to analyze the impact of mind mapping on improving essay writing skills of learners of English as a Second language and will seek to answer the following research questions

- To what extent does mind mapping affect a student's essay writing skills?
- What are the difficulties students face when writing essays?
- What are the students' attitudes towards mind mapping and essay writing?

Research Methods

Participants

The participants of this study were 30 male and female grade 10 (age range 14-15) students from state schools in Maharagama. The study

was conducted with 25 female students and 05 male students whose first language is Sinhala and second language is English. This sample was divided into two groups as experimental and control. All the students belonged to the same level of proficiency. Prior to this study each student was contacted by the researcher and all students received marks between 50-65 for their last two English term papers.

Instruments

In this research study, the researcher used a combination of approaches including tests, semi- structured interviews, and a questionnaire as data collection tools. The researcher used a quantitative approach to analyze the test marks and a qualitative approach to analyze semi- structured interviews. As a result, a mixed approach of data collection was used.

Since, the purpose of this study is to observe how mind mapping has an impact on essay writing skills of students, the performance of students is measured by using the marks they have scored from pre-test and post-test before and after the intervention and from the semi-structured interviews conducted. Therefore, this study deals with quantitative and qualitative data, making this study a mixed data research.

Research design

The research design of this study is an experimental research design. Ross & Morison (2003) stated that experimental research design makes a comparison between a control group and an experimental group on the dependent or outcome variable in a controlled environment. This study falls under experimental design, to test the impact of using mind maps to enhance essay writing skills. This study used the experimental design with the intervention of mind mapping with the experimental group while the control group was taught using strategies other than the mind mapping strategy.

Analysis

Both quantitative and qualitative methods were used to analyze the respective sections of the questionnaire.

Quantitative analysis

Fancher (2013) stated that “pre-test-post-test designs are very common in scientific studies”. Subjects within each group receive a treatment of interest, no treatment, or a neutral treatment. Budia,

Ohoiwutun, & Wahyudin (2013) used pre-test and post-test in their research. They used a pre-test to measure the students' prior knowledge and it was conducted before the treatment while the post-test was given to the students to measure the changes after getting the treatment.

A pre-test was given for both groups to examine their current essay writing skills before the intervention. Then the experimental group had the intervention with the focus on mind mapping strategy while the control group was given regular essay writing tactics without teaching mind mapping explicitly. The time frame for teaching was two months. The teaching sessions were conducted online giving the students a break during the intervention so that they can practice using mind maps to write essays effectively. At the end of the session, a post-test is re-administered to both groups to analyze the achievement after the intervention. Song (1998) used the original paper for both pre-test and post-test. The same essay topic was given to all students. Further he stated that the rationale for using exactly the same test for both pre- and post-testing was to assure a comparable test, thus avoiding the issue of equating different forms of tests.

Qualitative analysis

The semi-structured interview consisted of 10 questions and it was given to the experimental group in order to identify the perceptions of students' when using mind mapping. Before the final interviews with the selected sample, a pilot test was conducted with five randomly selected students. This was conducted in order to achieve validity of the interview questions and to substantiate the findings.

The semi-structured interview was designed with five teachers and ten selected students based on post-test marks; 10 students who scored the highest marks for the post test. Hence, Yin (2011) defines purposeful sampling as "the selection of participants or source of data to be used in a study, based on their anticipated richness and relevance of information in relation to the study's research questions" (p.311).

Doyle (2019) states that a semi- structured interview is a meeting in which the interviewer does not strictly follow a formalized list of questions. It involves a series of open-ended questions based on the topic areas the researcher wants to cover. The open-ended nature of the question defines the topic under investigation but provides opportunities for both interviewer and interviewee to discuss some topics in detail. If the interviewee has difficulty in answering a question or provides only a

brief response, the interviewer can use cues or prompts to encourage the interviewee to consider the question further. Lelisari (2017) used semi-structured interviews in his research to make the interview more comfortable to share their thoughts. Considering the above facts, this study used semi-structured interviews to obtain factual data. Through this, perceptions of mind mapping strategy on essay writing skills qualitatively and quantitatively were analyzed.

Results

The findings of this study show that mind mapping is closely associated with statistically significant positive influence on students' essay writing skills. The students' essays were scored for the correct use of grammar, range in their vocabulary and for maintaining a level of organization in terms of how they structure their essays. Using mind mapping students had written phrases and words to be included, they also designed their mind maps using appropriate vocabulary and finally the researcher witnessed how each paragraph discussed individual points and was void of repetition. The findings support the findings of Mercer (2002), Nurlaila (2013), and Scarcella and Oxford (1992), who found that using mind mapping strategy as a prewriting activity can enhance the essay writing skills of ESL students. The positive impact on writing achievement may be due to the ability of mind maps to support knowledge acquisition and retrieval through the aid of visual clues such as colors, lines and images (Keles, 2012).

Quantitative results

This study used thematic analysis after transcribing the interviews conducted and even maintained information from the questionnaire. There was a difference between pre-test scores and post test scores within the control group. That is because the students were given feedback on their essays in the classroom thus creating a significant value lower than p- value. Similarly, the experimental group also showed a significant difference between pre-test and post-test marks. That is because they are given exposure to using mind mapping when writing essays, creating the p-value $0.000 < 0.05$. Although the results are quite similar, the experimental group scored higher marks than the students in the control group.

Analysis of the pre-test and post-test

The quantitative data is analyzed using paired sample T-Test available in SPSS. In this section, the mean value and significant value is analyzed. In analyzing the test marks, two comparisons are made;

- a. Within group comparisons of marks from two tests.
- b. Comparison is made to find out the differences in marks gained by control and experimental groups

Figure 1 illustrates the percentage of overall marks obtained by the participants of the control group for the pre-test and post-test. Evidently, the results obtained by the participants of the control group for the pre-test is 42.07% while the results gained by the participants of the control group for the post-test is 53.93%. Accordingly, when comparing these two results, it is clear that there is an improvement of students from pre-test to post-test.

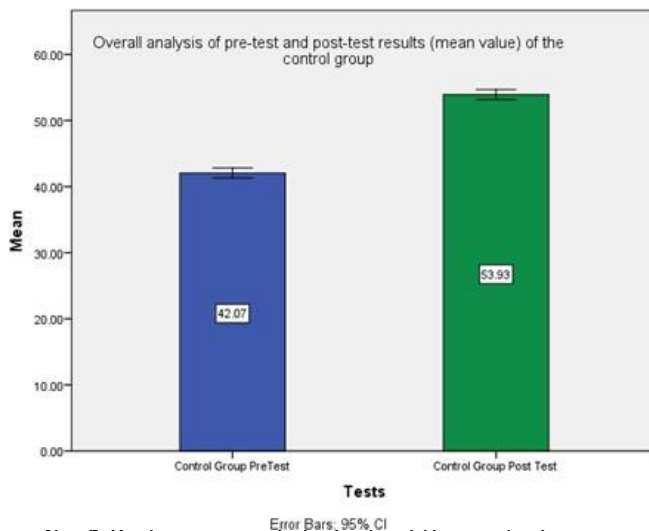


Fig.1 Performance of students of the control group in the pre-test and post-test

Descriptive statistics of the control group in relation to pre-test and post-testmarks

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cont_Pre Test	42.07	15	3.654	.943
	Cont_Post Test	53.93	15	4.431	1.144

Table 1 Descriptive statistics of the control group in relation to pre-test and post-testmarks

Based on **Table 1**, the mean value of the control group in relation to pre-test is 42.07 while the mean value of the control group in relation to post-test is 53.93. Hence, it is visible that there is an increase in mean value. Therefore, it can be said that there is an improvement of students' marks in the control group from the pre-test phase to the post-test phase.

Significant difference of the control group in relation to the pre-test and post-test marks

		Paired Differences					t	df
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Cont_Pre Test -	-	2.72	.703	-	-	-	-
	Cont_Post Test	11.867	2	-	13.374	10.359	16.884	14

Table 2 Significant difference of the control group in relation the pre-test and post-test marks

According to **Table 2**, there is a difference between the control group's pre-test marks and post-test marks. It is proved from the significant value as the $p\text{-value} < 0.05$, there is a difference between the pre-test marks of the control group and the post-test. Depending on the results of Table 2, the significant value is 0.000. That means the significant value is lower than $p\text{-value}$. Therefore, there is enough evidence to prove that there is a difference between the results.

Analysis of the pre-test and post-test results of the experimental group

Figure 2 illustrates the percentage of the overall marks obtained by the participants of the experimental group in relation to the pre-test and post-test marks. The participants of the experimental group scored an average of 43.67% for the pre-test while they scored an average of 66.13% for the post-test. Thus, it is evident that students' marks improved from the pre-test to the post-test. Accordingly, it is discovered that after the intervention there was a significant difference in the marks. Yet, when having compared the percentage of the experimental group with the control group the results of the experimental group indicate a higher percentage than the control group.

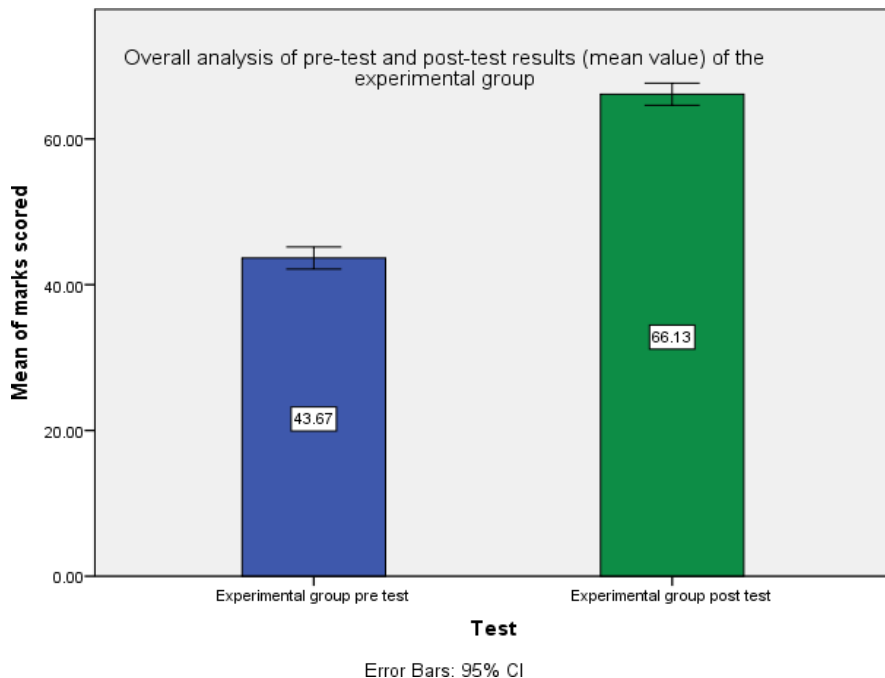


Fig. 2 Performance of the students of the experimental group in relation to the pre-test and post-test

First, the pre-test marks were analyzed between the control and experimental group thus creating no significant difference in their marks. It proves that the proficiency levels of the students in both the groups are equal before the intervention. According to the results of the post-test, there was a significant difference in experimental and control groups. Although the post-test marks of the control group increased, those marks are less than the post-test marks of the experimental group.

Descriptive statistics of the experimental group in relation to the pre-test and post-test marks

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Exp_Pre Test	43.67	15	3.867	.998
	Exp_Post Test	66.13	15	7.990	2.063

Table 3 Descriptive statistics of the experimental group in relation to the pre-test and post-test marks

It is evident from **Table 3** that there is an increase of the mean value from pre-test to post-test in the experimental group. The mean value of the experimental group in relation to the pre-test is 43.67 while mean value of the experimental group in relation to the post-test is 66.13. Hence, it is visible that there is an increase in the mean value.

Significant difference of the experimental group in relation to the pre-test and post-test marks

Exp_Pre Test - Exp_Post Test	Paired Differences					t	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
-22.467	5.502	1.420	-25.513	-19.420	-15.816	14	.000	

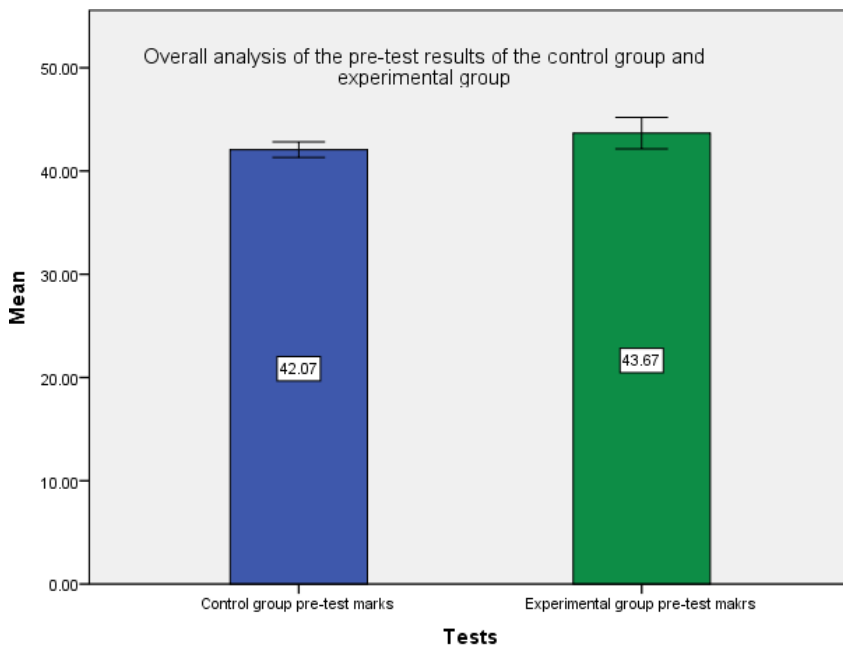
Table 4 Significant difference of the experimental group in relation to the pre-test and post-test marks

If the p-value is < 0.05 , there is a difference between pre-test and post-test marks in the experimental group. Depending on the results in table 4.4, the significance value is 0.000. That means the significance value is lower than p-value. Therefore, there is substantial evidence to validate the statistical difference between the pre-test and post-test marks. Thus, the proficiency levels of two groups were the same before the intervention of the research.

Figure 3 illustrates the percentage of the overall marks obtained

by the participants in the control and experimental groups in relation to the pre-test marks. The participants in the control group got 42.07% while the participants in the experimental group obtained 43.67% in the pre-test. Accordingly, it is evident that there is no major difference between both groups. Thus, it indicates that the participants' proficiency level was similar before the intervention.

Analysis of the pre-test results of the control group and the experimental group



Error Bars: 95% CI

Fig. 3 Performance of the students in the pre-test of the control group and the experimental group

Descriptive statistics of control and experimental group in relation to pre-testmarks

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cont_PreTest	42.07	15	3.654	.943
	Exp_Pre Test	43.67	15	3.867	.998

Table 5 Descriptive statistics of control and experimental group in relation to pre-testmarks

According to **Table 5**, the mean value of the control group in relation to pre-test is 42.07 while the mean value of the experimental group in relation to the pre-test is 43.67. Hence, it is visible that there is a slight increase in the mean value.

Significant difference of control group and experimental group in relation to pre-test marks

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Cont. Pre Test Exp. Pre Test	-1.600	3.719	.960	-3.659	.459	-1.666	4	.118

Table 6 Significant difference of control group and experimental group in relation to pre-test marks

If the $p\text{-value} < 0.05$, there is a difference between the pre-test marks of the control group and experimental group. Depending on the results in Table 5.6, the significant value is 0.118. It indicates that the significant value is higher than $p\text{-value}$. Therefore, it implies that there is no significant difference between the marks of both groups. This means that the difference is not statistically significant, and it may be postulated that the proficiency levels of both groups are similar before the intervention.

Figure 4 illustrates the percentage of the overall marks obtained by the participants in the control and experimental groups in relation to the post-test marks. The participants in the control group received 54% while the participants in the experimental group obtained 66% in the post-test. Hence, it is evident that when comparing the results of the two groups the participants of the experimental group have obtained a higher percentage than the participants of the control group. However, it is observed that the marks obtained for the post-test in the control group also improved. Yet, when comparing both groups it is evident that the intervention participants of the experimental group were given, improving their essay

writing comprehension. Percentage of the experimental group is higher than the percentage of the control group. Accordingly, this indicates that with the intervention the participants of the experimental group have improved their essay writing.

Analysis of the post-test results of the control group and the experimental group

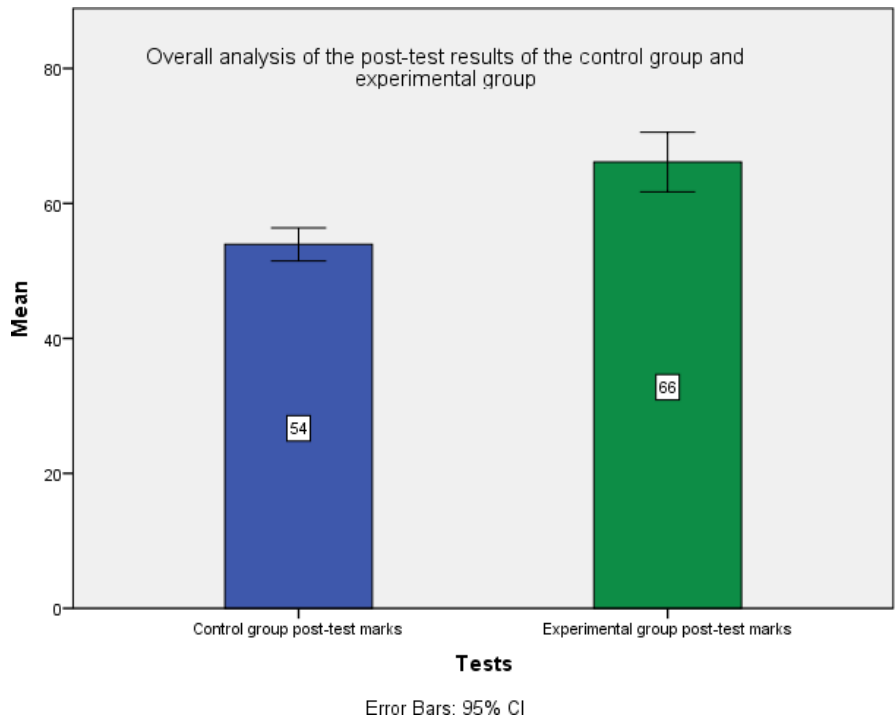


Fig. 4 Performance of the students in the post-test of the control group and experimentalgroup

Descriptive marks of the experimental and control groups in relation to thepost-test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cont_Post Test	53.93	15	4.431	1.144
	Exp_Post Test	66.13	15	7.990	2.063

Table 7 Descriptive marks of the experimental and control groups in relation to the post-test

According to **Table 7**, the mean value of the control group in relation to the post-test is 53.93 while the mean value of the experimental group in relation to the post-test is 66.13. Hence, it is visible that there is an increase in the mean value. Accordingly, there is a significant difference between the post-test marks of both groups.

Although the post-test marks of the control group also increased, those marks show a lesser increase than the post-test marks of the experimental group. Therefore, it can be highlighted that there is a significant improvement in the experimental group after the explicit reading strategy instruction.

Significance value of experimental group and control group in relation to post-test marks

		Paired Differences				t	df
		Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
Pair 1	Cont_PostTest - Exp_PostTest	8.082	2.087	-16.676	-7.724	-5.847	14

Table 8 Significance value of experimental group and control group in relation to post-testmarks

Therefore, the results show that mind mapping assists students, especially beginners, to manage different processes while writing. Sturm, Rankin & Erickson (2002) also assert that mind maps can help students break down writing tasks and deal with sub-processes and writing skills more explicitly. A writing mind map, as was designed in this study, has the ability to help students organize and clearly think about different aspects while writing independently. It helps them not only to manage information related to the topic, but in addition, it can help them manage linguistic information to help them with problems as fundamental as sentence structure.

Qualitative results

Semi structured interviews were conducted and a questionnaire was administered in order to gather data for this category. Based on the data, this study discovered three main themes, as follows.

- i.) Lack of awareness in relation to mind mapping strategies prior to the intervention
- ii.) Difficulties students face when writing essays
- iii.) Importance of mind mapping in essay writing

The findings of the study show that the mind mapping strategy has significantly improved the students' attitudes towards writing in English in terms of ease, enjoyment, competence and strategy use. These findings support some previous studies on the same subject. Studies by Noris, Mokharti and Reichard (1998), Bharambe (2012) and Elftorp (2007) contain confirmation on the positive effect mind mapping has on students' attitudes towards essay writing in English. The authors mentioned above investigate students' attitudes in terms of ease, enjoyment, competence and general interest towards writing in English.

Data collected from interviews and the questionnaire showed that most students who scored high marks from the sample group had problems related to ideas and organization. On the other hand, interviews done with the students who achieved low marks revealed that they had more concerns about the grammatical aspects of the writing task. These findings support the conclusions of several studies including those of Jones (1982), in that skilled writers mainly focus and adjust ideas while poor writers are mostly concerned about making adjustments related to form. These observations reinforces the findings in Raimes' (1985) study on unskilled writers, where he concludes that there is no relation between the students' linguistic proficiency and their writing proficiency, and hence, that writing is not simply a reflection of students' linguistic competence.

Discussion

The results show that the students' post-test marks have increased after the intervention in the experimental group. When students were familiarized and accustomed to the mind mapping strategy they were able to obtain more marks for their essays. Accordingly, it was discovered that by implementing the above strategy, the students' essay

writing ability has improved. This corroborates with the findings of Mercer (2002) and Norris, Mokhtari & Reichard (1998).

Mercer (2002) conducted a similar study to observe the impact mind mapping has on essay writing skills of ESL learners and concluded that mind mapping helps students to see the relationship among ideas and connect known information with new information. He added that mind mapping has proven useful before, during and after writing. Norris, Mokhtari & Reichard (1998) conducted another study which explored the positive impact of drawing mind maps to enhance students' writing abilities.

The study revealed significant differences between the treatment and the control group on all measures used. Students who drew before writing tended to produce more words, sentences, and idea units and their overall writing performance and the writing achievement were higher. This study reinforces the concept that integrating mind maps and essay writing contributes to increase the motivation of students' when producing texts in their second language.

Nurlaila (2013) observes the importance of the use of mind mapping technique in writing a descriptive text. The results showed a significant improvement in the ability of students to write after being introduced to mind mapping. Not only did she prove that there was a significant difference in their text after the intervention, but also how students had a positive attitude in using the mind mapping strategy as it enabled them to be creative and made writing enjoyable. Supporting the above studies, this study asserts the findings of Keles (2012) who also claimed that mind mapping can assist learning by providing an opportunity for visual stimuli, assessment, checking understanding, elaboration, note-taking, summarizing, illustrating sequence of events and other creative ways of instruction. Besides that, Bharambe (2012) also mentioned that mind mapping provides a useful focus for students to organize their thoughts and ideas to present information clearly and attractively.

According to Scarcella and Oxford (1992) mind mapping is an effective strategy that could be used in the pre-writing stage as students are given an opportunity to generate, gather and arrange related ideas while enhancing their own. Through the interviews conducted in the present study as well, this was a finding which was prominently stated by many students. Similarly, Khajavi & Ketabi (2012) conducted a study on 60 second-year university students enrolled in an English descriptive

writing course. The participants, 21 males and 39 females, ranged in age from nineteen to twenty-three years. The participants were divided equally into a control and an experimental group. Prior to the treatment, both groups took a pre-test in essay writing and a attitudes questionnaire. For ten weeks, the experimental group was trained to use mind mapping for descriptive writing. At the end of the training, both groups received the post-test and the attitudes questionnaire to evaluate the influence of the mind mapping program. The results of data analyses were encouraging, since the experimental group results showed greater improvement in not only their essay writing skills but also their attitudes towards the strategy. The findings of the present study also confirmed positive results as proven using both quantitative and qualitative data.

The results show that students have positive perceptions towards the mind mapping strategy, and they agreed that they could improve their essay writing skills using those strategies. It can be highlighted that after the exposure to the mind mapping strategy, students are interested to use the above strategy when writing essays especially at their upcoming Ordinary Level examination. Simultaneously, students hope to use this strategy in their examination and when they are required to produce English texts. Furthermore, they acknowledged that this research was the first time they were introduced to concepts of topic sentences and using mind maps to organize ideas prior to attempting the essay.

Several other researchers continue to prove the effectiveness of the mind mapping strategy and its usefulness to second language learners. Mind mapping strategy is successfully used as a pre-writing strategy to help students plan and organize ideas and knowledge for the writing task. As asserted by Fiktorius (2013) mind mapping strategy is an effective method used to improve writing in foreign language classes. Supporting this, Elftorp (2007) states that students begin to write their own ideas on a particular subject and then draw a mind map that illustrates the main idea of writing and the secondary ideas that emerge from it. This is another finding of the present study as well. Students in the present study claimed that this method helps them formulate ideas while expanding them during the mind mapping process which helps them in writing. Additionally, this study observed that when the teacher plays an active role during the initial stage, the students get motivated, and this creates an atmosphere suitable for writing essays. This feature was further established by Anokhin (1973) in his research explaining that teachers can select on how

to use mind mapping in language classes as a pre-writing activity and for developing learners' writing ability and their proficiency levels.

Another finding of the present study was that students preferred to memorize sentences for their essays. However, after the intervention the teacher used this memory retention ability of the students and combined this skill with the mind mapping strategy. According to Tayib (2016), mind mapping is used as a method of memory usage. It relies on visual memory in an easy-to-read illustration and diagram that clearly shows ideas in the form of relationships. This study observed later how students when given the same topic at the post-test wrote several memorized subtopics on their mind maps instead of simply writing off sentences from their memory. This can be supported by Davies (2011) who noted that the mind map increases learning efficiency by using both the left and right sides of the brain. He further asserts that mind maps consisting of the branches, words and lines represent how the human mind thinks, where the words and meanings are linked to the original thought.

Moreover, Fiktorius (2013) explored the integration of mind mapping in the ESL¹ classroom. He concluded that mind mapping is an effective way to take notes and share ideas. The strategy seems particularly appropriate in helping students plan their writings and encouraging them to reach a deeper level of understanding of writing topics, implying that mind mapping may affect students in terms of the ability to plan and organize their ideas for writing assignments under exam conditions. The present study conducted affirms this as well since most students disclosed that mind mapping helped achieve creativity, organization, productivity, as well as stimulate memory. The results also indicated that mind maps are most valuable when the main objective is to develop a comprehensive understanding of all basic concepts' participation in the subject area.

Irrespective of the sample group, duration of the studies conducted and essay writing strategies most commonly used by students, the findings of these studies are proved similar to the present study as both quantitative and qualitative data of these research studies discovered that mind mapping strategy improved students' essay writing abilities.

¹ English as a Second Language

Conclusion

This research attempted to explore the effect of using a mind mapping strategy to enhance essay writing skills of grade 10 students and improve their attitudes towards writing in English. The control and experimental groups were both tested for writing achievement and surveyed to determine their attitudes towards writing. The experimental group received instruction with mind mapping, whereas the control group received traditional instruction without mind mapping. Data was collected using a mixed research method and the data was analyzed both quantitatively and qualitatively. Results from the present study will contribute to research in strategies used to teach ESL writing in general, and in the context of essay writing. The findings will also shed light on the applicability and usefulness of using mind mapping to teach different skills inside the ESL classroom in general, and specifically, writing skills.

The findings of the current study show that using the strategy of mind mapping is closely associated with statistically significant positive influence on students' essay writing skills. The students' essays scored for grammar, vocabulary and organization. The findings support the findings of Mercer (2002), Nurlaila (2013), and Scarcella and Oxford (1992), who found that using mind mapping strategy as a prewriting activity can enhance the essay writing skills of ESL students. The positive impact on writing achievement may be due to the ability of mind maps to support knowledge acquisition and retrieval through the aid of visual clues such as colors, lines and images (Keles, 2012).

The sample size of this study is only limited to thirty students. Thus, this study only utilized students of grade 10. Therefore, the results cannot be generalized to all grade 10 students in Sri Lanka. The length of the intervention was another limitation. One-month intervention may not be sufficient for further essay writing abilities to develop within a student.

This study emphasizes the importance of implementing the use of mind maps to write essays in ESL classrooms, by confirming that, instead of teaching the students what to write, teaching them how to write had a positive effect on their writing achievement and their attitudes towards essay writing. The positive effect could be because students using the mind mapping strategy have more control over the process of writing. The study also confirms the applicability and likability for the strategy of mind mapping in the ESL classroom, to teach different skills in general, and essay writing skills. The main advantage of the mind mapping strategy's

ability to display words, images, along with sub-topics, it can help students process, store, and recall information. The mind mapping strategy allows students to break down writing tasks and enables them to make decisions, both consciously and unconsciously, regarding each aspect of the essay writing task. In addition, the strategy was positively perceived by the students as being enjoyable, and a creative way to teach and to learn essay writing.

Further research on the effect of using the mind mapping strategy to teach the specific skills of vocabulary, grammar and reading would enrich current literature and give more precise uses for the strategy. Additionally, while this study is limited to the use of the strategy of mind mapping with grade 10 students, research is needed into its applicability with younger students such as those learning in English as well in their curricular. Finally, the relationship between learning styles and the strategy of mind mapping can be investigated to determine if its success is limited to visual learners.

This study emphasizes the effect of integrating grammatical clues while incorporating relevant vocabulary and language within the mind maps, to help low-level learners apply grammatical rules while writing. Furthermore, the study sheds light on the issues faced by students at the intermediate level from grade 10 when writing in English. The results show that while high achievers may encounter issues related to ideas and organization, low achievers are more concerned on form at the sentence level. The interviews with students from the sample group selected from the experimental group, also revealed that students have misconceptions regarding concepts of essay writing strategies and settled for simply memorizing sentences even for the examination essay questions. Overall, the findings reveal that the strategy of mind mapping is positively perceived by students, especially by lower-level students.

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