



# A Comparative Study of Writing Performance by Using and without Using the Technology of Mind Mapping at the University

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## Abstract

*Writing still presents a big challenge for many students at the university. As teachers, we feel the responsibility to find new ways to improve this skill among other skills. Teachers, in the process of teaching writing need strategies and technologies that can attract the students' interest and render the task of writing more enjoyable. To this end, Mind Mapping, a technique developed by Tony Buzan (1960s), has proved to be a promising instrument for the teacher and the learner alike. This classroom action research discusses the implementation and adaptation of Mind maps in the writing course. It aims at comparing the writing performance of two groups who were given a writing exam. One of the groups was taught the writing course in the usual way while the second was taught to use the technology of Mind mapping during the stage of pre-writing. The results show that both groups still have problems related to the use of vocabulary, spelling, grammar and punctuation among others. However, at the level of the organization of paragraphs and providing the thesis statement, the group who was taught to use mind mapping performed significantly better than the other group.*

## Introduction

The need for innovation and finding new strategies has always been the concern of teachers who seek professional development, and are interested in improving students' skills and motivating them to work. This concern is significant when we teach tough subjects such as writing, a skill still difficult to master. To try to help learners overcome difficulties in writing, mind mapping, a new graphic tool, is suggested in an attempt to increase the students' motivation and ability in organizing and developing the skill of writing. Hence, the present paper discusses the implementation of Mind maps in the writing course at the university.

## 1. Theoretical background

### 1.1. Mind mapping

Mind mapping, a universally acknowledged powerful learning tool, was first developed by the psychologist Tony Buzan in the late sixties as a strategy to make the brain more active and creative. Mind mapping is a graphic tool used to understand, memorize and handle large amounts of information. A mind map starts in the center of a page to allow the development of ideas from the central core. This new technique uses the full range of the brain's abilities, placing a central concept, idea or image in order "to facilitate memorization and the creative generation of ideas, and subsequently branching out in associative networks that mirror externally the brain's internal structures." [1]

In other words, at the heart of a mind map is a central idea that is expanded by means of branches representing main ideas; these branches split to sub-ideas and can add more sub-branches to explore the idea in even greater depth. To this end, "by working from the center outwards, a Mind Map encourages your thoughts to behave in the same way. Soon your ideas will expand and you will radiate creative thinking." [2] Hence, mind mapping is used to visualize the connections between ideas and outline information. These benefits make this diagram an appealing instrument to use in teaching. Certainly, using mind maps can empower students and teach them to be more independent, receptive and co-operative in class. Undeniably, mind maps present only relevant material in a clear and memorable form; therefore, the students tend to get better marks in examinations. [3] In fact, with mind maps, not only are ideas better organized but they can easily expand around the central idea by adding new topics and sub-branches.[4] This allows a free flow of ideas, a fact which is badly needed, particularly in writing.

### 1.2. Writing

Writing is one of the most important and challenging skills that university students need to acquire. However, this skill has always been considered an obstacle for students, especially in examination. The difficulty of writing lies in the fact that it encompasses different aspects of language. Indeed,



grammar, vocabulary, organization and content are among the skills to develop for good writing. This is what makes writing complex to teach. [5]

Moreover, students spend too much time thinking to find ideas, particularly during exams. While writing, they follow the usual linear order of introduction, body and conclusion. Besides, students take too many notes and then find difficulties in narrowing the topic of writing. Consequently, they have problems organizing their ideas and producing a well-structured composition.

In an attempt to solve these problems, the technique of mind mapping is suggested given that this tool may increase students' ability and motivation to write. It can teach them how to organize ideas to construct good pieces of writing. In this respect, using mind maps can "eliminate the stress and unhappiness caused by disorganization, fear of failure and 'writer's block'". [3]

Accordingly, some researchers carried out studies and gave evidences of the implementation of mind mapping in teaching writing. An experimental pretest and post test, for example, was designed to figure out the effect of using mind mapping strategy on the students' writing ability. [5] The result of the study showed that students taught by mind mapping got better score than those taught by conventional teaching. Likewise, another study aimed at identifying whether the use of mind mapping strategy was effective in improving students' writing achievement. [11] The study confirmed a significant difference in writing achievement between the students who were taught by using mind mapping and those who were not. These studies confirm the undeniable advantages of mind mapping and encourage its application in our courses in general and writing in particular.

Actually, a useful starting point for students to overcome the inconveniences of writing is to follow the steps of the writing process, namely prewriting, outlining, drafting, revising, and editing. For writing effectively, mind maps have to be used in the prewriting stage as it is the stage related to planning and brainstorming. To create a mind map, students should try to put the central topic in the middle and write down the ideas that are directly related to it. Then they can expand those ideas into more sub-ideas as shown in figure 1. After that, the students can write the first draft of their essay using the mind map as a framework. If the mind map is well organized, it can provide the students with all the main points to include, and the way those points relate to each other enabling them to write as quickly as possible, skipping over any areas that cause them special difficulty, especially particular words or grammatical structures. [3]

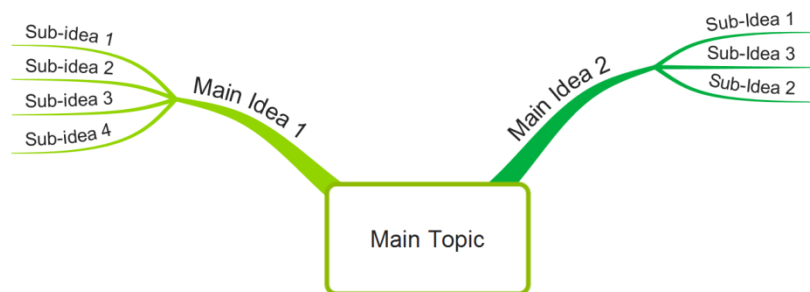


Figure 1: Mind map as a framework for prewriting

## 2. Methodology

The aim of the study is to explore the extent to which the use of mind mapping can affect the students' writing ability. Therefore, a comparative study was conducted. The study involved two groups of second year students from the English department. The number of students in each group was 50.

The experimental group studied the course of Advanced Composition using the technique of Mind mapping. This technique helped students learn how to use mind maps to brainstorm and organize their ideas in the stage of prewriting. On the other hand, the control group studied the same course but without the tool of mind mapping. The two groups were given a test of writing a composition.

To determine a system for scoring, the type of rating scale used was the analytic rating scale. In analytic scoring, scripts are rated on several aspects of writing such as content, organization, vocabulary, grammar, or mechanics in order to provide more detailed information about a test taker's performance in different aspects of writing. [6]

In this respect, the scripts are rated on the following features: organization, content, and language. It is worth noting that the analytic type of scoring will permit the researcher to investigate the effect of using mind mapping in each area, particularly the organization of the writing.



### 3. Findings

#### 3.1. Language

Concerning language, the two groups of students obtained scores ranging from 6 to 15 out of 20 with means of 10.9 and 10.04, respectively for experimental and control group. The standard deviations of 2.5 and 2.2 demonstrate that these scores are somewhat homogenous and that the two groups are almost the same with a slight superiority of the experimental group as shown on the boxplot in figure 2. This was confirmed by the means comparison test (independent samples t-test) which was not significant ( $p\text{-value}=0.06$ )

It can be concluded that the teaching of mind mapping did not contribute much in ameliorating the students' language. In fact, the slight difference between the two groups cannot be attributed to the integration of mind mapping in the teaching of writing only. Actually, to improve the students' language, mind mapping should be implemented in other courses such as grammar [7] and vocabulary and spelling. [8], [9]

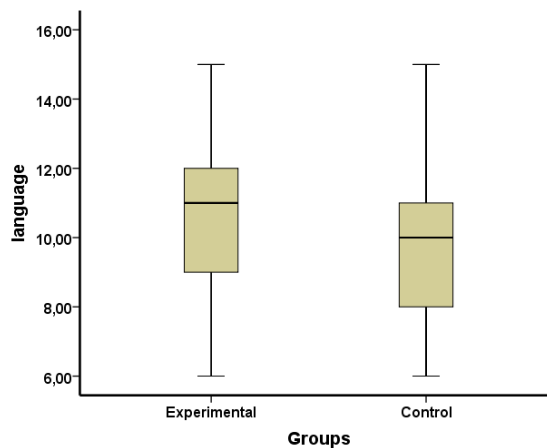


Figure 2: Language performance boxplot

#### 3.2. Content

Regarding the variable of content, the experimental group performed better than the control one to some degree in all the statistical parameters. As displayed in figure 2, the experimental group is more concentrated in the center of the sample than the control one. These results indicate that the use of mind mapping has unified, even if slightly, the level of students in the experimental group as far as content is concerned. The two groups are, indeed, statistically different regarding the area of content in writing. The experimental group scored a mean of 11.36 (sd=2.3) against 9.7 (sd=2.4) for the control group. This difference is highly significant with a  $p\text{-value}=0.01$ .

The conclusion that can be drawn here is that students in the experimental group have benefited from the tool of mind mapping in elaborating the content of their writing task and, therefore, producing richer scripts than students in the control group. This finding is congruent with the strengths and benefits of the Mind mapping technique which permits externalizing and generating ideas. Accordingly, "the visual map you compose reveals your understanding and deepens and extends your thinking." [10] Furthermore, mind maps limit the blocking caused by using the linear way of writing. [2]

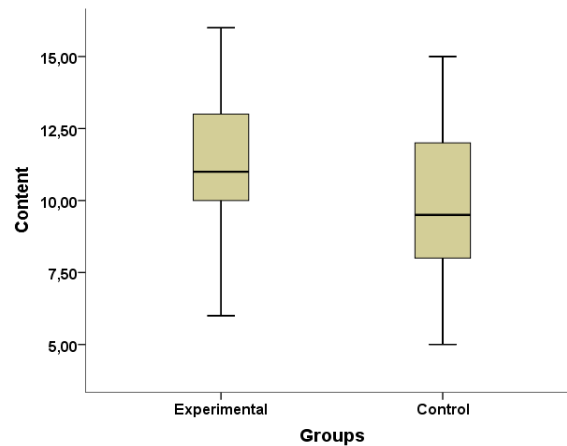


Figure 3: Content performance boxplot

### 3.3. Organization

The strength of mind mapping lies in its potential to improve the organization and structuring of ideas. To this end, mind maps “provide connections and structure to organize information logically and meaningfully [10], which is very much needed in the process of writing.

The findings clearly confirm the superiority of the experimental group over the control group in terms of organization. The experimental group is not only superior regarding performance, but also more concentrated with a standard deviation of 2.5 against 4.3. This implies that mind mapping has affected positively and considerably the students’ performance, and has diminished the extremities of the results, as well.

In effect, the variation interval of the experimental group is limited to 10 points from 8 to 18 while for the control group, it reached 16 points from 1 to 17. In terms of their general performance, the students of the experimental group obtained a mean of 13.7 against 9.4 for the control group with a difference of 4.5 points, which is highly significant ( $p\text{-value}=0,000$ ).

The students belonging to the experimental group produced well-structured pieces of writing mostly respecting the organizational features required for writing; these include developing a good thesis statement, maintaining a consistent point of view, and providing supporting arguments that are relevant to the central idea. On the other hand, the students belonging to the control group faced different problems, the most frequent of which were providing too general thesis statements if there were any, or introducing a main point that was not developed in the body.

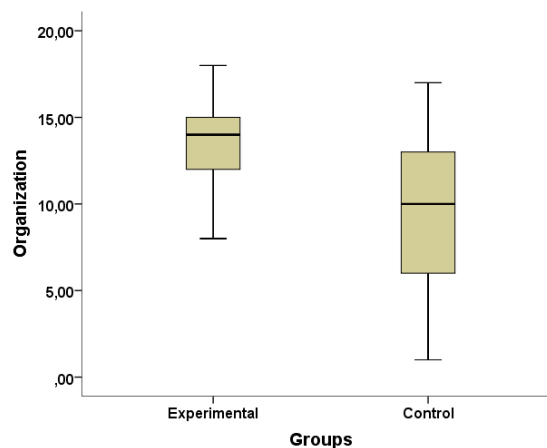


Figure 4: Organization performance boxplot

### Conclusion

The implementation of mind mapping in the course of writing is a new experience that has proved to be favorable. As a matter of fact, the significant difference in the students’ scores indicates that mind mapping is a useful tool that can help both teachers and students to overcome the complexity of writing and make it more enjoyable. It is, therefore, recommended that this technique can be used in other courses such as grammar, phonetics, and reading comprehension among others. Additionally,



the paper suggests a change from traditional conventional ways of teaching to new innovative ones as long as they are appropriately used, and give good results. Finally, more action research is needed to confirm the present results and have more insight into the benefits of mind mapping.

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