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**The Use of Mind Mapping as a Teaching Tool to Enhance
EFL Learners' Writing Capacities
Case Study of Fourth Year Pupils at Mohamed Ratiaat Middle School in
Tissemsilt.**

A dissertation submitted in partial fulfilment of the requirements for the
Master Degree in Didactics and Applied Linguistics.

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Dedication

I dedicate this work to my parents whose affection, love and encouragement supported me during all the stages of my life may god bless them.

Dedication to my brothers and my little sister MANEL for their aid and attention contributed to my research. I will always appreciate all the support they have shown.

Dedication to my friends who were always by my side

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Abstract

Mind mapping is becoming widely accepted in schools as being a learning technique that encourages the learner to think and explore concepts using visual-spatial relationships flowing from a central theme to peripheral branches which can be inter-related. It does not rely on large amounts of written text but instead uses lines, symbols and key words. This study aims to raise awareness about one of the up-to-date tools in the realm of education; the mind map. In this regard, the research work attempts to investigate and highlight the impact of using mind maps to enhance the learners' writing skills in the case study of EFL Mohammed Rataat Middle School classrooms in Tissemsilt. With the goal of exploring teachers and learner's attitudes toward this integration. In conducting this research, a qualitative quantitative study was applied. A number of research instruments are used to collect this data, a questionnaire to the teachers and a test experiment to the pupils of fourth year middle school English learning. The findings of this study support the conclusion that implementing the mind map method in writing lessons can positively impact the development of the writing process for a better enhanced writing style. This study gives some recommendations such as that to use mind maps in brainstorming and generating discussions, will encourage students to participate but also to fully understand a topic and its nuances by creating connections between ideas.

Keywords: mind map, symbols and images, memorizing, test experiment, brain-friendly, writing style.

Key to Abbreviations and Acronyms

EFL: English as a Foreign Language

Five A' s : Acceptance, Association, Analysis, Application, and Adaptation.

MM : Mind map

ENS: Ecole Normale Supérieure

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Résumé

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Summary

General

Introduction

General Introduction

Creating an environment that engages students in the learning journey is always challenging and not all the time easy. A mind map is a diagram used to visually organize information created around a single concept drawn as an image in the center of a blank page, to which associated representation of ideas such as images, words and parts of words are added. Mind maps are built around several key elements which have been proven to play an important role in unleashing thinking capacity. To overcome the problem of learners' lack in writing capacities, this study is trying to suggest an educational tool which will help pupils to improve and develop their writing capacities. This topic was chosen for the purpose of investigating the differences in pupils writing styles with or without the use of mind maps. Focuses on expressing how writing capacities are developed with the aid of mind mapping technique. The aim of this research work is to determine the value and impact of mind mapping method in enhancing the EFL pupils' writing process, from the perspectives of both teachers and learners of Mohamed Ratiaat Middle School in Tissemsilt. Exploratory case study research was held with EFL teachers and learners of middle school. The research is based on the qualitative and quantitative methods as an appropriate way to collect data in order to describe and investigate on the integration of mind maps. With the purpose of proving or disproving our hypotheses, a questionnaire was addressed to English teachers in order to gain detailed information about their opinions towards this implementation. The second research tool was a test experiment undertaken to attain a deeper understanding about the pupils' view concerning their writing capacities. For that reason, the following questions are set to guide this research:

- 1- Are EFL Middle School teachers familiar with the use of mind mapping in teaching practices?.
- 2- How can the use of mind mapping help pupils to improve and develop their writing performance?
- 3- What benefits could teachers and pupils derive from the use of mind mapping strategy in teaching writing?

Building on these three research questions, three hypotheses were generated to be tested in the current research:

- 1- If teachers are familiar with mind mapping they would use it in classroom writing session.

- 2- Efficient use of mind mapping strategy would improve pupil's weaknesses in writing performances.
- 3- The use of mind mapping strategy in classroom positively impacts pupils' performance.

The study is devised into three chapters, the first one is a review of literature, a survey of scholarly sources on the topic, provides an overview of current knowledge. In addition, allowing the researcher to identify relevant theories and methods of the existing topic research. The second chapter contains a sufficient detail about the methodology followed in conducting this investigation, it sheds lights on research design, the methods and techniques, procedure and the data collection tools used to either prove or disapprove the hypothesis of our work.

The last chapter is devoted to the analysis and discussion of the collected data from the used instruments, followed by a set of recommendations for both teachers and learners to improve the writing process through using mind mapping and some suggestions and limitations of the study in the field of English as a foreign language.

Chapter one

Literature review

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1.1 Introduction

As a result to decrease the writing problems, mind mapping technique is one of the pre-writing techniques to help student's writing process. This chapter is a review of literature of the impact of mind mapping as a tool to enhance student's writing capacities in studying English as a foreign language. It first deals with an overview and definitions of the term "mind mapping" mentioning the steps to make it, its objectives and advantages, which is followed by the impact of using mind maps on students writing improvements. In addition to this, it draws a general view on the writing in EFL classroom as a productive skill, its importance, stages and techniques for improving it. At the end it focuses and straightens out on the brainstorming approach and mind mapping in EFL writing capacities.

1.2. Definition of Mind Mapping

Buzan (2009), said that the more two sides of the brain operate at the same time, the more brain considers very well and recall faster. Therefore mind maps were developed as a technique which was designed likewise the operation of the brain by using its right and left lobes together and which enables the ideas being reflected on paper. Buzan (1991).opined that mind mapping is a diagram used to represent words, ideas, tasks or other items linked to and arranged in radial around a central key word or idea. According to the university of Adelaide, mind mapping is an effective means to take notes and brainstorm essay topics, it involves writing down a central theme and thinking of new and related ideas which radiate out from the center.

Mind mapping which Buzan developed as a note taking technique is away which uncover the potential of the brain, which information is stored, arranged and organized in order of priorities by using keywords and key concepts (Brinkmann, 2003). There are opinions about mind maps which state that they have benefits such as; recall, improving creativity, problem solving and focusing on a subject, organizing and arranging thoughts (Buzan, 2007). Since the simulation usage of words and symbols activates the imagination as well,

creativity also increases along with the consideration skills (Anderson, 1993), which means that it uses almost all the features of the brain.

Mind maps are used widely in every field in our day, as Wycoff (1991) lists some of these usage fields as writing, project organization, brain storm, meetings, list making, presentations, note taking and self improvement, or a simple work for the students who learn to understand a reading text. Moreover, Jonassen (1993) defined the concept of maps or “mind maps” as a representation of a topic and their interrelationship that are intended to represent the knowledge structures that humans stored in their minds, it can be more freestyle, visual, and do not necessarily have particular meanings imposed on relationships. Steyn and Boer (1998), in their studies reached to the conclusion that students enjoy ,express positive opinions about using mind map technique, remember easily what they learned and in the other hand, based on technology being used quite effectively nowadays, mind maps may be prepared by means of computer.

1.3. Steps to Making a Mind Mapping

Knowing mastery in writing is very important for learners and the use of mind mapping is a significant tool that increases the learners understanding toward the topic and that leads to a better writing techniques. It is used to generate, visualize, organize and classify ideas (Murley (2007). To create a mind mapping, students usually start in the middle of the page to draw a central theme or main idea, then widening it in all directions to create a growing diagram composed to key words, concepts, facts, and information (Buzan, 1991). It means that is generally formed with the main topic in the center and subtopics around it.

The teaching technique using mind mapping as a tool to represent student’s understanding by using words, picture with color and symbols in a tree branch format is really useful to develop student’s ability in learning English (Siriphanich et al, 2010). Mind map can be created using paper and pens or using one of several computer applications that can ease the students to generate their minds or educators use it as a strategy in teaching (Murley, 2007).This author also explained that radiating design of a mind maps keeps the main topic and the big picture in focus to make the connections with the subtitles much easier.

Windura, (2008), stated that there are necessary parts of mind mapping namely; central, image, key word, basic ordering ideas, branches, color and picture.

- Central image: it has to describe the main idea of a mind mapping and put it on the center of the paper.
- Key word: is a word that can lead to sentence or event, it is a strong noun or verb that creates image to trigger the recall of the memory.
- Basic ordering ideas: they are the branches that collect and sort information besides connecting the central topic that radiates out from the center.
- Branches: should be curvy and in the same length as the words or pictures above them.
- Color and picture: both are tools to help memorization in learning for long term.

According to Buzan (2005), there are seven steps to follow the creation of a good mind mapping, they are as follows:

- Putting the main idea in the middle as the main image to maximize space for the sub information to radiate out from the center in any direction.
- Using a picture for the central idea, due to its strong impact on keeping students attentive and on imagination and memory.
- Using colors as being a good memory marker, a tool to engage the right brain active, and helps grouping information.
- Working the brain according to the association by connection of the main branches to the center picture, and connect the second and third branches to the middle.
- Increasing the mind and eyes attraction by making a curve line connector instead of a straight one.
- Using one key word for each line to give energy and flexibility for mind mapping.
- Using pictures because it can replace a keyword or simply reinforce them.

Mind map represents the best of both worlds by resembling the visual aspects of a flow chart and the organizational structure of an outline, an example of a mind mapping by hand and by computer is shown below in Figures 1 and 2;

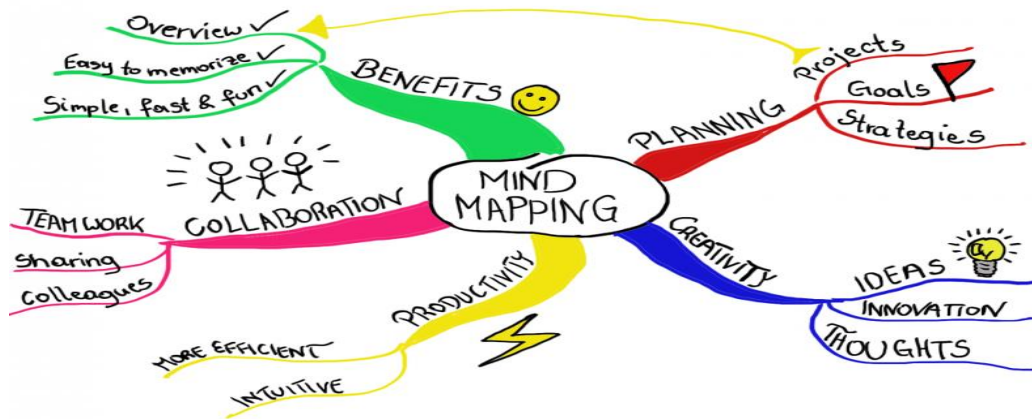


Figure 1.1 Mind mapping example according to Buzan

Note by Buzan, T. 1991. How to create a mind map. instituteofyou.org. Mapping.com

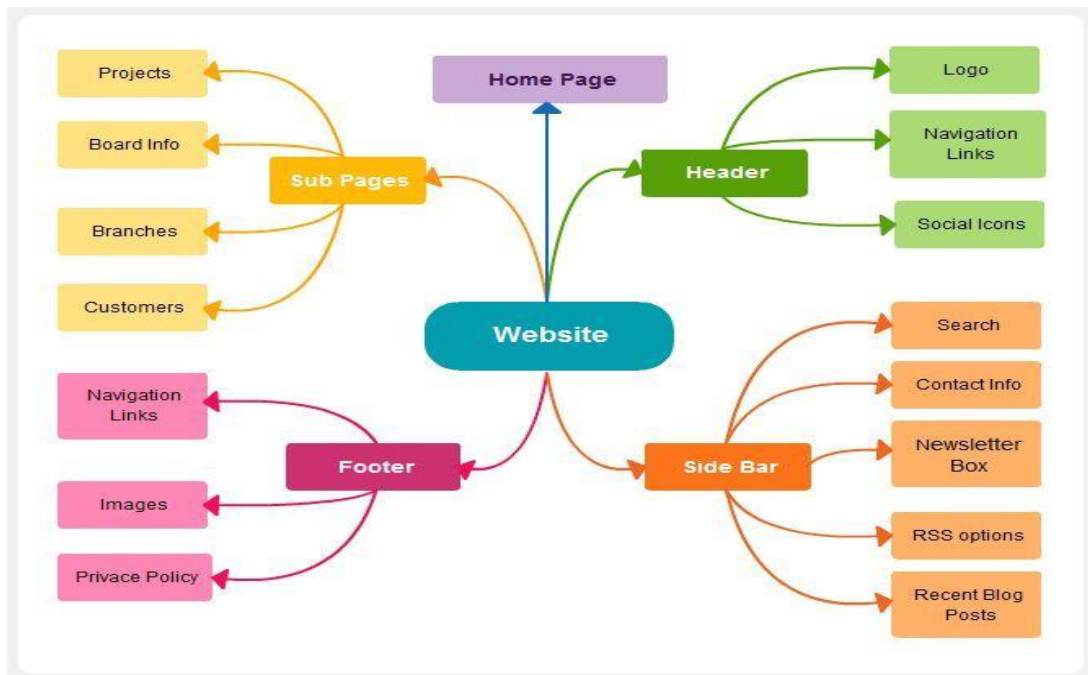


Figure 1.2 Mind mapping example with computer.

Mind mapping strategy is one of the significant strategies in teaching and learning English as a foreign language, not only mind maps show facts, but also how the overall structure of a subject and the relative importance of individual

part of it (Rahmawati, A. 2019). Which states that if the student work using mind map before they make writing product, they will produce a better writing results, and it is the same with teaching.

1.4. Objectives of Mind Mapping

The initial principle of mind mapping involves following the instruction of the five “A”s which are: Acceptance, Association, Analysis, Application, and Adaptation. These five “A”s are closely related and they are like stages that should be taken by the mind mapper. (Buzan, 2004, p. 93)

Acceptance: when starting a mind map, the mind mapper should set aside any preconceptions about his or her mental limitations, and look objectively at the issue. After that, the mind mapper should accept and follow the steps of the Mind Map.

Association: When writing a Mind Map, the mind mapper should think of everything he or she can associate with any of the headings and write them along the branches. Then different ideas will pop up and they should be put where they fit best; here, different colored pens are recommended for the new branches and sub-branches. Soon, the brain will make connections between all the written ideas; accordingly, the memorization and recall of those ideas will be easy.

Analysis: At this stage, the mind mapper should analyse what he or she has drawn until now asking analytical questions such as: Which branches contain more information? Where are the uncertainties? Are all the information needed present in the Mind Map? What can I

Add? And what can I omit? The mind mapping process will have helped the mind mapper generate and crystallize his or her ideas.

Application: It refers to the continued practice of mind mapping using the different laws and principles until mastering the technique.

Adaptation: It is the final stage, and it refers to the ongoing development of one’s mind mapping skills. Using mind maps on frequent basis will lead the mind mapper to realize that there are no limitations to the variety of ways he or she can use mind maps, because there are no limits to the number of connections

which the brain can make; here, the mind mapper will adapt and personalize the tool to suit his or her needs. (Harrison and Hobbs, 2010, p. 63).

Buzan (2013, cited in Indrayani 2014) claimed that there are several specific purposes of mind mapping as stated below:

- Mind mapping activates the whole brain.
- Mind mapping fixes the mental complications.
- Mind mapping lets the students focus on main explanation.
- Mind mapping helps to show the relationship between the separated information parts.
- Mind mapping gives clear description specifically.
- Mind mapping allows the students to group the concepts and compare them.
- Colors have the same role as pictures, the brain will stimulate an idea through colorful form. It gives mind map more alive and adds creative thinking energy for the students.
- Pictures have thousand meanings as same as the central picture.

1.4.1. Mind Mapping as a Motivational Tool

Interest in understanding the use of concept maps for instructional purposes has grown significantly in the past three decades (Nesibit&Adespose, 2006). Yet, many questions remain unanswered related to how concept maps can be used most effectively to promote students' motivation and learning (Doorn& O'Brien, 2007). When constructing a mind map, students are actively engaged in a way that, even when a student is working alone, his or her learning is socially mediated as Saloman and Perkins (1998, p17) note, an individual's learning can be mediated at different levels to reach the successful learning process and the main tool of motivating them in the use of mind maps.

According to Buzan (2013,p, 5), the students can more easily see overall main ideas that will be written and be able to plan or make choices to develop the paragraph in applying mind mapping. By applying that method that entertain students, develop their minds, highly motivate them to think and do that is next, especially when the method is pursued by using color and images.

Mind mapping is correlated to motivation because both of them boost of mental strength of student learning which is a form of desire, attention or aspiration, it can be high and low. In learning, there is a desire to use mind maps that activates, moves, channels and directs individual attitudes and behavior to learn (Jatrina, Sardiman, 2020). Motivation is very important in learning activities, because it encourages the spirit of learning that what mind mapping achieve, conversely lack of motivation will weaken that strength and will of learning. As Kamli (2018) found that mind mapping has a significant positive effect on the student's writing achievement as well as their attitudes towards writing in English.

The success of the learning process always relates to teaching methods used by the teacher (Aisyiah, Eko, 2020), the teacher needs to use appropriate teaching methods such as mind maps in delivering material aiming the students interested in the learning that could make them achieve a better outcome. Thus, learning with that tool is able to facilitate students in understanding or linking concepts to the material being studied that leads to highly motivated learners.

1.4.2. Mind mapping as a Memorization Tool

The effectiveness of the Mind Map lies in its dynamic shape and form which resembles the shape of the brain cell; accordingly, the brain will be encouraged to work in a way that is fast, efficient, and in the style which is natural (Buzan, 2006, p 138). Memory is not an innate human capacity, instead, it is a skill that can be improved and thus, must be practiced just like any other mental skill (Louise Cunnah, 2020). According to her, there are a number of things that have been claimed to boost memory in all fields of life including education, and mind mapping is the perfect tool to help achieve the successful learning process:

- Mind maps should only contain keywords and short phrases on each branch, this means that the information to remember is prompted by short memorable words with meaning.

- Mind maps promote associations and connections, it does not only encourage to generate more creative ideas, but the connections between the ideas will be laid out clearly on the page as a visual reminder.

- Mind maps use color and images, which stimulate the imagination due to images being quick for the brain to scan and understand.

Mind maps present information visually, they feature several powerful mental triggers such as shapes and connections, which help the brain process and memorize large amounts of information. Studies have found that mind maps can improve memory by 10-15 percent, others go even higher and estimate improvements up to 32% (Toi, 2009).

1.4.3. Revising Lessons

When of the best ways to revise is using mind maps, it can have a highly positive impact on the information learned or retained. For students who need a helping hand to remembering key information for exams or any revisions, mind mapping is proven method for boosting organization, focus and recall ability, as Buzan (1993) said, “research has shown that during the learning process, the human brain primarily remembers any items associated with things or patterns already stored, or linked to other aspects of what is being learned”(p34). Hence, Buzan advocated the development of strategies that enable students to make connections and word with word association that empower and improve specific functions of the brain such as receive, hold, analyze, output, control information and concepts.

1.4.4. Planning

Emily Cockburn (2011), Strategies that improved children's mind map construction were found to be the use of templates, a staged inductive procedure or collaboration using computer software. Overall improvement in children's writing was found when mind maps were used as planning tools. Mind maps also createa visible record of planning that can provide an opportunity for focused teacher intervention (Elaine Cockburn, 2011). The most positive side of using

mind maps in planning a lesson is that it can be used in any class, for any lesson, and for any text, the student's only on coloring and being creative.

Mind mapping has helped students across the world change the way they make notes, improve their memory and prioritize information. This has made more original creative ideas in teaching and learning English as a foreign language.

1.5. Advantages of Mind Mapping

There are many advantages on using Buzan mind map technique in learning process (Tee et al, 2012) include; preparing notes from textbooks, it is economical, summarizing information and note taking, thinking through complex problems and presenting information in a form the shows the overall structure of your subject.

Another thing about the Mind Map is that it utilizes the human language that everyone speaks regardless of his or her nationality; this language is imagination and association; if you hear or read about anything, you will use inevitably imagination and association; in Mind Maps clear and appropriate associations are made between key words. Furthermore, 'the Mind Map uses hierarchy and categorization which put the primary ideas in place so that the secondary and tertiary ideas can follow quickly and easily to facilitate a harmonious thought structure'(Buzan, 1994, p.88).

In note taking, Mind Maps help saving from 50 to 95 % of the usual time by noting only relevant words; it saves also more than 90 % of total time when reviewing Mind Map notes since one does not have to look for key words amongst unnecessary verbiage ; accordingly the concentration on real issues is enhanced. One more thing is that the mind thinks in images, and the Mind Map is an image, so the brain finds it easier to accept, remember and recall visually stimulating, multi-colored and multi-dimensional picture. In addition to the shape of a Mind Map which looks like the brain cell, the Mind Map helps the brain use all the range of cortical skills, since it is used in colors, words, numbers, lists, dimensions, logic and so forth (Buzan, 1994).

Other advantages of using mind mapping according to (Muttaqin, 2017) are as follow;

a) Mind map helps the students to speed up their think rapidity.

b) Mind map takes the students to develop new ideas quickly.

c) Mind map gives easy way for the students to plan, communicate, be creative, arrange, and explain the ideas fast and efficiently when they want to work with others.

d) Mind map facilitates the students to understand a complicated system or structure because mind map delivers the students to be focused on the ideas.

De Porter and Hernacki (2008) described some pros of mapping technique such as being:

Flexible: Explaining something can be easy without confusing in add the material based on the mind mapping, which means we can put the category of something based on our own opinion anywhere in the mind mapping easily, it may help people to see other connections and similarities in the received information.

Concentrate on The Topic: keep focus on the keyword can help our brain to store, retrieve information, and it does not waste time. It helps to concentrate on information structure and enables the user to see the big picture.

Increasing Comprehension: Mind mapping as a simple think pattern, it makes revision easier and condenses material into a concise memorable formation. Also, it delivers the students to focus on the ideas. Hence, this way facilitates the students to understand what they have learned

Enjoyable: Imagination and creativity are unlimited in using mind mapping, by using pictures and colors, mind mapping makes the brain enjoyed and excited. Nevertheless, mind mapping guides the students to plan, communicate, be inventive and explain the ideas fast and efficiently when they work with others. On the other hand, mind mapping may be so personal and difficult for.

1.6. Impact of Mind Maps on Students Writing Improvement

Buzan in Melawatiangraeni (2015) stated that mind mapping is an easy way to place information in the brain and take information out from the brain, it is noticed as an effective and creative way to write, it helps the students to improve their writing skills, arrange and store information in their brains and solve problems in a large area(Exposition et al, 2015). The mind maps make it easier for students to compose the sentence after the sentence, it enhances students ability in writing recount text, increases motivation to keep developing from their experience in daily real life and improving students achievements (John Sinulingga, 2012).

De Potter and Hernacki (1999) say that the human brain remembers information in the form of images, symbols, sounds, shapes and feelings which the mind map diagram achieve. Regarding the power of the brain in remembering information in the form of images, there is an experiment conducted by Ralph Haber Buzan (1993) which makes it said that the brain knows the picture perfectly. According to Buzan (2009) mind mapping is useful and effects the; stimulation of right and left brain surgery synergistically, release all the rules of slavery when initiating learning, helping someone to flow unhindered, develop an idea and focus the attention.

Some explanations focus on unique, intrinsic properties of mind mapping for example Nebojsa et al (2011), hold that mind mapping is a brilliant expression of thought .Therefore, it is a powerful graphical tool that provides a universal key to unlocking the potential of the human brain.

1.7. Writing in EFL Classroom

Writing is a process of communicating with others in which a writer sends his ideas and thoughts in written forms to readers, a process of thinking which the writer discovers, organizes and communicates his or her thoughts to the reader (Wingersky, 1999). According to Farbrain (1996, p 4) “it is about conveying meaning by using words that have been chosen and put together in written or printed form. Which means that generally writing skill is sending information and expressing ideas through written forms.Many researchers like Raimes (1987),

Chenoweth (1987), Harmer (2004) acknowledged that writing is a recursive rather than a linear process, that writers rarely write to a preconceived plan or model and that the process of writing creates its own form and meaning. When we talk about writing as a process, we understand that ideas are generated, put in first draft, organized and arranged in a whole, revised and corrected, and finally written in a final draft.

Learning to write in English as a foreign language is one of the difficult tasks a learner encounter (Richard, 1990). A good writing has to consider some aspects like grammar, vocabulary, mechanic, content and organization (Hartfield et al, 1985). There are many influential factors of learners EFL writing ability mentioned in the followings;

- English competence, regarding writing might include learners grammatical competence, vocabulary mastery and how to organize a good paragraph in English (Brown, 2004). Lack of grammar and vocabulary competence, makes learners difficult to produce not only a paragraph but even a sentence, and that can become very frustrated to not be able to express themselves (Harmer, 2001).

- Learner's native language, is closely relate to their English competence regarding their influence to learning to write English. Therefore, it is seen as a very influential factor toward the success of learner's writing in EFL (Harmer, 2001).

- Motivation and reading habit, some learners are not particularly concerned about their writing, while others are, so the intrinsic motivation propels them toward improvement. The problem is that motivation is a very complex thing that is a cluster of factor that energizes the behavior and gives it direction (Atkinson, 2002).

Harmer (2004, p3) agrees that writing should be learned because it could not be naturally acquired like speaking, though, he provides more reasons to teach writing for EFL learners which include reinforcement, language development, learning style, and most importantly, writing as a skill in its own right. Harmer (1998: 79) illustrates the reasons for teaching writing as follows:

Reinforcement: Some learners acquire languages in a purely oral/aural way, but most of them benefit greatly from seeing the language written down.

Language development: The mental activity learners go through in order to construct proper written texts is all part of the ongoing learning experience.

Learning style: For many learners, producing language in a slower way is something they appreciate. Writing provides time and ease for learners more than face-to-face communication does.

Writing as a skill: Learners need to know how to write essays, how to put written reports together and how the writing system operates, for example, in terms of conventions such as punctuation, paragraph construction) just as they need to know how to pronounce language appropriately.

1.8. Writing as a Productive Skill

Byrne (1991,p 4) explains that writing is a difficult activity because it is neither a natural nor a spontaneous activity and that “the problems related to writing are usually grouped under three headings which overlap to some extent: psychological, linguistic and cognitive”. To become competent users of English, one must focus on both productive and receptive skills. Writing is one of the productive skills, while in fact all of them are important regarding communication. However, Browker (2007) argues that writing in particular is a skill that is required in many contexts throughout life, such as writing emails and essays. Writing in English within an academic context requires some criteria of acceptability relative to different aspects of writing which include organization, vocabulary, language use, punctuation, accurate capitalization and paragraphing.

According to Starkey (2004), an effective piece of writing is the one that is organized, clear, and coherent, with accurate language and effective word choice. Brown (2000,p339) said that in school, without some ability to express yourself in writing, you do not pass the course. Which makes it also the most used skill in evaluating students' performance in almost all levels of education . In the same direction goes Kress (1989; in Tribble, 1996), emphasizing that learning to write is not just a question of developing a set of mechanical ‘orthographic’ skills but it also involves learning a new set of cognitive and social relations.

1.9. The Importance of Writing

Trainers and methodologists have looked again at writing in the foreign language classroom and acknowledged the importance of writing as a vital skill for speakers of a foreign language as much as for everyone using their first language (Harmer, 2004). The written language has nowadays an important social and educational function and (Urbanova, Oakland, 2002). Chappell (2011), writing is essential as it brings about a lot of advantages, it helps to; express one's personality, foster communication, develop thinking skills, make logical and persuasive arguments, give a person a chance to later reflect on his/her ideas and re-evaluate them, provide and receive feedback. According to Hyland (2003, p. 69) "writing is one of the main ways that create a coherent social reality through engaging with others".

Maley (2009) for example emphasizes the following benefits of creative writing:

- It aids language development at all levels; grammar, vocabulary, phonology and discourse, it requires learning to manipulate the language in interesting and demanding ways as they attempt to express uniquely personal meanings.
- It requires a willingness to play with the language
- It concentrates more on the right side of the brain with a focus on feelings and physical sensation.

1.10. Stages of the Writing Process

Effective writing can be simply described as good ideas that are expressed well and arranged in the proper order. Probably the model of writing widely accepted by EFL learners is the original planning writing-reviewing framework established by Flower and Hayes (1981). According to Zamel (1983; in Hyland, 2003), this model sees writing as a "non-linear, exploratory, and generative process whereby writers discover and reformulate their ideas as they attempt to approximate meaning." Hyland (2003,p11) explains that these stages do not occur

in a linear sequence; they are recursive, interactive, and potentially simultaneous. There are five stages as follow;

1.10.1. Prewriting

Prewriting is the stage of the writing process during which you transfer your abstract thoughts into more concrete ideas in ink on paper (or in type on a computer screen). According to Murray (1988,p16), prewriting exercises do not only help students to find something to say about a specific topic, they also help them improve their writing skills in that they provide them with opportunities to generate ideas and write with confidence. Although prewriting techniques can be helpful in all stages of the writing process, the following four strategies are best used when initially deciding on a topic: Using experience and observations, Reading, Freewriting and Asking questions. The writer gathers, generates information and plays with ideas during the prewriting stage.

According to Nemouchi (2008, p75), prewriting activities may include drawing, talking, thinking ,reading, listening to tapes and records, discussion, role playing, interviews, problem solving and decision activities, conducting library and so on. Prewriting is an important phase in the writing process because as stated by Parson (1985, p105): “...students who are encouraged to engage in an array of prewriting experiences have a greater chance for writing achievement than those enjoined to ‘get to work’ on their writing without this kind of preparation.” The prewriting stage is very important because within it students write everything that comes in their minds; students who use prewriting achieve better results in their writing than those who start directly. According to Carter (2007), prewriting is the stage during which many initial decisions are made.

1.10.2.Drafting

Hedge (1988, p 89) defines drafting as the stage where the writer “puts together the pieces of the text [through] developing ideas [into] sentences and paragraphs within an overall structure.” Drafting is the ‘physical act of writing’ as referred to by Lindermann (1987, p 26). As Tribble (1996, p. 12)mentioned that drafting is “ the step in which the writer begins to translate planes and ideas into

provisional texts.". "It is the real writing stage where the writer develops his topic on paper. Concerning the drafting stage Galko (2002) states ;

"Drafting means writing a rough, or scratch, form of your paper. When drafting, you might skip sections or make notes to yourself to come back and add more examples in certain spots or to check your facts later"(p49).

While drafting, students are helped to use right words and ideas and they are encouraged to work individually on a composition; however, group composition is a very important technique that helps them to overcome the difficulties of writing through collaborative work where they might discuss structures and language uses (Hamadouche, M, 2010).

1.10.3. Reviewing

It is the stage during which the writer corrects mechanical errors and realizes substantial changes in his writing. Reviewing may involve additions and deletions; changes in word use, sentence structure, and organization as it is stated by Grenville (2001, p 153) "you will be looking for changes that will help readers understand the information better or be more convinced by your argument. Once you have found the places that need fixing, you have to decide whether to cut, add or move". Brown and Hood (1989) see that reviewing is the stage where writers check that: They have said what they wanted to say, They have said it in a clear and appropriate way. According to Johnson (2008), reviewing is the heart of the writing, and it could be more productive of advanced final products if it includes input from teachers and/or peers.

1.10.4. Editing

Editing is the stage where the draft is polished; it is the final step before handing out the final draft. The writer gives attention to mechanics such as punctuation, spelling and grammar. Editing involves the careful checking of the text to ensure that there are no errors of spelling, punctuation, word choice and word order. To shed more light on the drafting phase, we will quote Johnson (2008: 167):

“Basically ‘editing’ means making your piece as reader-friendly as possible by making the sentences flow in a clear, easy-to-read way”.

Editing is the final step before handing out the final draft. As Grenville (2001) stated that:

“Making the piece of writing as reader friendly as possible by making the sentences flow in a clear, easy to read way. So in this stage, the writer must correct all errors in order to produce a final draft ready to be handed out”. (p. 167).

1.10.5. Publishing

This is the last step of the writing process, the final writing is shared with the group, that can be accomplished in a variety of ways, and with the help of computers it can even be printed or published online, as Williams (2003) stated that publishing is not limited to getting a text printed in a journal, it includes turning a paper into a teacher, a boss or an agency.

1.11. Techniques for Improving Writing

There are several strategies and techniques to help learners develop their writing capacities to reach a better writing process includes; peer-reviewing, reading and summarizing, it is introduced as follows;

1.11.1. Peer-Reviewing

Participating in peer review can help students to; learn how to read carefully with attention to the details of a piece of writing, make the transition from writing primarily for themselves or for an instructor to write for a broader audience, learn how to formulate and communicate constructive feedback on a peer’s work, learn how to gather and respond to feedback on their own work(teaching resources (Washington university, nd). Peer reviewing is a developmental process that gives writers the opportunities to discuss their texts and discover others’ interpretation of them (Hyland and Hyland, 2006).

Learners generally view it as a non threatening activity as both reviewers and writers benefit from the feedback that their peers provide (Wood and Kurzel,

2008). Wesa (2010) echo the same mutual benefits gained from encouraging learners to review each other's work. The more experienced peer is, in this instance, providing the beginner learner the scaffolding needed to support his evolving understanding of knowledge and development of complex skills (Donato, 1994). Peer helps writers to identify the strengths and weaknesses of their essays and to suggest ways to improve their writing (Blasingama, 2005). For example it was found that students gave more priority to peer revisions than teacher feedback as they saw more social support in peer reviewers' comments and suggestions (Elbow, 1973).

1.11.2. Reading

Reading is useful learning tool, as being one of the four basic skills, is an activity that requires understanding. It is "the activity of seeing, perceiving, comprehending and making sense of all words, sentences or writing with all its elements (Durmus, 2013). This activity is carried out with the coordination of mind and eye and the meaning of written expressions as being one of the most important sources of information (Fletcher and Portalupi, 2001). It is thought that writing, which is one of the most powerful communication expression of the learner, is also a key for the success of the learner and in order to achieve this, the reading process arrange the students thoughts and help them prepare a draft (Berninger and Winn, 2006).

The skill of writing can be improved by practice the reading that will improve it by providing development of thinking as Oz (2011) states that writing skills are directly related to reading skills. When reading is done, students will acquire language input, it will help to learn from what others have written. The relationship between reading and writing has been well recognized, in that good reading like effective writing, involves generative process that create meaning by building relations between the text and what we know, believe and experience (Wittrock, 1983).

1.11.3. Summarizing

Khazaal (2019) states that most students need writing skills in their fields of research during their academic years of study, however, weaknesses appear once

the teacher assigns written activities, he notices writing problems. The using of summary helps the learners needs and teaches them how to distinguish the essential ideas of a text, to memorize what they read (Chahrazade, M, 2020). Writing a summary requires students to read more closely since they must read a text more than once to get a sense of the ideas presented, students will recognize and maintain more information than they would from just a single read (Chahrazade, M).

1.12. Brainstorming Approach and Mind Mapping in EFL Writing Capacities

Stanley et al (1992) state that brainstorming is the simplest method of generating ideas, the most versatile and probably the most commonly used by students, it is just what the words suggest which makes ideas flow and appear easily in students mind when they begin to write. Thus, brainstorming is an effective way on the production of ideas in writing. According to Guy and Wenstrom (1991), brainstorming activities encourage students who do not usually like to write by creating a stress-free atmosphere. Thus, in an EFL environment where students normally make effort to do their writing tasks, a non threatening atmosphere can help them develop their writing skill.

There are several previous studies about the effect of brainstorming technique in teaching writing. The first research by Shufi (2001) was conducted a classroom action research by using brainstorming as a teaching technique, it results that students made improvement in their writing achievement. Another study by Noor (2012) proved that the implementation of brainstorming technique developed the students writing skill in writing descriptive text. Brainstorming strategy can help students use their prior knowledge in their writing activity and recognize what skills and information they have and what they need to know (Rao, 2007).

One of the most important features of brainstorming is that it does not need any preparation and it can be used at any level of education and under any circumstances (Buzan, 1993). According to Osborn (1953), a number of rules should be considered during the brainstorming session; no criticism of ideas,

building on what others have suggested, strange and wild ideas are accepted and welcoming the large quantities of ideas. It is a means of showing students that they are collectively able to generate more ideas to enrich their learning process than they believed possible, this leads to enhance in their autonomy of learning and self-responsibility (Bobb-Wolff, 1996).

1.13. Conclusion

From the literature review, one can deduce that mind mapping carries a massive significance in developing the capacities of the writing process. In this chapter, the research focused on first giving some different definitions of the term mind mapping, its steps, objectives as a motivational tool, as a memorization tool, as revising lessons and planning. In addition to its impact on students writing improvement. The second section focused on the writing in EFL classroom, as a productive skill and its importance. In the end, it mentioned the stages of writing process from prewriting, drafting, reviewing, editing to the publish stage, it revealed the techniques for improving writing such as reading and summarizing. The chapter ended by explaining how can brainstorming approach and mind mapping effect the EFL writing capacities.

Chapter Two
Research
Methodology

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2.1. Introduction

As it is mentioned in the first chapter, the integration of mind mapping technique is one of the main helpful tools for facilitating the process of effective writing skills in students' side. This chapter aims at detailing out the research design and instruments used for the investigation of weather using mind maps can enhance the writing process. Besides, it presents the participants of the study in the case of the fourth year middle school learners of English as a foreign language, Mohamed Ratiaat Middle School in Tissemsilt. The chapter focuses on the description of data analysis used, which are the qualitative and quantitative data for experiment and the questionnaire. At the end it sheds lights on the research validity, and reliability of this study.

2.2. Research Design

This study presents an experimental methodology, which aims at describing and explaining a certain population in organizing way by answering the which, why and what questions.

This research aims at providing data to demonstrate the impact of mind maps as a tool to enhance student's writing capacities in studying English as a foreign language through experiencing both teachers and pupils' attitudes toward the use of mind mapping. While conducting this study, the research goes through the phase of research design. Yet, to achieve appropriate results a combination of research instruments is needed. A research design includes a general guideline of data collection and the procedures through which the data is to be analyzed. Consequently, the information obtained provides an answer to the research questions. In this respect, McMillan and Schumacher (1993, 31) explain that the aim of the research design is to provide the most valid, accurate answers as possible to research questions.

In foreign/second language, research is divided into two main paradigms: qualitative research and quantitative one. Gunderson (2002) is cited in Daniel Muijis (2004) claim that quantitative research is to explain a phenomenon based on collecting numerical data which will be analyzed later on using statistics. Qualitative research on the other hand is an exploratory research which provides insights into the problem.

2.2.1. The Sample Population

The chosen informants of this research are EFL teachers and pupils. Due to the impossible work with the whole population of the fourth year, the sample consists of a randomly selected 30 teachers and 60 pupils from two different groups of the fourth year Mohamed Ratiaat Middle School in Tissemsilt.

The pupils involved in this study are fourth year learners of Mohamed Ratiaat middle school at tissemsilt. A number of 60 pupils from both genders that are randomly chosen from two groups to be deployed in answering an experimental test question to achieve the goal of knowing how mind mapping effects their writing technique and procedure. They are selected as being the level in middle school that is largely mindful with the concept of writing process.

In addition to the pupils, 30 teachers of both genders are selected in the process concerning answering a questionnaire question. The choice of these teachers was because they have already taught English writing in both ways, with and without the use of mind mapping in classrooms.

2.2.2. Research Method

This study aims at investigating the teacher's attitudes toward the use of mind mapping in enhancing the writing skills. Furthermore, evaluating pupil's writing with mind maps through performing a test experiment to define the deference between writing an essay with or without using a mind map sample. The research method used is a survey questionnaire for teachers and a test experiment for pupils of Middle school.

2.2.3. Data Collection Tools

In this research work, two instruments are employed to collect data needed for the investigation about the use of Mind Mapping to enhance the writing process in teaching and learning English language. To detect their opinions, the present work is developed through the use of a questionnaire for teachers and an experiment for middle school pupils.

2.2.3.1. The Pupils Experiment Procedure

The research investigation tool in this study is a test experiment given to the pupils of fourth year Mohamed Rataiat middle school in Tissemsilt, where the choice is to give a question to two different groups, 30 of each one, around two different topics of writing a paragraph concerning "Maqam Echahid" and "The Roman Ruins of Djemila". This process goes through multiple proceedings to discover the distinct between writing with or without the assistance of mind mapping.

2.2.3.2. Description of The Experiment

To carry out a qualitative study, the research requires to go through the following steps:

a- Pre-test:

The pretest is administered in the introductory session, Shiva (2017) said that pretests were given to participants before they started training as a tool to measure how much they already knew about the problem discussed in this study. In this research, pretest is held to check the participants' level in the writing process before the treatment period. The question consists in writing a small paragraph about a certain historical monument such as "Maqam Echahid" or as it is called "Martyrs Memorial". After negotiation, students of both groups become strongly motivated to take part in the experiment which aimed to see if the pupils are familiar enough with writing.

The participants were assessed on the following criterion; punctuation, capitalization, spelling mistakes, vocabulary, coherence and word choice. And each mistake minus point. 05 lessons were given for straight five weeks (one presence a week), each one dealt with a particular objective or criteria (how to teach punctuation, spelling, word choice, vocabulary and coherence with the use of mind mapping tool) in order to make the pupil's correct their writing mistakes and become familiar with the wider use of mind maps.

b- Treatment

After the pretest session, comes the treatment period, all the 60 papers are corrected in terms of the writing style on the previous criterion (punctuation, capitalization, spelling mistakes, vocabulary , coherence and word choice) as shown in the table 2.1 of scoring

scale below. The lessons were given in separated five hours, each one concentrates on a particular purpose to enhance the writing process. The lessons split into three phases from deferent groups in a time line of one hour, 15 minutes for an introductory activity, 30 minutes for the teacher explanation and presentation with the use of Mind Map techniques, and 15 minutes for an activity or a home workout in order to correct the mistakes of each criteria with the final objective of teaching the pupils how to write a correct and a coherent paragraph based on the use of mind mapping. The materials used in all activities are worksheets, mind mapping, tables of confusing words and brief guidelines.

c- Summarizing

Lesson one: Punctuation and Capitalization

This section aims to investigate the fourth year middle school pupil's writing skills in terms of punctuation and capitalization. The test was divided to three phases in a time duration of an hour, the first one is concerned with a warm up activity in 15 minutes by reviewing multiple signs such as full stop, comma, exclamation mark and question mark. Observing the use of sentences without punctuation or with mid placed marks and how meaning is controlled by punctuation. The second stage was done in 30 minutes, it regards to the teacher's presented examples through giving a detailed explanation to the marks used in the writing process. And the last point was a 15 minutes activity to show how to supply punctuation signs and capitals where necessary.

Lesson two: Vocabulary

The second lesson carry the objective of examine pupils vocabulary and how to develop it in their writing skills with the use of multiple activities such as worksheets, mind mapping and brief guidelines. The assignment was to complete a chart which contains three columns (noun/ verb/adjectives) where some words are written and other are missing. The test was contracted into three phases in total of an hour, 15 minutes for the introduction and warm up activity, 30 minutes for the teacher's examples and explanations with the use of mind maps to grasp the landmark vocabulary in order to develop the pupil's proficiency by not only learning the definition of words but also to make connection between words and their contexts. And finally, organizing a 15 minutes activity where the teacher divided the students into two groups to increase the learning motivation and joy in order that they give as much landmarks as possible with their explanations.

Lesson three: Coherence

The third lesson is done with the purpose of Generate logical and reasoned arguments revolving around a given topic, organize ideas systematically and coherently and draw links between ideas making, outlines and sound meaningful to readers. The materials used are Worksheets, outlines, mind maps and brief guidelines. The one hour timeline was separated to 15 minutes introduction and a warm up activity asking pupils to write an expository paragraph about a famous figure, a common event or a traditional celebration while the teacher checks incoherent pieces of writing and asks pupils to find the reasons of meaninglessness. 30 minutes example presented by the teacher where she presents separate sentences related to one topic, then organizes these sentences and link them up for structural flow. The teacher explains why one idea should be following another, the sense that ordering ideas is made through logic, and the linking words that is chains between every two sentences. And the last section was a 15 minutes activity where pupils follow an outline, a mind map, and teacher's guidelines to write a paragraph on an Algerian landmark or a historical place or event by following a logical and reasoned argument to substantiate any claim.

Lesson four: word Choice

The fourth section was concentrated on word choice, it carried the goal of enhancing accuracy in writing, avoid ambiguity, employ word choice in their writing with the use of precise, vivid sensory words and expand their repertoire of terms. The materials used are Worksheets, tables of confusing words and brief guidelines. Similarly to the previous lesson's time line, a 15 minutes was given to introduce a warm up activity on writing incomplete sentences on board and observing how pupils will fill in the gaps (The teacher suggest two options for each gap to make it easier for them to choose the right word or expression), asking them to write two different sentences for each pair of confusing or similar words (e.g.: hear / listen, look/see, build/construct, etc.), checking how accurate the pupils are in their writing, and how word choice reflects on meaning. 30 minutes were specified to teachers' presentation of mistaken sentences in order to minimize the fault in word class, agency choice (gerund, past participle), choice of tense and modality. At the end, 15 minutes activity for pupils to include what they learned in an exposition about famous Algerian landmark in a short paragraph.

Lesson five: Spelling

The fifth lesson was objected to learn how to spell words correctly. At first, the teacher introduced a 15 minutes activity to check the incorrect words and rewrite them correctly on the board by using mind mapping. Followed by a 30 minutes presentation on how pupils should connect the ideas when they write a paragraph. And finally giving 15 minutes for an activity to write a descriptive paragraph talking about a famous landmark, place or events with concentrating on the spelling mistakes.

d- Post-test:

The last phase of the experimental design was devoted to the post test, in which different topic is held and presented to the pupils of both groups with fact file hindering all information of the topic. The aim is to compare the effective writing style and techniques from the pretest papers and to conclude if the hypotheses that mind mapping is an effective developmental tool or the opposite. The correction of the test was undertaken using a template which facilitates the collection of the scores accurately (Table 2.1).

Table 2.1:

Scoring Scale of Writing Paragraphs

Major Items	Scoring scale	Qualitative scale
Punctuation and capitalization	0.5	Low
	1.0	Moderate
	2.0	High
Vocabulary	0.5	Low
	1.0	Moderate
	2.0	High
Coherence	0.5	Low
	1.0	Moderate
	2.0	High
Word choice	0.5	Low
	1.0	Moderate
	2.0	High

Spelling	0.5	Low
	1.0	Moderate
	2.0	High
TOTAL	10	Low Moderate High

2.2.3.3. Teacher's Questionnaire

For this investigation, the first instrument used is a questionnaire handed to a sample of English teachers in middle school to collect both qualitative and quantitative data about their perceptions toward the important of using mind map technique to enhance the writing process. Wilson and McLean (1994) state that a questionnaire is widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administrated without the presence of the researcher, and often being comparatively straightforward to analyze. (as cited in Cohen et al, 2011). According to Bulmer (2004) a good questionnaire design is crucial in order to generate data conducive to the goals of the research. The questionnaire is designed in a form of written questions then addressed to a sample population to be answered. It is a tool used in collecting data for most research works that could not be observed. In this research, it is addressed to 30 fourth year Middle School teachers to gather their perceptions about the use of mind mapping, and to see whether it facilitates and helps in the writing process.

2.2.3.3.1. Description of Teacher's Questionnaire

Noticeably, all questions are answered except for some open ended questions. The questionnaire uses many forms like close-ended questions and multiple-choice questions, it consists of 14 questions divided into three sections as follows:

a- Teachers General Information

Section one is a structured multiple choice question to obtain general information about the teacher's personal information. The first question sought to know the age range of the teachers from 20 to 40 years old. The second one is related to their seniority in a choice from 10 to 30 years. The last question demonstrates the teacher's to view their

obtained degrees to teach the English language from an old License degree, English Master, or diploma delivered by the Ecole Normale Supérieure.

b- Teachers' Attitude toward Writing Skills

The second section focuses on the satisfaction about the use of mind mapping in enhancing the writing skills. The fourth question requires the teachers to mention how they evaluate their current pupils level of writing. The fifth one concentrates on the spelling whether it is considered when evaluating the pupils writing. The next question is conducted to know the extent to which are pronunciation and capitalization important in evaluating their learners' writing process. The seventh question tries to rate if the correction depends on vocabulary and word choice, while question eight indicates the amount of dependence on coherence and cohesion in the paragraph or essay writing.

c- Teachers Attitudes toward Mind Mapping

This section is divided into two parts, the first one "A" consists of four question. Question nine proposes to teachers' feelings to denote whether the pupils lack the writing skills and what techniques and steps they need to improve from drafting, outlining, formal writing, brainstorming and stylistic features. Question ten and eleven are a mixed of open and close ended questions, the first one assert the answers view on the extent to what pupils use Mind Maps in their drafts. And the second carries the purpose of getting teachers attitudes toward the introduction of mind mapping while teaching pre-writing and drafting, the following is addressed to know if the educators encourage the use of mind maps.

The second part "B" in this section is a multiple choice question that requires from the respondents to mention if the technique of mind mapping benefits the learners in writing skills or no, and write them if there are any.

d-The Importance of Mind Mapping in Enhancing Writing

The third section was advocated to the importance of mind mapping in enhancing writing skills. It consists of two questions in a form of free answering to provide any insights related to the role mind mapping in improving pupils' writing skills, and a table aiming to identify the level of dis/agreement on the following statements:

Mind mapping helps visualize the whole essay layout, learners do not need mind mapping if they have knowledge and stylistic skills, mind mapping is a motivating and a memorization tool, mind mapping can hold very little information, the use of colors, images and keywords in mind mapping helps in enhancing your memory and retention, and finally, mind mapping help students to improve their writing skills by arranging and storing information.

2.2.4. Data Analysis

To analyze the data from the survey for obtaining better results, a mixed method approach is used. Thus, both qualitative and quantitative data analysis are collected and analyzed, besides the use of a test experimental to experience the use of Mind Mapping on two groups.

2.2.4.1. Qualitative Data Analysis

Qualitative analysis transforms data into findings (Patton, 2002). The quantitative analysis of the data collected from the questionnaire is given as an indicator of placing teachers into developmental use of mind mapping in enhancing writing skills.

Qualitative research method is a technique of studying phenomena by collecting and analyzing data in non numeric form, it focuses on exploring the topic of the study by finding as much detail as possible. Qualitative research focuses on meanings, perspectives and understandings, concerned with the processes that explain why and how things happen (Conner, 2015). This type of analysis was used in the survey questionnaire that was given to teachers in order to collect the appropriate data concerning how mind maps develop learner's writing skills.

2.2.4.2. Quantitative Data Analysis

The quantitative analysis of the data collected from the questionnaire is given as an indicator of placing students into developmental use of mind mapping. Helmold and Samara (2019, p 39) state: "Quantitative research methods are research methods dealing with numbers and anything that is measurable in a systematic way of investigation of phenomena and their relationships", this means that it is simply gathering information and collecting numerical data so that can be measured and generalize results to wider populations.

The results of quantitative research are considered to be reliable only if they are replicable, this means that the same results must be produced if the research is repeated using the same techniques. In this research, both qualitative and quantitative data analysis are used through the implication of survey questionnaire to the teachers of Middle School, and a test experiment to their pupils in order to gather information concerning the writing process enhancement through Mind Maps.

2.2.4.3. The Experiment Data

Experimental research is a study that strictly adheres to a scientific research design, it includes a hypothesis, a variable that can be manipulated by the researcher, and variables that can be measured, calculated and compared (Harland, nd). Most importantly, this research is completed in a controlled environment, the researcher collects data and results will either support or reject the hypothesis. This method is referred to a hypothesis testing or a deductive research method (Babbie, 1998).

This experiment in this research study aim to explore the relationship between explicit use of mind mapping technique and writing abilities of Middle School pupils. The effect on learners' quality of the writing process. There is hypothesis that using Mind mapping enhances their written performances. There are different types of experimental research and one of the most significantly evolves successful data collection is a test, which is the most important instrument as Richard (1985) stated that is procedures for measuring ability, knowledge, or performance of individual. In this case, a test is conducted with fourth year middle school pupils with the need of analyzing clear influence. To qualify this need, the research adopts the rubric of aderson (2003) which focuses on correcting the test from the EFL Middle School. This type is chosen because it is the most practical type of assessment.

2.3. Research Validity

Validity is the highest objective that any researcher wants to achieve when conducting a research. It refers to the accurateness of the work and the extent to which the scores from a measure represents the variables they are intended to. Validity can be seen as the score of any form of assessment that is trustworthy and accurate (Bond, 2003, p 179). The instruments used in the study are stable and accurate with consistent measurements (

the questionnaire and the test experiment), the study is valid and reliable because the same information were collected more than once using one particular tool in similar conditions.

Borsboom Mellenbergh and Van Heerden (2004, p 161) have a different take on validity not agreeing with Massick's (1989, p 6) statement that it always refers to the degree to which empirical evidences and theoretical rationals support the edequacy and appropriateness of interpretations and actions based on test scores, validity can not be adequately summarized by a numerical value but rather as a "matter of degree", as stated by Linn and Gronlund (2000, p 75), the validity of assessment results can be seen as high, medium and low, or ranging from weak to strong.

2.4. Research Reliability

The second element is reliability which refers to the extent to which test scores are free of measurement errors where the writing is evaluated based on detailed grades for elements of writing such as vocabulary, grammar and word choice. In this research, the analytical scoring is used. The analytical scoring is one of many types of rating scales in measuring writing, its scripts are rated on several aspects of writing or criteria than given a single score (Buzan,T, 1993).

2.5. Conclusion

To sum up all what have been discussed, this chapter confirmed a general view of the research design of the study. Namely pupil's experiment and presenting teachers questionnaire to check their opinions and perceptions about the use of mind mapping in the enhancement of the writing paragraphs. It describes the research instruments, the participants , data collection and analysis methods used. Besides characterizing research validity and reliability.

Thus, on the basis of the results obtained, the next chapter will be devoted to give some suggestions and recommendations which can interest both students and teachers in using mind mapping to develop the paragraph writing at the level of fourth year Middle School.

Chapter Three

Data analysis and Recommendations

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3.1. Introduction

This chapter is needed to present the interpretation of the results and the discussions of the main study findings obtained from the tools in relation to the already raised problematic and hypotheses. It has been stated before that in collecting the needed data concerning the importance of using mind maps in the improvement of the writing process of the fourth year middle school students. Two methods were used, which are a questionnaire and a test experiment that were analyzed quantitatively and qualitatively. After collecting the data, the results were formulating based on what is obtained from the instruments in order to answer the research questions.

3.2. Data Analysis

After collecting data from the responses provided by the informants including fourth year EFL pupils and some teachers through the two research instruments; a questionnaire and a test experiment, the attempt now is to analyze this data that covered all the previous questions from the instruments used qualitatively and quantitatively.

3.2.1. The Analysis of Teachers' Questionnaire

The questionnaire in this study is addressed to 30 teachers of fourth year Middle School English educators, with the purpose of knowing their point of view about the integration of Mind Mapping in EFL learning process to enhance writing skills. As it was mentioned in the previous chapter, the questions through which data collected were designed out of both open-ended and close-ended; each according to what exactly was called for. The data were described through statistics and percentages in shapes of tables and graphs, the instructors were asked about their personal opinion about mind maps implementation in education where the majority of them affirmed that it was a very important tool to provide different ways of writing and the attainment level.

3.2.1.1. Teachers' Profile

The purpose of the first section of the questionnaire was to teachers' general information from their age range to the seniority. This part also includes a question that aim at demonstrating the kind of teaching degree every teacher hold. The aim was to investigate the educator's age range from 20 to 50 years old. It was noticed that the majority of teachers choose the age from 20 to 30 years old in a percentage of 67%

whereas 13% are from 31 to 40, and 17% between 41 to 50 years old as it is shown in (graph 3.1). Therefore, it is understood that almost all teachers are senior and had over 20 years of teaching.

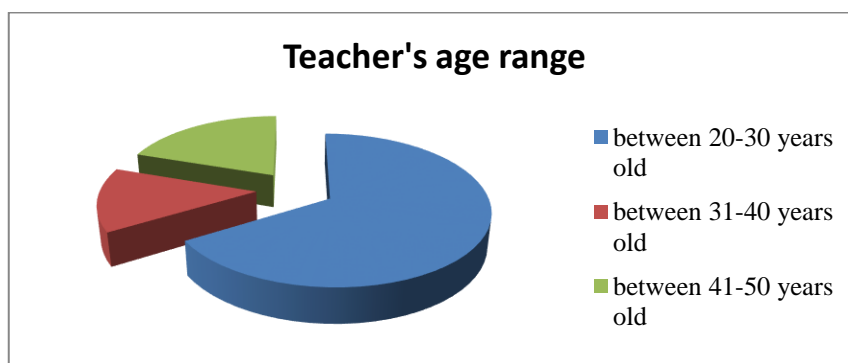


Figure3.1 *Teacher's age range*

The second question tried to mark their experience in teaching, the data showed that 73% the majority of the questioned teachers have been teaching English for 10 to 20 years; and the rest 27% of them have been tutoring it for 20 to 30 years. The third question concentrated on the objective of knowing teacher's certifications in education, half of them answered with having the English master degree whereas 09 teachers representing 30% stated that they carried an old license degree and the rest in total of 20% answered with the choice of an ENS Diploma.

Therefore, from the graph above, it can be understood that the obtained results implied that teachers' experience was to some extent reliable in the analysis of this questionnaire. This section reveals that the majority of educators have been teaching English for over than 10 years which makes them seniority teachers that taught the English language from the beginning of their careers in educating. Besides that, half of the respondents are Master degree holders who are ideal, capable and responsible teachers.

3.2.1.2. Writing Skills

The first question in this section (writing skills) evaluated the current pupils' level of writing that gathered their views toward the appropriate ways in developing the writing capacity. When they were asked to indicate their way of evaluating the current pupils' level of writing, more than half of the respondents in total of "16" representing "53%" selected the answer which is that their pupils are standard and satisfying with regards to their scale of writing. 20% informants say that the writing skill of their learners

are less than moderate. Another 14% selected the last choice that it is poor, and only 03 representing the percentage of 10% saw that the level was good, and the others left did not answer this particular question as it is shown in the (figure 3.2).

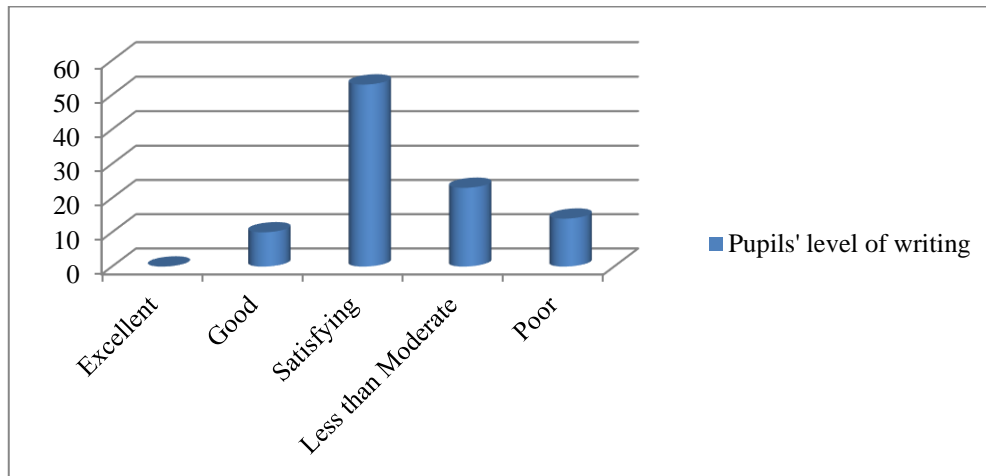


Figure 3.2 Pupils' level of writing

From the previous answers, it can be understood that the teachers had specific techniques in detecting their pupils' effective writing skills which led to conclude that most of the informants agreed on the satisfaction of the pupils writing skills. While the rest small group of educators found it good or less than moderate whereas nobody considers it excellent.

3.2.1.3. Writing without Mind Mapping Strategy

The questions in this section from 2 to 4 composed of choice selecting questions, it was required to identify the extent to which teachers consider the effectiveness of spelling, punctuation and capitalization, vocabulary and word choice, coherence and cohesion in evaluating pupils' writing skills as shown in table 3.1 below.

Table3.1.***Teachers' writing performance evaluation***

Writing performance evaluation	To a great extent	To a good extent	moderately	To a less extent
Spelling	07 23%	15 50%	08 27%	00 00%
Punctuation and capitalization	09 30%	13 43%	05 17%	02 07%
Vocabulary and word choice	02 07%	18 60%	08 27%	03 10%
Coherence and cohesion	03 10%	16 53%	08 27%	03 10%

As the tabulated results above show, teachers seem to focus on multiple answers in common to writing performance evaluating. Concerning spelling, half of the respondents representing “50%” see that evaluating this writing skill was to a “good extent”. Whereas not a single educator thinks that it is to a “less extent”. For the second option, 13 teachers in total of 43% considered punctuation and capitalization were “to a good extent” when they are correcting the learners’ paragraphs of essays. While only two informants believed that it was to a less extent symbolizing 07%. When it came to vocabulary and word choice, these two aspects were rated important when evaluating the written capacities, which meant that the majority of the teachers representing “60%” agreed on being necessary to a “good extent”. While only 10% viewed it as a “less extent” proficient. The last option was given to coherence and cohesion, the majority of the teachers in total of “53%” answered that when evaluating writing, these elements were to a “good extent” highly focused on, and 27% moderately centered. In the other hand, only 10% indicate that cohesion and coherence are to a “less extent” valued.

Therefore, it is concluded that most teachers encountered common evaluations in terms of spelling, punctuation and capitalization, vocabulary and word choice, coherence and cohesion, the majority of the respondents considered that these capacities are concentrated on to a “good extent” as being the main skills in effective writing.

3.2.1.4. Teaching Writing through Mind Mapping

Question five and six were conducted with the purpose of investigating from the teachers if pupils faced any obstacles in writing process that needed to be improved in terms of drafting, outlining, formal writing, stylistic features and brainstorming, and the extent to which pupils used it in their drafts. These choices were given to the teachers in order to gather information from their experiences. Their responses were illustrated in the following graph.

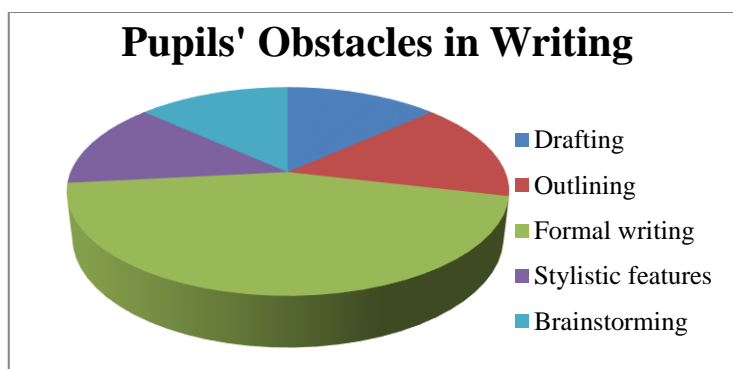


Figure 3.3 *Pupils' obstacles in writing*

The majority of the respondents in total of “67%” saw that pupils lack formal writing the most, while 06 teachers representing 20% selected the drafting issues and the same amount of answers for both stylistic features and brainstorming. In the other hand, 23% of the questioned teachers agreed on that learners lacked the technique of outlining rather than the rest of the points. In terms of the “extent to which” teachers saw if their pupils used these techniques in their drafts, the answers were; half of the informants “50%” affirmed that it was rare to use them in drafts while 05 say that it was often, 20% selected never, and only one single teacher replied with yes to the “extent that it was necessary” to use in every written expression class.

Therefore, it was noticed that most of the teachers felt equally towards that the main problem was the formal writing that pupil find difficult to manage. Thus, the majority of them detected that the pupils rarely used these techniques in their drafts.

Concerning questions eight and nine, the teachers were supposed to explain whether they introduced and encouraged their pupils to use the mind mapping technique in general writing or specifically when teaching pre-writing and drafting. Thus, the results obtained demonstrated that half of the teachers in total of “50%” believed that it was often used while teaching both pre-writing and drafting, while the remaining half had different answers. Mainly 23% used it always in teaching writing, precisely they proceeded it through explaining the subject they were supposed to write about and let them tried writing, using flash cards, videos and whole class discussion. Besides signing drafting a mind mapping in which best fit learner’s needs and levels.

In terms of encouraging their pupils to implement the method of mind mapping, even though ten teachers did not support the learners to use it, the majority of the respondents representing “67%” agreed on the yes-answer that it was very helpful to integrate the mind mapping procedure to enhance and develop their writing skills. Therefore, it is concluded from the results that most of the educators had a positive attitude toward the support in employing mind maps in their writing skill’s development.

3.2.1.5. Advantages of Mind Mapping in Teaching Writing

Question 10 is a multiple choice option that was conducted with the objective of knowing the informants point of views towards if mind mapping carried any benefits to develop the learners’ writing skills. When asking the teachers about it, almost half of the responds in total of “43%” think it was *somehow* important in enhancing the skills of writing and 40% answered with the first choice, that mind maps greatly assisted the process. In the other hand, four teachers representing 13% indicated that it was a little bit helpful, however, only one respondent replied with having a negative position towards incorporating mind mapping to promote writing capacities as it is shown in (figure3.4).

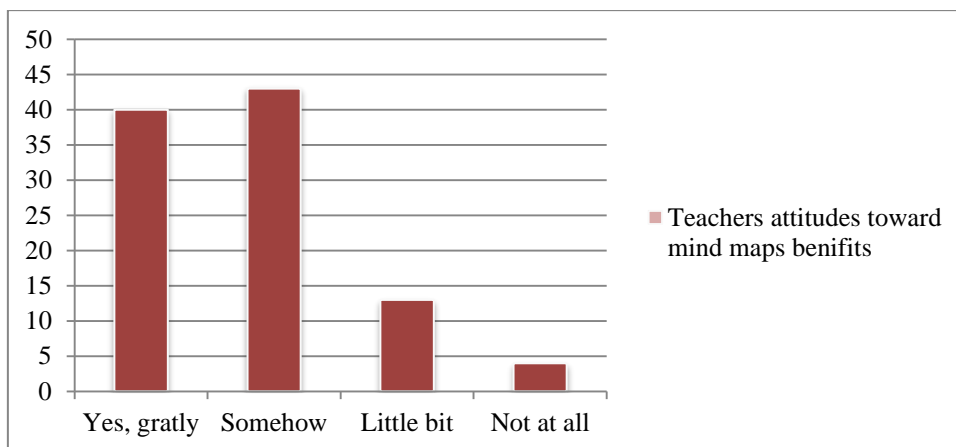


Figure 3.4 *Teachers' attitudes toward mind maps benefits*

Therefore, it was understood from the figure results that the majority of the requested educators saw that applying the mind mapping techniques could be *somehow* a great method to enhance the writing process for easier and better results.

3.2.1.6. Teachers Attitudes towards Mind Mapping

The question was a multiple choice question that aims at identifying the teachers' level of dis/agreements on a given statements. The results are shown in the table below;

Table3.2

Teachers level of dis/agreements

statements	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Mind mapping helps visualize the whole essay layout	15 20%	11 37%	03 10%	01 03%	00 00%
Learners do not need mind-mapping if they have knowledge and stylistic skills	03 10%	09 30%	05 17%	11 37%	02 07%
Mind mapping is a motivating and a memorization tool	15 50%	12 40%	03 10%	00 00%	00 00%
Mind Mapping can hold very	02	04	07	13	04

little information	07%	13%	23%	43%	13%
The use of colors, images and keywords in mind mapping helps in enhancing your memory and retention	09	08	03	00	00
	63%	27%	10%	00%	00%
Mind Mapping help students to improve their writing skills by arranging and storing information	14	06	07	00	00
	47%	30%	23%	00%	00%

As the table of results showed, it is concluded that, when asking the teachers whether they agreed that mind mapping helped visualize the whole essay layout, the majority of the respondents representing “37%” agreed and 20% *strongly agreed* while none of the respondents *disagreed* on the statement. For the second option, 37% of the informants *disagreed* and only two teachers in total of 07% *strongly disagreed* that Learners did not need mind-mapping if they had knowledge and stylistic skills. 15 educators out of 30 representing 50% *strongly agreed* that Mind mapping was a motivating and a memorization tool. While not a single teacher had a negative attitude toward mind maps being a helpful tool. In other hand, 43% saw that Mind Mapping could hold very little information. Another given option was that the use of colors, images and keywords in mind mapping helped in enhancing the pupils’ memory and retention, for this statement, almost all informants *strongly agreed* in total of 63% while the others chose to remain *neutral*. For the last proposed option, the answers were positive, 47% *strongly agreed* and 30% *agreed* however, the rest intended to be *neutral* on that Mind Mapping helped students to improve their writing skills by arranging and storing information. Therefore, the illustrated results above demonstrated that almost all teachers supported the integration of mind mapping to increase memory, retention and improved writing skills.

This last question was added to the addressed questions for the purpose of giving them the chance to improve their point of views by listing what they thought best of mind map technique and provided any insights related to the role of mind mapping in improving pupil writing skills. 09 of the respondents found no adequate suggestions but the rest mentioned some propositions which were:

- It is a little bit time consuming
- Mind mapping helped students think in English
- It helped exchange learner's tasks interchangeably
- It helps students memorizing and fixing information easily, it was one of the important motivating factors that encourages learners to develop their writing skills
- Mind mapping helped in improving students competence and build their interest in writing better
- Mind maps were an effective means to take notes and brainstorm paragraph topics

Thus, at the end of the answers, it is concluded that most of the teachers gave their point of views positively and supported the usage and the high importance integration of mind mapping technique in order to attain and develop learners' writing capacities.

3.2.2. The Analysis of Pupils' Experiment

This section is devoted to analyzing the pre-test and post-test controlled by the researcher with reference to the treatments handled during this experimental study. First, the results of the pre-test were presented. Then, some comments were added on the teaching phase procedure. Finally, the results of the post-test were provided with the analysis of the improvement /progress rate measured after the pre-test.

3.2.2.1. Pre-test Results

The first phase of this experiment was conducted through a writing test. The scores are demonstrated below, yet not by individual participant. Each tested item is scored out of 2 points, thus, the total scoring scale for all participants is 60. The table also demonstrated the percentages of marks and the mean of scores. The average of the counted marks by all participants is marked with percentages. Besides, the mean represented the average mark per individual; that is, the total amount of marks divided by the total number of participants.

Table 3.3.*Item-based Scores of Pre-test*

Tested items	Total (/60)	Percentage	Mean
Spelling	12.75	21.25%	0.425
Vocabulary	13.5	22.5%	0.45
Word Choice	13	21.66%	0.433
Punctuation and Capitalization	13.5	22.5%	0.45
Coherence	12.25	20.80%	0.408

The results of the test provided that all items did not reach one-quarter the mark/ the average. To explain, the highest means noted went for both ‘vocabulary’ and ‘punctuation’ with a rate of 0.45 and a total amount of 13.5 marks. Besides, lowers mean were recorded in the items of ‘word choice’ and ‘spelling’ with 0.433 and 0.425 respectively. Remarkably, the participants’ writing was not to a good extent coherent, for that they received the lowest averages in the coherence item with a rate of 0.408.

Table 3.4.*Total Score of Pre-test*

Pretest score	Total Marks
N (out of 300)	65
Percentage	21.66%
Mean (/30)	2.166

Moreover, if the total marks were counted, 65 out of 300 was found. As table 2 shows, participants in general reached the mean of 2.166 out of the full mark per individual (10). This denoted the low writing level of participants either in terms of the selected items or as a whole.

3.2.2.2. Treatments

Based on the pre-test results, the researcher selected certain lessons to be planned and taught to the experimental group. As previously explained in the second chapter, the aim of treating the participants with these lessons was to prepare them for a second test. Mind-mapping was implicitly and explicitly instructed by the teacher. The students' on-going progress was measured summatively and formatively by in-class activities and homework. Using the same scoring scale and items, the researcher consistently prepared for a post-test after five weeks.

Some remarks were taken from the pre-test and the teaching phase. For instance, participants showed a sense of interest in the topic regardless of their readiness to write. Further, the majority of their errors were referred to basic items like spelling and vocabulary. The teaching process could encourage the participants to be more productive in writing as they used to receive lectures related to all skills not only writing. Overall, the post-test witnessed a higher sense of readiness despite the changes at the level of the topic.

3.2.2.3. Post-test Results

Based on the pre-test results, the researcher selected certain lessons to be planned and taught to the experimental group.

Table 3.5.

Item-based Scores of Post-test

Tested items	Total (/60)	Regression	Percentage	Mean
Spelling	41.75	-1.825	69.58%	1.391
Vocabulary	42.5	-1.75	70.83%	1.416
Word Choice	44	-1.6	73.33%	1.466
Punctuation and Capitalization	50.25	-0.975	83.75%	1.675
Coherence	54.75	-0.525	91.25%	1.825

The overall scores noted that an improvement in the writing process had been marked. By looking at each item alone, the increase in the rates of marks was confirmed. In this test, a regression measurement is added in order to show the amount of marks that make the difference with the full mark (60). It was a minus-counted operation of one-tenth the value to the full mark. The highest mean was represented in the item of ‘coherence’ with 1.825. That illustrates only -0.525 regression rate for the highest performance. The more regression is noted, the less mean of marks is counted per participant.

With a more increase rate, the participants’ writing in the post-test demonstrated a mean of 1.466 in the item of ‘word choice. This could be linked to scoring in vocabulary as both items are interrelated. Similarly yet with a slight increase, the item of vocabulary received a mean of 1.416 with a regression of -1.75. As for the spelling, a mean of 1.391 was measured from a total of 41.75 marks (out of 60). This means that the percentage of an average participant spelling score was over the half. However, with a regression of -1.825, spelling received the lowest mean in comparison with the other items. After all, the item-based and the overall scoring had passed the half in marks (30), and eventually the average mean (1.0).

Table 3.6.

Total Score of Post-test

	Total Marks
N (out of 300)	233.25
Percentage	77.75%
Mean (/30)	7.775

In a measured total of 300 marks, it was found that the experimental group reached a total performance of 233.25. With a mean average of each participant 7.775 (out of 10), the post-test results had passed three-quarters of the full mark per individual. Also, there were no considerable differences between the average of item-based scores and the total post-test scores.

Table 3.7.*Comparison of Pre-test and Post-test Item-based Scores*

Tested items	Pre-test	Post-test	Paired differences
Spelling	0.425	1.391	0.966
Vocabulary	0.45	1.416	0.966
Word Choice	0.433	1.466	1.033
Punctuation and Capitalization	0.45	1.675	1.225
Coherence	0.408	1.825	1.417

At the level of each of -and all- the items, there was almost a paired difference of 1 point. Specifically, the higher paired difference is the more apparent the improvement is. Starting with the least difference marked in both spelling and vocabulary items with 0.966. That is, an increase rate of marks by all participants in both spelling and vocabulary was 28.98. Moreover, a moderate increase compared to the previous items was demonstrated in the word choice with a difference of 1.033. Punctuation and capitalization were in both pre-test and post-test scores with considerably high mean levels. Yet, the difference noted here is 1.225 which is a 36.75 total increase of marks by all participants. As it was with the highest post-test average, the item of coherence marked the highest paired difference of 1.417. This can be explained by the fact of receiving the least number of marks and scoring the worst mean in the pre-test. The figure below demonstrates graphically the differences (by means) between the pre-test and post-test scores at the level of each tested item.

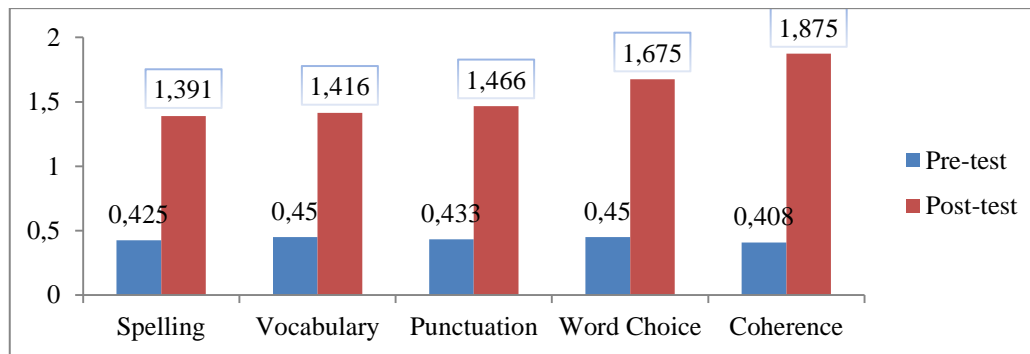


Figure3.5. Comparison of the Pre-test and Post-test Scores' Means

Indeed, it seemed hard to differentiate between the highest and lowest scores by items in the pre-test. Yet, the figure clearly provides a demonstration of the increase level with the slight differences among the items in the post-test. The item of 'coherence' is different from the other items in terms of difficulty of measurement and evaluation. However, it reached the lowest mean in the pre-test and the highest one in the post-test. Other items could make a difference either in the tests or among one another in the same test.

By comparing the total averages of marks per individual in the pre-test and the post-test, a mean of 2.166 was found, which is less than $\frac{1}{4}$ (2.5 out of 10), and a mean of 7.775, which is more than $\frac{3}{4}$ (7.5 out of 10). Thus, a difference of 5.609 (56.09%) was noted as an increase average mark per individual by the end of the experiment. Since the scoring scale and the selected items were kept as they are for both tests, the correlations and deviations related to the participant-based scores were not considered.

3.3. Discussion of the Results

Based on the analysis of this data that was conducted to set out an overall understanding of the concept of mind maps and tried to find out to what extent this factor influences EFL learners writing abilities. This section attempts to provide a discussion of the main results acquired throughout the different research tools over this study in accordance to the proposed hypotheses previously mentioned.

The results demonstrated that the majority of the respondents indicated that the application of mind mapping technique in the lectures of essay writing has improved the pupils' scores in organizing and enhanced their skills. Its implementation improved their creativity and entertainment which made note taking extremely easier and simple to gather

and conduct the essay. Most of the teachers questioned were senior in the process of teaching writing and the use of multiple useful techniques mainly the mind mapping. In this case the teacher is a role model in the class because the success and the failure of this process depended on their effort in delivering the concept of mind mapping. This concerned with teachers familiarity in integrating mind mapping technique in writing sessions, and for that reason the first hypothesis was confirmed which is that generally, teachers use multiple useful techniques mainly the mind mapping in writing lectures.

When it came to teachers writing correction and evaluation, the informants had different aspects to focus on while evaluation including spelling, punctuation and capitalization, vocabulary and word choice, coherence and cohesion. It was seen that the majority of teachers focused on not only choosing one option but multiple answers in common to writing performance evaluation. These capacities were considered as the main formulation of writing style that leads to a great enhancement in the process of effective writing.

The greater part of the informants had a positive attitudes on the mind mapping technique, thus, according to them it helped visualize the whole essay layout, considered as a motivational and a memorization tool and can hold a great amount of information. Besides, the use of colors, images and keywords in mind mapping encourages the enhancement of organizing, arranging, storing information and retention, and that confirmed the second hypothesis which says that teachers have positive attitudes toward supporting learners to use mind maps in writing.

When it comes to teachers point of views in mentioning what they think best of mind map procedure and provide any insights related to its role in improving pupils writing performances, many propositions were given. The informants generally saw that mind map is a little bit time consuming. However, it stimulates the students thinking potentials and the exchange of tasks interchangeably, it served as a tool to assess students' degree of comprehension for the topic being taught, besides being one of the most important motivating factors to improve students' competence, performance and build their interest in a better writing, and that confirmed the third hypothesis which is that Mind mapping is one of the most important factors in building their interest in a better writing performance.

Based on the test experiment, it was found that explicit instruction of mind mapping could help EFL learners improve their argumentative writing performance, especially on

contents and organization. In the process of drawing mind maps, learners got access to opportunities of activating their prior knowledge and experiences, establishing connections between different ideas, and organizing this information into a coherent whole.

In this study, correlation is found between the application of mind mapping and the improvement of language use in writing. Thus, the improvement of learners' use of language through mind mapping is obvious. In the experiment, it was revealed that participants in the experimental group showed a positive attitude towards the application of mind mapping at the post-writing stage, which was regarded as a useful tool for them to generate ideas and organize the content. Mind maps may raise learners' interest in English writing and learners began to regain confidence in English writing tasks.

While it is also found that there were some difficulties in using mind maps, some students reported that sometimes they had to spend more time drawing mind maps in planning before writing and they did not have enough time for completing the following writing task. This might be due to the fact that the participants are not skillful in using mind maps in planning.

3.4. Suggestion and Recommendations

The use of mind mapping technique was proved to be crucial for teaching and learning process. Therefore, adopting such technique in EFL classrooms should be taken into account. Both students and teachers would find it an inspired method to maintain stimulation and concentration during the lesson, its use was not only restricted to writing capacities, but also for further uses such as: memorizing, revising for the exams and presentations.

The students should be familiar with the idea of making mind maps and encouraged to use this skill for further writing activities, that often improved the clarity and organization of learners texts. Further research could be conducted to examine the effects of using mind mapping technique on other aspects of language such as reading.

It is recommended that educators use Mind Mapping for lesson planning could help teachers or trainers identify a logical plan or teaching route and increases recall of the subject matter since it was easy to use and involved no cost. This can boost teaching confidence and facilitate the smooth running of programs.

It is recommended to use mind maps in brainstorming and generating discussions. This will encourage students to participate but also to fully understand a topic and its nuances by creating connections between ideas.

Mind Maps should be embraced in the realm of education as a learning tool which helps students reinforce knowledge by making connections between different areas and delving in-depth into an area. It facilitates the learners' presentations where it acts as visual information providers and encourages the audience to engage with the material that is being presented.

Having different colored branches on the Mind Map will help to differentiate the different themes, topics and ideas and the colors are used to classify, It is an element of fun and it makes learning more enjoyable and also induces thinking activity.

Mind Mapping emphasizes visual imagery so, to get the best out of the technique, it is highly recommended that one add fun and descriptive pictures, drawings, symbols and doodles to the Mind Maps due to its stimulation of the brains' visualizing capacity.

3.5. Research Limitations

Nothing is perfect, and so does this research which contained many pitfalls that may drive to mislead some conclusions from the results. Among these, it was very challenging in terms of the sample to get both teachers' and pupils' responses for several reasons. Some obstacles were faced concerning the availability of references in libraries of Mostaganem Universities. Even though forty questionnaires were delivered, only thirty gave the responded copies. In addition to that the methodology could have gained more depth in information if it included a classroom observation which could have enriched this study which was not really available because of lack of time and system distant grouping education. Other limitations were encountered such as the lack of time to conduct the experiment, students' absences and carelessness.

3.6. Conclusion

As a summary of this chapter it can be said that through this part, the study tried to present the results obtained from the two used tools which were a questionnaire and a test experiment. After that, the findings that integrating mind mapping technique in writing skills carried a high level of enhancement in the pupils writing capacities, where the focus

was on the research questions and hypotheses which aimed at knowing the teachers attitudes towards encouraging to apply mind maps in lectures of writing and whether it increases the pupils performances. Finally, this chapter was closed with some suggestions, recommendations and limitations about the use of mind mapping to enhance writing skills, where it is seen that the majority of educators support its integration in the learning process.

General Conclusion

General Conclusion

English has been selected as one of the main foreign language to be taught nowadays. However, its results still unsatisfying and the failure is due to various factors mainly in the learners writing capacities. In this case, teachers improved it through multiple techniques and tools focused on the mind mapping method to increase learner's interest in developing and solving their writing obstacles from different criteria including vocabulary, punctuation, capitalization, word choice, coherence and cohesion. Mind maps helps students to organize their ideas into a good writing with the aid of using pictures, graphics and colors. On this basis, the research problem that was addressed was on the extent to which mind mapping method improve the pupils' writing ability in terms of performance and the criteria mentioned before, besides knowing teachers' attitudes towards encouragement of integrating this method in EFL writing lectures.

Taking the role of mind maps in the field of EFL education as a medium for a successful journey of writing skills, this lead to hypothesize that teachers were familiar with the implementation of this tool in lessons of writing.

The research work started with an overview and definition of what other researchers said and thought about the term of mind mapping and its correlation to writing skills in EFL education, besides mentioning some of the challenges encountered in merging it, impact and attitudes of the teachers towards implementing its use in teaching writing. And this is revealed in the first introductory chapter whereas the collection, analysis of the information and the results got from this work are presented in tables and graphs in chapters two/three. In order to fulfill the research paper and improve it, the mixed method and experimental phase were used to elicit data including both a questionnaire for teachers and a test experiment for pupils. Representing the application of quantitative and qualitative data analysis for samples that have been randomly chosen. The latter are addressed mainly to fourth year EFL middle school in Tissemsilt.

Through the previously mentioned instruments, data gave positive results. The findings of this study, based on the view points of the participants, prove that research hypotheses are true. Concerning the first hypothesis which is the familiarity of teachers toward mind maps, it is confirmed that a great number of teachers believe that the application of mind mapping technique in the lectures is necessary as it is observed. For the second hypotheses that mind maps improved students performances, it is confirmed

through test experiment that integrating mind map technique in essay writing has improved the pupils' scores in organizing and enhanced their skills, its implementation improved their creativity and entertainment which made note taking extremely easier and simple to gather and conduct the essay that improves pupils weaknesses in writing performances. According to the third hypotheses, the mind mapping use in writing skills leads to a great positive impact on pupils outcomes and performances, the teachers observe that it helped visualize the whole essay layout, considered as a motivational and a memorization tool and can hold a great amount of information. Besides, the use of colors, images and keywords in mind mapping encourages the enhancement of organizing, arranging, storing information and retention.

It is resulted that mind map is a little bit time consuming. However, it stimulates the students thinking potentials and the exchange of tasks interchangeably, It served as a tool to assess students' degree of comprehension for the topic being taught, besides being one of the most important motivating factors to improve students' competence, performance and build their interest in a better writing. In this study, in text experiments, correlation is found between the application of mind mapping and the improvement of language use in writing. Thus, the improvement of learners' use of language through mind mapping is obvious. Some limitations were found in the process of gathering data of this research work, most significantly some obstacles were faced concerning the availability of references in the library of Mostaganem University, lack of time and system distant grouping education.

Ultimately, the results achieved in this work are not definitive; they can be developed in the future to answer other problematic. Consequently, some recommendations and suggestions are directed to the teachers and learners for the incorporation of mind mapping tool to help them overcome the various challenges related to writing skills in the field of education, the study gives some of the recommendations for educators and learners such as that educators use Mind Mapping for lesson planning could help teachers or trainers identify a logical plan or teaching route and increases recall of the subject matter since it was easy to use and involved no cost. This can boost teaching confidence and facilitate the smooth running of programs. It is recommended to use mind maps in brainstorming and generating discussions. This will encourage students to participate but also to fully understand a topic and its nuances by creating connections between ideas. Mind Maps should be embraced in the realm of education as a learning tool which helps students

reinforce knowledge by making connections between different areas and delving in-depth into an area. It facilitates the learners' presentations where it acts as visual information providers and encourages the audience to engage with the material that is being presented.

The results of this research study also can be used as an additional reference or further research with different discussion for other teachers. It is concluded that that mind mapping technique is a significant tool that boosts learners to improve their writing capacities as it shows a great progress in essay writing in all terms of vocabulary, punctuation and capitalization, word choice, coherence and cohesion. It is suggested for further works that mind maps could be held as one of the school modules due to its high level of performance resulted in multiple research studies.

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Appendices

Appendix A: Teachers' Questionnaire

Dear Teachers,

The following questionnaire is a part of a research study conducted in Mohamed Rataiat Middle School in Tissemsilt. It is about mind mapping . you are kindly requested to answer the following questions and your answers will be of great value to our investigation:

Section One: General Information

Q1 Choose your age range .

a-between 20-30 years old **b**-between 31-40 years old. **c**-between 41-50 years old

Q2 How long have you been teaching?

a-between 10-20 years **b**-between 20-30 years

Q3 Choose your teaching degree from options provided

a-Old Licence degree **b**-English Master. **c**-ENS
Diploma

d- Other.....

Section Two: Writing Skills

Q1 How do you evaluate your current pupil's level of writing?

a-Excellent **b**-Good **c**-Satisfying **d**-Less than Moderate
e-poor

Q2 Do you consider spelling when evaluating your pupil's writing ?

a-to a great extent **b-** to a good extent **c-** moderately
d- to a less extent

Q3 To what extent are punctuation and capitalization important in evaluating your pupil's writing?

a-to a great extent. **b-**to a good extent **c-**moderately **d-**to a less extent

Q4 Does your correction depend on vocabulary and word choice when evaluating your pupil's writing?

a-to a great extent **b-**to a good extent **c-**moderately **d-**to a less extent

Q5 To what extent do you depend on coherence and cohesion when evaluating your pupil's writing?

a-to a great extent **b-**to a good extent **c-**moderately **d-**to a less extent

Section three: Mind Mapping.

A

Q6.What techniques / steps do they lack the most to improve?

a-Drafting **b-**Outlining **c-**Formal writing **d-**Stylistic features
e-Brainstorming

Other:

Q7 To what extent do your pupils use these techniques in their drafts ?

a-Yes always **b-**Often **c-**Rarely **d-**Never

If yes, to what extent?

.....

Q8 Do you introduce Mind Mapping while teaching pre-writing and drafting ?

a-Yes always **b-**often **c-** Rarely **d-** never

If yes , would you precise how do you proceed ?

Q9 Do you teach / encourage your pupils to use mind mapping?**a-**Yes. **b-**

No

B: advantages of Mind mapping in teaching writing

Q10 Does mind mapping benefit your learners in writing skills ?

a-Yes greatly **b-**Some how **c-** Little bit **d-** Not at all

e- Others

Section Four : The Importance of Mind-mapping in enhancing writing

Q1Identify your level of dis/agreement on the following statements:

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Mind mapping helps visualize the whole essay layout					
Learners do not need mind-mapping if they have knowledge and stylistic skills					
Mind mapping is a motivating and a memorization tool					
Mind Mapping can hold very little information					
The use of colors, images and keywords in mind mapping helps in enhancing your memory and retention					
Mind Mapping help students to improve their writing skills by arranging and storing information					

Q2 Feel free to provide us with any insights related to the role of mind mapping in improving pupil's writing skills :

.....

Thank you for your cooperation!

Appendix C: Lessons of the Treatment

Lesson Plan

<i>Title</i>	Writing Techniques
<i>Subject</i>	Punctuation and capitalization
<i>Teacher</i>	Adjout k
<i>Grade level</i>	4 MS
<i>Time duration</i>	1 hour
<i>Unit</i>	Sequence one :me , universal landmarks and outstanding figures in history, arts and literature.
<i>School book</i>	My book of English
<i>Objective</i>	By the end of the lesson, pupils will be able to: 1) use punctuation and capitalization property . 2) to make the pupils remember the rule .
<i>Materials</i>	Worksheets, outlines, mind maps, brief guidelines.
<i>Content</i> <i>+(Activities and procedures)</i>	<p>Introduction + Warm-Up + Activity (15 Minutes)</p> <p>Reviews with the learners punctuation and capitalization signs (full stop, comma, exclamation mark and question mark) Using sentences without punctuation or with mid placed marks , students attempt to check how meaning is controlled by punctuation</p> <p>Example presented by the teacher (30 Minutes)</p> <ul style="list-style-type: none"> - At first the teacher explain every mark with the rule and examples - For example what is full stop ,when we should use it . - then she tells them about the differences between comma,semicolon etc. - She also explains to them when they should put punctuation and capitalization. <p>Activity (15 Minutes)</p> <p>Supply punctuation signs and capitals where necessary . big ben is a famous land mark it is situated in london Correction=Big Ben is a famous landmark .It is situated in London</p>
<i>Home work</i>	Write a short descriptive paragraph talking about a famous land mark using the right punctuation signs and capitals

Lesson Plan

<i>Title</i>	Writing Techniques
<i>Subject</i>	Spelling
<i>Teacher</i>	Adjout k
<i>Grade level</i>	4 MS
<i>Time duration</i>	1 hour
<i>Unit</i>	Sequence one :me , universal landmarks and outstanding figures in history, arts and literature.
<i>School book</i>	My book of English
<i>Objective</i>	By the end of the lesson, pupils will be able to: 1) spell words correctly. 2) write words correctly. 3) learning to spell helps pupils to connect the letter with the sound of the word. 4)correct the misspelled words by reading it.
<i>Materials</i>	Worksheets, outlines, mind maps, brief guidelines.
<i>Content +(Activities and procedures)</i>	<p>Introduction + Warm-Up + Activity (15 Minutes)</p> <p>The teacher dictate several words to the pupils related to the same subject (landmarks) for example: inaugurated, situated, famous, beautiful, designed...</p> <p>Teacher checks the incorrect words and rewrite them correctly on the board.by using mind mapping each noun with its verb.</p> <p>Example presented by the teacher (30 Minutes)</p> <ul style="list-style-type: none"> - The teacher draw a mind map on the board of course with the information of the same subject landmarks (Timgad) and she explain to the pupils how they should connect the ideas when they write a paragraph. - Teacher gives time to the pupils to write a paragraph (individual work) - After that she corrected the work of each pupil alone on his/her table <p>Finally she writes a coherent paragraph about Timgad and ask them to rewrite it correctly.</p> <p>Activity (15 Minutes)</p> <p>Teacher devides the pupils into groups (05 pupils in each group)and she asks them to write a descriptive paragraph talking about a famous landmark , place or events</p>

After that the teacher Correct the work with the pupils by asking them to read what they wrote and correcting the incorrect words.

Home work | She doesn't give them assignment

<i>Title</i>	Writing Techniques
<i>Subject</i>	Vocabulary
<i>Teacher</i>	Adjout k
<i>Grade level</i>	4 MS
<i>Time duration</i>	1 hour
<i>Unit</i>	Sequence one me universal landmarks and outstanding figures in history arts and literature
<i>School book</i>	My book of English
<i>Objective</i>	By the end of the lesson, pupils will be able to: 1) understanding vocabulary and vocabulary learning. 2) know how to develop vocabulary in their writing. 3) knowing a word with it's pronunciation, spelling, meaning and usage. 4) know how to add new vocabulary when writing a paragraph.
<i>Materials</i>	Worksheets, mind mapping, brief guidelines.
<i>Activities and procedures</i>	<p>Introduction + Warm-Up + Activity (15 Minutes)</p> <ul style="list-style-type: none"> - Teacher write on the board several words .some pupils are familiar with them some others are new words she concentrate more on descriptive words - Introduce each word one at a time (the teacher say the word aloud and the pupils repeat the word - She gives them definition of each word briefly in English and also in Arabic <p>Example presented by the teacher (30 Minutes)</p> <p>The teacher draw a mind map on the board with all the landmark's vocabulary in order to develop the pupil's vocabulary proficiency by not only learning the definition of words but also making connections between words and their contexts</p> <p>Step by step she explains the meaning of every single word with it's pronunciation and even she adds some suffixes and prefixes to those words to know the synonym and the opposite of each word.For example: historical, historic /distinctive, distinctiveness/ good / old...etc</p> <p>Activity (15 Minutes)</p> <ul style="list-style-type: none"> - The teacher devide pupils into two groups , and she gives each group between 03 to 05 minutes to list as many words as possible from the current unit (landmarks) on a piece of paper , the group with the most words wins. - The group with the most words must explain the definition of each word, if they miss a definition , the other group can take over explaining those definitions to win (it is a motivating activity , the pupils are so enjoyable) .
<i>Assignment</i>	Students are asked to complete a chart which contain three columns (noun)verb / adjective) some words are written and some others are missing.

<i>Title</i>	Writing Techniques
<i>Subject</i>	Word Choice
<i>Teacher</i>	Adjout k
<i>Grade level</i>	4 MS
<i>Time</i>	1 hour
<i>Unit.</i>	Sequence one Me universal landmarks and outstanding figures in history arts and literature
<i>School book</i>	My book of English
<i>Objective</i>	By the end of the lesson, pupils will be able to: 1) Employ word choice in their writing. 2) Use precise, vivid sensory words and expand their repertoire of words. 3) Enhance accuracy in writing and avoid ambiguity.
<i>Materials</i>	Worksheets, tables of confusing words, brief guidelines.
<i>Activities and procedures</i>	<p>Introduction + Warm-Up + Activity (15 Minutes)</p> <ul style="list-style-type: none"> - Writing incomplete sentences on board and observing how pupils will fill in the gaps. (The teacher suggest two options for each gap to make it easier for them to choose the right word or expression) - Asking pupils to write two different sentences for each pair of confusing or similar words (e.g.:hear / listen, look/see, build/construct, etc.) - Teacher checks how accurate the pupils are in their writing and reflect on how word choice affects meaning. <p>Example presented by the teacher (30 Minutes)</p> <ul style="list-style-type: none"> - Teacher presents pairs of sentences in which the difference is in one word or one expression. Pupils are asked to check mistakes . - Teacher explains the choice at different levels: <ul style="list-style-type: none"> a- Word class (noun, adj., adv., etc.) like creation/ creative, constructively/ construct, etc. b- Agency choice (gerund, past participle) like interested/ interesting, built/building, etc. c- Choice of tense and modality (past, present, ability, possibility, etc.) - The teacher tests the pupils by collocations and logically-linked expressions to verify whether pupils check the more accurate choices (Examples: make a decision / have a decision, contribute in/ contribute to, ask for/ ask about, etc.) - The teacher presents how the <i>tone</i> determines the word choice (e.g.: thin/skinny, childish/childlike) and how they help readers interpret that. <p>Activity (15 Minutes)</p> <ul style="list-style-type: none"> - Pupils write "accurate" or "inaccurate" on sentences written on board (for example a sentence with { designed } and a sentence with { built }) and see if they know the deference. - A table of pairs of words is provided by the teacher to help pupils choose the right items for a short paragraph.

Assignment | Pupils are asked to include what they learned from this lesson in an exposition about a famous Algerian landmark.

Lesson Plan

<i>Title</i>	Writing Techniques
<i>Subject</i>	Coherence
<i>Teacher</i>	Adjout k
<i>Grade level</i>	4 MS
<i>Time duration</i>	1 hour
<i>Unit</i>	Sequence one :me , universal landmarks and outstanding figures in history, arts and literature.
<i>School book</i>	My book of English
<i>Objective</i>	By the end of the lesson, pupils will be able to: 1) Generate logical and reasoned arguments revolving around a given topic. 2) Organize their ideas systematically and coherently. 3) Draw links between among ideas making outlines and sound meaningful to readers.
<i>Materials</i>	Worksheets, outlines, mind maps, brief guidelines.
<i>Content +(Activities and procedures)</i>	<p>Introduction + Warm-Up + Activity (15 Minutes)</p> <ul style="list-style-type: none"> - Asking pupils to write an expository paragraph about a famous figure, a common event, a traditional celebration, etc. - Teacher checks incoherent pieces of writing and asks pupils to find the reasons of meaninglessness. <p>Example presented by the teacher (30 Minutes)</p> <ul style="list-style-type: none"> - Teacher presents separate sentences related to one topic, then she organizes these sentences and link them up for structural flow. - Teacher explains why one idea should be following another, the sense that ordering ideas is made through logic, and the linking words that are chains between every two sentences. <p>Activity (15 Minutes)</p> <ul style="list-style-type: none"> - Pupils follow an outline, a mind map, and teacher's guidelines to write a paragraph. - Logical and reasoned arguments are required to substantiate any claim. - Pupils write the main idea, follow it with supporting ideas, order them logically, and finally they link them with transitional words (addition, cause-effect, contrast, etc.)

Assignment Pupils are asked to write a coherent paragraph on an Algerian landmark or a historical place or event.

Summary

This research aims to study the use of mind maps among students of the fourth year of middle school in the subject of English for the purpose of improving written skills. The researcher explored the importance of these means in developing the writing of an academic paragraph through the experiment test for students and the questionnaire directed to teachers. A pre-test was conducted on 60 students from the middle school of Mohamed Ratiat in Tissemsilt. Accordingly, the researcher prepared a number of lessons in spelling, punctuation, vocabulary, and coherence to be presented to them by using mind maps within five weeks. The post-test was for the same students to write a paragraph about a famous Algerian Land mark and they were evaluated according to spelling, punctuation, vocabulary, and coherence. The results showed that mind maps play an important role in recalling words and positively affect improving the level of consistency in writing.

Résumé

Cette recherche vise à étudier l'utilisation des cartes mentales chez les élèves de la quatrième année de l'enseignement intermédiaire dans le domaine de l'anglais dans le but d'améliorer les compétences écrites. Le chercheur a exploré l'importance de ces moyens dans le développement de l'écriture d'un paragraphe académique à travers le test pilote pour les étudiants et le questionnaire adressé aux enseignants. Un pré-test a été mené sur 60 élèves du CEM de Mohammed Ratiaa t à Tissemsilt, et en conséquence le chercheur a préparé un certain nombre de leçons d'orthographe, de ponctuation, de vocabulaire et cohérence à leur présenter à l'aide de cartes mentales dans une période de cinq semaines. Le post-test consistait pour les mêmes étudiants à écrire un paragraphe sur un site/monument algérien et ils ont été évalués en fonction de l'orthographe, de la ponctuation, du vocabulaire et de la cohérence. Les résultats ont montré que les cartes mentales jouent un rôle important dans le rappel des mots et affectent positivement l'amélioration du niveau de cohérence dans l'écriture.

ملخص

يهدف هذا البحث إلى دراسة استعمال الخرائط الذهنية لدى تلاميذ السنة الرابعة من التعليم المتوسط في مادة الانجليزية لغرض تحسين المهارات الكتابية. قام الباحث باستكشاف أهمية هذه الوسائل في تطوير كتابة فقرة أكاديمية عن طريق الامتحان التجريبي للتلاميذ و الاستبيان الموجه للأساتذة. تم إقامة اختبار قبلي على 60 تلميذ من متوسطة محمد ربيعات بتيسمسيلت و عليه قام الباحث بتحضير عدد من الدروس في التهجئة، علامات التنقيط، المفردات، والانسجام لتقديمها لهم عن طريق الاستعانة بالخرائط الذهنية خلال خمسة أسابيع. كان الاختبار البعدي على نفس التلاميذ في كتابة فقرة حول معلم من معالم الجزائر و تم تقييمهم على حسب التهجئة، علامات التنقيط، المفردات، والانسجام. أظهرت النتائج أن الخرائط الذهنية تلعب دورا مهما في استحضار الكلمات وتؤثر إيجابا على تحسين مستوى الانسجام في الكتابة.