The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes Towards Writing at Taif University

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Thesis Title: The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes Towards Writing at Taif University

Subject/major: Linguistics

Institution: Department of Foreign Languages, Faculty of Arts, Taif University, Saudi Arabia.

Degree: MA in Linguistics

Year of award: 2018

Supervisor: Dr. Nasrah Mahmoud Ismail

Key Words: attitudes, EFL, freshman students, mind mapping, writing achievement

Abstract

Writing in general, second language writing in particular, can be an obstacle for some students. The reason why writing can be hard to learn is that writers face many challenges the moment they start writing. The challenges could be from gathering the ideas to be written, planning of the outline, focusing on sentence structure, choosing the appropriate expressions, and also making sure of the organization. Moreover, these challenges can cause students to have negative attitudes towards writing. Previous studies suggest that using writing strategies can help student control the writing process which have a positive effect on their writing achievement and their attitudes towards writing. The strategy of mind mapping is used as a pre-writing strategy to help writers visualize the structure of their writing. However, the researcher proposes using mind mapping strategy not only to organize ideas, but also to organize grammatical and linguistic knowledge. This study investigates the effect of using this mind mapping strategy as a pre-writing strategy to enhance female language learners' writing achievement and their attitudes towards writing in English at Taif University, Saudi Arabia. In a quasi-experimental design, a mixed methods approach was adopted by collecting quantitative and qualitative data. The study population is 128 students in an experimental group ($n_1=57$) and a control group ($n_2=71$). The former received the treatment of

instruction using mind mapping strategy and the latter received traditional instruction. The objectives of this study are first, to identify any differences between the mean scores of the experimental group and the control group on post-tests of writing attitudes and writing achievement; second, to identify differences between the mean scores of the pre- and post-tests of writing attitudes and writing achievement for the experimental group; third, to explore students' views concerning difficulties to write in English. fourth, to identify the strategies they used to overcome these difficulties; fifth, to investigate if students thought that mind mapping helped them write better and, if so, how. The researcher prepared a test to measure the writing achievement of female first-year EFL students, and a questionnaire by Sturm (1996) to measure writing attitudes. An interview was conducted with a focus group from the experimental group to achieve the third, fourth and fifth objectives. Independent samples and paired sample t-tests were performed to quantitatively analyze data from the writing achievement test and the writing attitudes questionnaire. Data collected from the interview were qualitatively analyzed. The finding of the current study are first, there exists differences between the mean scores of the experimental and the control group on the post-tests of the students' writing achievement and writing attitudes, in favor of the experimental group; second there exists significant differences between the mean scores of the experimental group's pre- and post-tests in writing achievement and writing attitudes, in favor of the post-test; third, students' difficulties to write in English include lack of vocabulary, organization, spelling and grammar; fourth, students are accustomed to memorizing, practicing, and self-correcting, which indicates they are not used to planning their writing; finally, students also positively perceived the strategy of mind mapping and thought it helped them to better write in English.

Cite as: Al Kamli, H. M. (2018). The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes Towards Writing at Taif University. (Master Thesis). Retrieved from *Arab World English Journal* (ID Number: 232. April 2019, 1-92. DOI: <https://dx.doi.org/10.24093/awej/th.232>

Kingdom of Saudi Arabia

Ministry of Education

Taif University

Faculty of Arts

Department of Foreign Languages

لمملكة العربية السعودية

وزارة التعليم

جامعة الطائف

كلية الآداب

قسم اللغات الأجنبية

The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes Towards Writing at Taif University

A thesis submitted in partial fulfillment of the requirements for the degree
of Master of Arts

In

LINGUISTICS

BY

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المملكة العربية السعودية
وزارة التعليم
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**تأثير استخدام الخرائط الذهنية لتحسين التحصيل في الكتابة باللغة الانجليزية كلغة أجنبية والاتجاهات
نحو الكتابة لدى طالبات جامعة الطائف**

رسالة مقدمة لاستكمال متطلبات درجة الماجستير في الآداب
في اللغويات

رسالة مقدمة من

هديل محمد صالح الكاملي

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20/8/1439 – 6 May 18

Abstract

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Researcher: Hadeel Al Kamli

Writing in general, second language writing in particular, can be an obstacle for some students. The reason why writing can be hard to learn is that writers face many challenges the moment they start writing. The challenges could be from gathering the ideas to be written, planning of the outline, focusing on sentence structure, choosing the appropriate expressions, and also making sure of the organization. Moreover, these challenges can cause students to have negative attitudes towards writing. Previous studies suggest that using writing strategies can help student control the writing process which have a positive effect on their writing achievement and their attitudes towards writing. The strategy of mind mapping is used as a pre-writing strategy to help writers visualize the structure of their writing. However, the researcher proposes using mind mapping strategy not only to organize ideas, but also to organize grammatical and linguistic knowledge. This study investigates the effect of using this mind mapping strategy as a pre-writing strategy to enhance female language learners' writing achievement and their attitudes towards writing in English at Taif University, Saudi Arabia. In a quasi-experimental design, a mixed methods approach was adopted by collecting quantitative and qualitative data. The study population is 128 students in an experimental group ($n_1= 57$) and a control group ($n_2=71$). The former received the treatment of instruction using mind mapping strategy and the latter received traditional instruction. The objectives of this study are first, to identify any differences between the mean scores of the experimental group and the control group on post-tests of writing attitudes and writing achievement; second, to identify differences between the mean scores of the pre- and post-tests of writing attitudes and writing

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Independent samples and paired sample t-tests were performed to quantitatively analyze data from the writing achievement test and the writing attitudes questionnaire. Data collected from the interview were qualitatively analyzed. The finding of the current study are first, there exists differences between the mean scores of the experimental and the control group on the post-tests of the students' writing achievement and writing attitudes, in favor of the experimental group; second there exists significant differences between the mean scores of the experimental group's pre- and post-tests in writing achievement and writing attitudes, in favor of the post-test; third, students' difficulties to write in English include lack of vocabulary, organization, spelling and grammar; fourth, students are accustomed to memorizing, practicing, and self-correcting, which indicates they are not used to planning their writing; finally, students also positively perceived the strategy of mind mapping and thought it helped them to better write in English.

Keywords: *mind mapping, EFL, writing achievement, freshman students, attitudes*

Abstract (Arabic)

عنوان الدراسة: تأثير استخدام الخرائط الذهنية لتحسين التحصيل في الكتابة باللغة الإنجليزية كلغة أجنبية والاتجاهات نحو الكتابة لدى طالبات جامعة الطائف.

للباحثة: هديل محمد صالح الكامل

الكتابة عموماً والكتابة باستخدام اللغة الثانية خصوصاً يمكن أن تشكل عائقاً أمام بعض الطلاب. السبب وراء صعوبة تعلم الكتابة، هو أن الكتاب يواجهون عدة تحديات من اللحظة التي يشرون فيها في الكتابة. التحديات يمكن أن تتراوح بين إيجاد أفكار للكتابة، إيجاد نقطة البداية، تركيب الجمل، اختيار المصطلحات الملائمة وتنظيم النص بشكل عام. هذه التحديات قد تسبب أن تكون اتجاهات الطلاب ناحية الكتابة باللغة الإنجليزية سلبية. تشير الدراسات السابقة إلى أن استخدام استراتيجيات الكتابة قد يساعد الطلاب على التحكم في عملية الكتابة، مما قد يؤثر إيجاباً على تحصيلهم الكتابي واتجاهاتهم نحو الكتابة. تستخدم استراتيجيات الخرائط الذهنية كاستراتيجية لما قبل الكتابة لتساعد الكتاب على تصور كتاباتهم. تقترح الباحثة استخدام الخرائط الذهنية ليس فقط لتنظيم الأفكار، ولكن أيضاً لتنظيم المعرفة القواعدية واللغوية. يهدف هذا البحث إلى اختبار تأثير استخدام هذا النوع من الخرائط الذهنية لتحسين التحصيل في الكتابة باللغة الإنجليزية بوصفها لغة أجنبية والاتجاهات نحو الكتابة لدى طالبات جامعة الطائف. اعتمدت الدراسة على تصميم شبه تجريبي. استخدم البحث أيضاً نهج الأساليب المختلطة بأن جمع بيانات كمية ونوعية. الدراسة شملت 128 طالبة، قُسمنَ إلى مجموعتين: مجموعة تجريبية (N=57) ومجموعة ضابطة (N=71) وكان ذلك لتحقيق الأهداف التالية: أولاً تحديد الاختلافات بين المتوسط الحسابي للمجموعة التجريبية والمتوسط الحسابي للمجموعة الضابطة. ثانياً تحديد الاختلافات بين المتوسط الحسابي للاختبارين القبلي والبعدي للمجموعة التجريبية. ثالثاً اكتشاف آراء الطالبات بخصوص الصعوبات التي يواجهنها في أثناء الكتابة باللغة الإنجليزية. رابعاً اكتشاف الاستراتيجيات التي يستخدمنها للتغلب على هذه الصعوبات. خامساً بحث إذا ما كانت الطالبات يعتقدن أن استخدام الخرائط الذهنية قد ساعدهن على الكتابة باللغة الإنجليزية وكيف كان ذلك.

لتحقيق أهداف البحث أعدت الباحثة اختباراً تحصيلياً للكتابة لقياس التحصيل الكتابي للطالبات. مع استخدام مقياس الاتجاهات نحو الكتابة (Sturm, 1996) لقياس اتجاهات الطالبات نحو الكتابة. أجرت الباحثة أيضاً مقابلة مع مجموعة تركيز من المجموعة التجريبية لتحقيق الهدف الثالث والرابع. والخامس وخضعت المجموعة التجريبية لسلسلة جلسات لتعليم الكتابة باستخدام الخرائط الذهنية، أما تدريس المجموعة الضابطة فكان باستخدام الطرق التقليدية.

استخدمت الباحثة طريقتين إحصائيتين تتضمن اختبار (ت) لعينة مستقلة واختبار (ت) لعينة ثنائية لتحليل نتائج اختبار الكتابة التحصيلي ومقياس اتجاهات الكتابة تحليلاً كمياً. تم تحليل البيانات التي جُمعت من المقابلات تحليلاً نوعياً. وخلصت الدراسة

إلى النتائج التالية: أولاً يوجد اختلاف معتبر إحصائياً بين المتوسط الحسابي للمجموعة التجريبية والمتوسط الحسابي للمجموعة الضابطة لصالح المجموعة التجريبية . ثانياً يوجد اختلاف معتبر إحصائياً بين المتوسط الحسابي للاختبارين القبلي والبعدي للمجموعة التجريبية لصالح الاختبار البعدي. ثالثاً أظهرت المقابلات ان الطالبات عادة ما يواجهن عدة صعوبات في أثناء الكتابة باللغة الإنجليزية تتضمن صعوبات في المصطلحات، والتنظيم، والهجاء والقواعد. رابعاً أظهرت المقابلات أيضاً أن الطالبات عادة ما يستخدمن الحفظ والتدريب والتصحيح الذاتي للتغلب على هذه الصعوبات، وهذا يعني انهن لا يخططن لكتاباتهن. خامساً أظهرت الطالبات أيضاً انطباعاً إيجابياً اتجاه استراتيجية الخرائط الذهنية حيث شعرن أن الاستراتيجية قد ساعدتهن على الكتابة باللغة الإنجليزية بشكل أفضل.

مفردات البحث: الخرائط الذهنية، طلاب اللغات الأجنبية، طلاب السنة الأولى، التحصيل الكتابي، الاتجاهات.

DEDICATION

To my mother, Amal, and my father, Mohammad, for their unconditional love and sacrifices throughout their whole lives to give me the chance to be the best person I can be. Thank you mum and dad for your prayers and encouragement.

To my loving husband, Sameer, for his endless love, care and support. Thank you for being my husband, friend and companion.

To the love of my life, my children; Yara, Abdullah, Tala and Qais. Thank you for your smiles, innocent words and infinite love...

ACKNOWLEDGEMENTS

First of all, I thank Allah for giving me the strength and determination to follow my dreams. I wish to begin by thanking my supervisor, Dr. Nasrah Mahmoud Ismail, for her effort, support and advice.

I also wish to thank Dr. Mohammad Ali Al-Zahrani, for his time, effort and endless support. I also wish to thank Dr. Salha Al-Zahrani for her kindness, care and support.

I wish to thank Mrs. Salha Al-Qahtani and Mrs. Iman Al-Beltaji for helping me with the Arabic translation, and Dr. Bahauddeen Abdulwahab Abdurrahman for proofreading the Arabic translation.

I also wish to thank my examiners, Dr Mohammad Al-Zahrani and Dr Saleh Al-Zahrani, for their time and valuable comments.

My greatest gratitude is for Mrs. Hussah Al-Ghoraibi for her advice, support and kind words.

Finally, I wish to thank my family and friends for their continuous love and support and for believing in me.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Along with reading and understanding, writing is an indispensable part of the acquisition of a foreign language. Additionally, writing skills are an indicator of educational achievement and a prerequisite for involvement in civil life and participation in the international economy. Writing is one of the most significant skills in education, especially in English as a foreign language, as it shows a student's ability to master the writing techniques, to compose, and to present his or her ideas. In order to do so, students must be aware of writing as a practical and productive process, as well as abide by writing rules and conventions such as knowledge, management, and control of techniques (Anwar, 2000). However, some experts today assert that a large number of students are graduating from school without basic writing skills (Dean, 2010).

Although Saudi (EFL) students undergo long years of preparation at secondary schools, they often experience difficulties at the university in writing in English (Al Asmari, 2013). Although they need to use English as a means of acquiring content, students often have to struggle with language learning at the expense of content acquisition (Sidek, 2010).

Writing in English is complex (Kroll, 1990). In general, writing difficulties first arise when the writer is trying to gather ideas and feelings on a particular subject. Problems in strategic issues such as the process of organizing ideas, the ability to generate and organize relevant important ideas (whether the prose is grammatically correct or not), the use of correct punctuation tools, the accurate spelling of what is written, and some rhetorical and linguistic tasks in drafting, are all dependent on writing skills (Deane, Odendahl., Quinlan, Fowles, Welsh & Bivens-Tatum, 2008). Previous

research indicates that one of the causes of weak writing skills is the poor attitudes that students exhibit towards writing. Students often consider themselves to be unskilled writers and this causes them to be less engaged in the process of writing. (Hashemian & Heidari, 2013; Al Asmari, 2013)

Some researchers believe that the practice of writing and the use of certain strategies in teachers education and training enables them to concentrate on different parts of the writing process. Strategies also give students the freedom to experience their language, because such directions can help them develop their confidence, creating fluency in writing skills, with less concern about the final product of their writings (Alodwan & Ibnian, 2014; Okasha & Hamdi, 2014).

Strategic writing is defined as the process of using a variety of strategies and skills to achieve a specific objective or to master a particular process and task (Okasha & Hamdi, 2014). Strategies can not simply be learned by reading textbooks or listening to instructions. The interactive nature of strategies requires them to be constructed over time, by gradually decreasing teachers' assistance and increasing the students' role and self-control in the learning process (Calhoun, & Hale, 2003). Okash & Hamdi (2014) proposes four instructional steps to teach strategies. The process starts with finding a strategy worth teaching, followed by demonstrating the strategy to students. Afterward, students are assisted in practicing the strategy. Finally, students can work on maintaining the mastery of the strategy independently.

Mind mapping strategy was first popularized by Buzan (1993, p.59) who defines it as an instructional strategy where the learners locate “supra-ordinate concepts on paper and subsequently link sub-ordinate concepts as appropriate”. McGriff (2000) (as cited in Al Naqbi, 2011) states that the strategy of mind mapping is perceived as a tool

that can help its users to overcome problems related to the organization of ideas because it offers an excellent way to organize knowledge.

Consequently, mind mapping strategy is used as an instructional strategy in many areas of education. It has an encouraging impact and is positively perceived by both students and teachers in areas such as science, executive education, and mathematics (Mento, Martinelli, & Jones, 1999; Goodnough & Long, 2002; Brinkmann, 2003; Abi-El-Mona & Adb-El-Khalick, 2008; D'Antoni & Pianto Zipp, 2005). Furthermore, mind mapping strategy offers a practical cognitive aid that is successfully used in EFL classes to help teachers teach and students acquire and master different skills. The strategy of mind mapping is found to be effective in teaching skills like spelling and reading (Al-Jarf, 2011; Manoli & Papadopoulou, 2012; Khajavi & Ketabi, 2012).

Furthermore, mind mapping strategy is successfully used as a pre-writing strategy to help students plan and organize ideas and knowledge for the writing task. As asserted by Fiktorius (2013) mind mapping strategy is an effective method used to improve writing in foreign language classes. According to Elftorp (2007), students begin to write their own ideas on a particular subject and then draw a mind map that illustrates the main idea of writing and the secondary ideas that emerge from it, which helps them to formulate ideas, increase them, then write those ideas. During this process the teacher plays an active role in inspiring students and creating an atmosphere for writing.

Many empirical studies show the positive impact that mind mapping has on students' writing achievement (Al Naqbi, 2011; Khudhair, 2016; and Shakoori, Kadivar & Sarami, 2017). Besides using hand-drawn maps, some studies have also examined the use of mind mapping software to plan students' writing (Al-Jarf, 2009; Zaid, 2011).

The studies shed some light on the ability of mind mapping to help students generate and organize ideas and to assist them in writing longer and better texts. Students also appreciate that mind maps helped them retrieve the knowledge they needed to write before they started writing (Al Naqbi, 2011; Khudhair, 2016). Furthermore, Al Naqbi (2011) noticed a slight yet distinct improvement in students' writings in exam conditions.

Along with its positive affect on the writing achievement, several studies found that mind mapping also has a positive impact on students' attitudes towards writing and writing tasks (Saed & Al-Omari, 2014; Shakoori & Kadivar, 2015; Tayib, 2015). This can be due to the fact that students have viewed mind mapping as a fun and reliable way to start their writing, as was suggested by Nurlaila (2013) and Al-Jarf (2009).

To summarize, mind mapping can help students deal with the structural and conceptual elements of writing paragraphs. It can also help students organize, store and recall knowledge and information needed for the writing task. Generally, mind mapping involves writing down a central idea and relating it to a few secondary ideas. These secondary ideas are the centre points of new ideas. Accordingly, mind mapping can guide students in visualizing the structure of the paragraph. It can also direct them to generate more ideas and can help them gather related second language vocabulary and grammatical knowledge needed to demonstrate their ideas.

1.2 Statement of the problem

Writing is one of the most important, yet problematic skills involved in the educational process in general and language learning in particular. However, as noted by Santangelo & Harris (2008), studies indicate that only one out of every five high school students get the required knowledge and skills to write before they reach university. Alnofal (2003) asserts that Saudi students, in general, lack the knowledge

of how to approach the act of writing in both their native language and second language, and that they only learn what to write, but not how to write it. It means that Saudis usually use rote learning as their method of choice. Aljamhoor (1996) states that students and teachers in EFL classrooms believe that the more students memorize vocabulary, the better writers they will be. However, this comes at the expense of other important writing techniques like planning and organization.

Studies investigating the writing skill of students at Taif University show that students have very low writing achievement and severe writing problems. A study by Al-Khairy (2013) shows that students struggle on the sentence level and encounter many difficulties in writing beyond paragraph level. Another study by Javid & Umer (2014) reveals that students at Taif University have a severe lack of ability in using vocabulary, organization of ideas, and grammar, which strongly affect their writing achievement.

Another factor which affects students' writing is their attitudes towards writing in English. Phinney (1991) asserts that writers usually have more negative attitudes and apprehension when they write in a foreign language than while writing in their native language. Students usually feel incompetent when they write in a foreign language (Peng, 2011). The importance of studying writing attitudes comes from the effect that writing attitudes has on writing achievement (Hashemian & Heidari, 2013). Al Asmari (2013) shows that low writing achievement is associated with negative writing attitudes.

As suggested by Okasha & Hamdi (2014), difficulties in writing can be a result of shortcomings on the strategic aspect, which would make students unable to access knowledge they already possess. The research questions in this study are derived from

the need to search for innovative teaching strategies to teach languages in general and writing skills specifically, to EFL students at Taif University .

Accordingly, strategies, based on the understanding of how the mind works, can reduce the cognitive load and ultimately facilitate the writing process (Mayer, 2002). In addition, since writing is considered a product dependent on other language and organization skills, any lack of those skills can have a negative effect on writing. The use of untraditional yet empirically supported pre-writing or planning strategies like the mind mapping strategy can help students manage all the linguistic and organizational skills to ultimately enhance their writing and their attitudes towards writing.

Thus, the objective of this study is mainly to determine the effect of using mind mapping strategy in a way that can enhance second language learners' writing skills, by helping them write well-structured sentences, as well as to improve their attitudes towards writing. In addition, the researcher is interested in exploring the difficulties faced by EFL learners and the strategies they use to overcome them and to find out whether students think that mind aping strategy helped improve their English writing.

1.3 Research questions:

By this study, the researcher's objective is to determine responses to the following research questions.

1. Are there any significant differences between the mean scores of the experimental group and the control group on the post-tests of the students` writing attitudes and writing achievement?
2. Are there any significant differences between the mean scores of the pre- and post-tests of writing attitudes and writing achievement for the experimental group?
3. What are the difficulties that the students face in writing in English?

4. Which strategies do they use to overcome these problems?
5. Do female students think that mind mapping helped them write better and how?

1.4 Objectives of the Study

The main objective of this study is to explore the effect of using the strategy of mind mapping on the writing achievement and attitudes in the writing of first-year female Saudi EFL students at Taif University. In particular, the following objectives derive from the main one as follows.

1. To identify the differences between the mean scores of the experimental group and the control group on the post-tests of the students' writing attitudes and writing achievement.
2. To identify the differences between the mean scores of the pre- and post-tests of writing attitudes and writing achievement for the experimental group.
3. To explore the students' views concerning the difficulties they face while writing in English.
4. To identify the strategies students use to overcome their writing problems.
5. To explore if female students think that mind mapping helped them write better and, if so, how it helped them.

1.5 Significance of the Study

Successful education for students necessitates that they learn the skills required to produce a wide range of texts for different purposes and social contexts. Writing skills are described as a complex cognitive activity that involves problem-solving and has deployment strategies to achieve communication objectives (Dean et al., 2008). Therefore, the importance of this study lies in the importance of the topic that it addresses "The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes towards Writing at Taif University".

As well as the importance of using writing as a means of generating ideas for first-year EFL students, writing is also an important process by which they can convey their ideas and opinions to all. There is a need to improve the writing abilities and efficiency among the students, which improves the quality of teaching and learning.

According to the researcher's knowledge, someone can say that Saudi school students do not receive any specific writing instruction in their native language nor in English. Therefore, for the most part, first-year university students can be considered unskilled writers and writing in a foreign language is even more intimidating for them. The main objective of this study is to examine mind mapping as pre-writing strategy, with a view to enhance Taif university first-year female Saudi EFL students' writing achievement and attitudes towards writing.

On one hand, there is a paucity of previous research on using mind maps to enhance EFL learners' writing achievement and their attitudes towards writing in Saudi universities in general and in Taif University in particular. Additionally, the researcher proposes a new way to use the mind mapping strategy to help students overcome problems at the sentence level, by adding grammatical clues and syntactical pathways inside the map.

On the other hand, this instructional program contributes positively to the creation of real value in academic research in the field of learning strategies, particularly mind mapping strategy. Furthermore, it encourages other researchers to prepare and develop related studies that support this field in order to achieve desired goals in the future.

The present study is expected to offer considerable proof of the explicit impact of mind mapping on students' writing achievement and their attitudes towards writing. In addition, the results of the study will be particularly important for teaching English

as a second language at Taif University. Additionally, it can be reflected on other Saudi universities through the identification and analysis of the effect of mind maps on EFL learners' writing achievement and their attitudes towards writing.

Finally, this study increases the toolkit available to instructors of EFL students in Saudi universities.

1.6 Variables of the Study

This section contains the theoretical framework, determine the variables, and explain each one of the variables to construct the hypotheses. As this study examines the effect of using mind maps to enhance EFL learners' writing achievement and attitudes towards writing at Taif University. Figure (1.1) illustrates how the independent variable and the dependent variables are related to each other. The independent variable is the treatment of mind mapping and the dependent variables are writing achievement and student attitudes towards writing which involves four factors.

Figure 1.1: Variables of this study

1.6.1 Study hypotheses

The researcher, in the present study, seeks to accept or reject five main hypotheses, where **H** stands for hypothesis.

H₁ There are significant differences between the mean scores of experimental group and the control group on the writing achievement post-tests of the first-year female Saudi EFL students and their attitudes toward writing in favor of the experimental group. The corresponding null hypothesis is that there are no differences between the experimental and control groups on the post-test.

H₂ There exists significant differences between the mean scores of the pre- and post-tests of the first-year female Saudi EFL students' writing achievement and attitudes towards writing, who have received mind mapping training, in favour of the post-tests. The corresponding null hypothesis is that there are no significant

differences between the mean scores of the experimental group when the pre-test and post-tests are compared

H₃ Saudi first-year EFL students face difficulties writing in English on the sentence level.

The corresponding null hypothesis is that they do not face difficulties writing sentences in English.

H₄ Students do not use pre-writing strategies to plan their writing. The corresponding null hypothesis is that they use pre-writing strategies to plan their writing.

H₅ Students think that using mind mapping helped them write better. The corresponding null hypothesis is that they do not think it helped them.

1.7 Limitations of the Study

The present study has some limitations that should be taken into consideration.

1. The study investigated the effect of mind mapping on English writing skills only. Other skills are measured using different instruments than the ones used during the present study.
2. The data were only collected from Taif University, as it is difficult to implement the mind mapping program and collect data from different universities in different cities in Saudi Arabia.
3. The participants are all female students. Therefore, gender differences were not considered.
4. Students' different learning styles were not investigated for any potential relation between the effect of the strategy and the students' learning styles.

5. The participants are first-year EFL students. Therefore, the applicability and the success of the mind mapping program cannot be generalized to other levels without further research.

1.8 Definition of Terms

1. **Mind Mapping Strategy** is a strategy where learners locate "supra-ordinate concepts on paper and subsequently link sub-ordinate concepts as appropriate" (Buzan, 1993, p.59). The researcher defines the mind mapping strategy as a visual organizer where students organize their ideas as well as organizing grammatical and lexical knowledge needed for expressing those ideas. (see Appendix C for examples)
2. **Writing Strategies** are the ways or methods that a person uses to organize cognitive activities such as planning, formulating and reviewing (Kieft, Rijlaarsdam & van den Bergh, 2006).
3. **Writing Achievement** indicates students' performance in the writing task in terms of content, organization, vocabulary and grammar.
4. **Writing attitudes** expresses students' general attitudes towards writing in English in terms of enjoyment, ease, competence and strategy use.
5. **EFL Students** refers to students who are taking an English course in university although it is not considered a primary language in their countries.

1.9 Overview of Thesis Structure

The present study contains five chapters. Chapter One introduces the study and explicates the starting points of the whole study. Items like the statement of the problem and the purpose and significance of the study are discussed in the first chapter. In addition, study questions, objectives and hypotheses are explained as well as limitations and a definition of terms.

Chapter Two sheds light on the related literature. It briefly reviews the Cognitive Theory of Multimedia Learning (CTML) by Mayer (1997). Then, writing skills, writing research, writing models in previous research are reviewed. The strategy of mind mapping and its applications and benefits in education are described. Finally, other studies which investigate the strategy of mind mapping and its influence on students' writing achievement and writing attitudes are discussed, as well.

Chapter Three gives details about the method and procedure used in the current study. First, the study research design and variables are explained. Then, pilot study procedure, sample and results are clarified. Information about the study procedure, participants and data collection are provided next. The validity and reliability of the study instruments, namely writing achievement test and writing attitudes questionnaire, are presented.

Chapter Four comprises the findings of the data analysis. It shows the results of the five main hypotheses of the study.

Chapter Five contains discussion of the findings in light of previous studies of a similar nature. The researcher reflects on the results and draws conclusions from the findings. Additionally, implications of the current study, as well as suggestions for further studies, are presented.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section of the study offers an overview of the main ideas and concepts of the study and its variables to explain its objectives. Previous studies in the same field are summarized to achieve a better understanding of the topic. The sections of this chapter explicate the main issues of this study, such as the theoretical framework which derives from cognitive learning theories, specifically, from the Cognitive Theory of Multimedia Learning (CTML), by Mayer (1997), and its assumptions, implications and applications inside the classroom. Furthermore, this section presents a review of the writing and writing models in general. In addition, the strategy of mind mapping is explained. Previous studies on the relationship between the writing strategies and writing achievement, and between the writing strategies and writing attitudes is addressed. Some studies investigating the use of mind mapping as a writing strategy are reviewed.

2.2 Cognitivism

Cognitivism, that gained acceptance in the 1950s, is a broad theoretical framework for understanding the human mind. Unlike behaviorism, where the human brain is perceived as a closed box that can only be understood by its products, cognitivism actually pay more attention to the processes inside the human brain (Ertmer & Newby, 1993). Cognitive theories consider learning an internal mental schema of knowledge which includes the recall of stored information. The focus is on how the brain acquires, structures and processes information (Schunk, 1996). Leonard (2002, p.29) states that "The focus of cognitivism on learning, therefore, is how learners process inputs and outputs mentally in order to understand how people think, learn, transmit information, and solve problems".

According to the cognitive theory of learning, students learn through the mental processing of information and through learning how to process information. This approach can be practiced inside the classroom by using visual aids, mind mapping tools, and rehearsals, along with mnemonics to help students store, process and recall information. The goal of instruction is to change the student's mental behavior. Moreover, creating an active learner is of vital importance. According to this approach, the teacher's role is not to be the sole source of information but instead to draw and maintain learners' attention while teaching them strategies that foster their learning (Zhou, 2004).

2.2.1 The Cognitive Theory of Multimedia Learning (CTML)

The Cognitive Theory of Multimedia Learning (CTML) is a theory proposed and developed by Mayer (1997). The fundamental hypothesis underlying this theory is that multimedia instructional methods based on the understanding of how the human mind works, are more likely to lead to meaningful learning than those that are not (Mayer, 1997). Mayer & Moreno (2003) define multimedia learning as learning from words and pictures. Accordingly, multimedia instruction means presenting information using words and pictures simultaneously to foster learning. The words can be printed or spoken, the pictures can be static or dynamic. Furthermore, Mayer & Moreno (2003, p.43) define meaningful learning as "deep understanding of the material, which includes attending to important aspects of the presented material, mentally organizing it into a coherent cognitive structure, and integrating it with relevant existing knowledge".

According to Mayer (2005), the Cognitive Theory of Multimedia Learning (CTML) relies on three cognitive science assumptions. The first assumption, called the dual-channels assumption, is that the information processing system in the human brain

has two channels: one for visual or pictorial processing and one for auditory or verbal processing. The second assumption, the limited capacity assumption, is that the processing capacity for each channel is finite. The third assumption, called the active processing assumption, is that active learning requires handling a set of coordinated cognitive processes. According to Mayer (1996), these processes include the selecting and organizing of incoming information as well as integrating this information with existing knowledge. These processes help construct a mental model for acquired knowledge.

It is important to note how printed words are processed in the dual channel system. Mayer (2002, p.27) asserts that " Processing of pictures occurs mainly in the visual/pictorial channel, and processing of spoken words occurs mainly in the auditory/verbal channel; however, processing of printed words takes place initially in the visual/pictorial channel and then moves to the auditory/verbal channel". Figure 2.1 illustrates how information is processed in the human mind according to the Cognitive Theory of Multimedia Learning (CTML). Pictures and words are processed by pictorial and auditory channels respectively. Selected images and sounds are then learner constructs a coherent representation of words and pictures in the working memory with the help of previous knowledge from the long-memory (Mayer & Moreno, 2003).

Figure 2.1: Visual representation of the Cognitive Theory of Multimedia Learning (CTML)

Adopted from (Mayer & Moereno, 2003, p.44)

According to Mayer (2002) multimedia design is based on nine principles. However, the researcher's mind mapping strategy relies on the first, second and third principles.

The principles are:

- 1) The Multimedia principle: students learn better from associating words and pictures than from presenting words alone.
- 2) The Spatial Contiguity principle: students learn better when corresponding words and pictures are displayed near each other rather than far from each other on the paper or screen.
- 3) The Temporal Contiguity principle: students learn better when related words and pictures are presented at once rather than one after another.
- 4) The Coherence Principle: students learn better when the unimportant material is omitted rather than contained.
- 5) The Modality principle: students learn better from videos or animation with voice over or narration rather than from videos and on-screen text.
- 6) The Redundancy principle: students learn better from videos with voice-over than from videos, voice-over, and on-screen text.

- 7) The Pre-training principle: students learn better when training on components comes before, not after, the message.
- 8) The Signaling principle: students learn better when undergoing signaled training rather than non-signaled training.
- 9) The Personalization principle: students learn better when words are presented in an informal style instead of a formal style.

To summarize, information in the human mind is processed through a dual channel system; one for auditory or verbal and one for visual or pictorial processing and each of these channels has a limited processing capacity. Noticeably, printed words are first processed in the visual channel and then converted to be processed by the auditory channel. The Cognitive Theory of Multimedia Learning (CTML) also assumes that active learning involves managing several coordinated cognitive processes. The aim of instructional design according to this theory is to use instructional tools as well as learning strategies designed to help students process, store and recall information. Because mind maps present words, pictures, and associations, mind mapping strategy is proposed as an instructional tool to help students pre-write.

2.3 Writing

Writing is often perceived as a simple representation of speech, but it is more than that. Writing displays the knowledge, perspective and communication ability of the writers or the language users (Bachman, 1990). “Writing” as a noun refers to the written text while “writing” as a verb means the act of forming a text. Widdowson (1983) states that writing mainly serves communication, meaning that writing is not only the process of text production; rather, it is a communicative activity that follows the general principles which describe the use of language in communication.

Grabe & Kaplan (1996, p.6) pointed out that writing is a set of skills that "must be practiced and learned through experience". The fact that writing is not acquired naturally and that it needs conscious effort and practice makes it problematic for learners. According to Kroll (1990), since writing is a complicated task for native speakers, writing can be even more challenging for non-native speakers.

Most writers and students consider writing a very challenging and complex cognitive task. Smith (1989, p.33) argued that writers are not "simply putting what their brain knows or can do on paper". Writing is a very complex skill to learn and to teach, because it requires writers to master, control and be aware of different variables at the same time. Raimes (1985) concurred that a writers' task is not an easy one, because writers struggle with their cognitive experience. In other words, writers must handle and manipulate several cognitive processes simultaneously. They think and search for ideas, they organize, develop, revise and formulate their ideas into the best possible way to communicate their message to their audience clearly and effectively. Some researchers believe that writing has a strong relationship to thinking. Flower and Hayes (1981, p.366) believes that "writing is a set of distinctive thinking processes" in which the writer must engage simultaneously.

According to Deane et al. (2008), the most important written skills are those related to form (document-level skills), which refers to the organization of the written text. Second in importance are method skills (sentence level skills): vocabulary, spelling and grammar. Third in importance are content-related skills, related to ideas, logical sequence and the quality of meaning.

Moreover, literary expression has received increasing international attention in studies and research on language education. The National Council of Teachers of English has published booklets on the role of teachers in helping students with the right

language learning and writing, in addition to how to evaluate students and their writings (Norton, 2003).

2.3.1 Development of writing research

Writing has been researched for a long time and has undergone a paradigm shift in the last thirty years (Alhaysony, 2008). Although the main interest of this study lies directly with the writing as a process paradigm, and specifically the writing strategies used during the stages of the writing processes, writing as a product paradigm will be briefly discussed in order to fully understand aspects of writing and writing research.

For many years, teaching writing and research on writing focused on the final written product, i.e. the quality and the accuracy of the resulting text. Texts were seen as groups of vocabulary words forming syntactic structures with no attention to audience or purpose. Alhaysony (2008) said that the accepted assumption was that writers knew what they wanted to write and only needed to find the proper forms to express their ideas. It was also believed that writers proceeded systematically, from one step to the next one, linearly. Therefore, writings or texts in EFL classrooms adopting this paradigm were more of a manifestation of the students' second language competence. Teachers encouraged students to correctly use the vocabulary and grammatical structures learned in their classrooms. Since students have limited vocabulary, students were expected to write very similar texts. According to Schmitt (2010, p.239), teaching traditions following this paradigm gave more attention to formal accuracy. As a result, teachers employed a precise program that promoted habit formation in an effort to avoid errors. For the most part, students were asked to imitate and manipulate carefully constructed models as writing activities. Schmitt (2010,

p.239) added that teachers in EFL classrooms were “editors favoring linguistic features over ideas”.

In text or product-based research, as described by Hyland (2002, p.6), the writings or texts were assumed to be “autonomous objects which can be analyzed and described independently of particular contexts, writers or readers”. Norment (1982) investigated the relationship between narrative and expository English texts produced by native and non-native writers. Similarly, a quantitative analysis by Reid (1988) showed the differences in English prose written by native and non-native writers. Among other variables, Reid (1988) also looked at the use of cohesive devices by writers from different linguistic backgrounds.

Subsequently, writing research began to shift from asking what writers write? to asking how do writers write? Today, the emphasis is directed toward studying writers and writing as a process instead of only treating writing as a product. Researchers have examined variables affecting writers and the writing processes and strategies. In addition, connections between second language writing and first language writing, writers’ attitudes, writing apprehension, and learning style are issues of interest in this line of research (Schmitt, 2010).

In the classroom, teachers were less concerned about the written text and paid more attention to helping students develop and manage their writing. In addition, according to Schmitt (2010, p.241), the goal of process tradition in second language classrooms became to enable students to use and develop practical strategies for getting started, drafting, revising, and editing.

2.3.2 Writing models

For the last few decades, researchers have been trying to construct a writing model. Based on the empirical findings from research on L1 writing, many models have

been proposed, of which the Flower & Hayes's (1980) cognitive model of the writing process has been of the most influential. This model will be reviewed briefly because it stresses the importance of using strategies to manage the writing process.

2.3.2.1 Flower & Hayes's cognitive model of the writing process

Toward the end of the twentieth century, Flower & Hayes (1980) were the first to link composing and writing to cognitive psychology. They considered writing a cognitive process and employed the protocols analysis technique, a method in psychological research to elicit verbal records from participants and to study thinking in cognitive psychology, to find out what writers do while they write (Crutcher, 1994). According to Flower & Hayes (1981, p.369), the "writer's world" is divided into three components: "task environment", "the writer's long-term memory (LTM)" and "the writing process". The first component, task environment, includes aspects external to the writer presumed to have an impact on the writing process such as the writing assignment and audience. In addition, the text produced during the act of writing becomes eventually a part of the task environment. The second component, the writer's long-term memory, includes the writer's general knowledge about the topic, the audience, writing plans, strategies and also the writer's knowledge of language, grammar and vocabulary, particularly crucial for L2 writing. The third component is the writing process itself. Figure 2.2 shows the Flower & Hayes writing process model.

Figure 2.2: The Flower & Hayes writing process model

Adopted from (Flower & Hayes, 1981, p.370).

The activities that occur during the writing process were classified with an emphasis on identifying the cognitive processes involved, into four major writing processes: planning, translating, reviewing and monitoring. In the planning process, the writing assignment and long-term memory are considered as input, which then produces a conceptual plan for the document as output (Flower & Hayes, 1980). In addition, planning includes the sub-activities of generating ideas, organizing (arranging those ideas logically in one's head), and goal setting (determining desired effects and modifying one's generating and organizing activities to achieve local or global goals). The translating process is responsible for the production of what has been conceptually planned during the planning process. The text is revised, modified and improved upon in the reviewing process. All the previous processes are linked and coordinated using meta-cognitive processes included in the monitoring process. These processes are not necessarily consecutive, so planning, translating and revising can occur at any moment during writing. Therefore, they are presented as cognitive processes rather than stages (Flower & Hayes, 1980).

The Flower & Hayes model is based on four central points: First, writing is a group of distinct thinking processes, which writers arrange and coordinate during writing. Second, the cognitive writing processes are organized in a hierarchical way, where processes are embedded within each other, do not follow any specific order. Third, the act of writing is a goal-directed thinking process, which is directed by the writer's own growing network of goals. Fourth, the last key point is that writers generate high-level goals and low-level goals. High-level goals are meant to direct the entire writing process. Low-level goals, on the other hand, are sub-goals which deal with operational goals related to local writing tasks.

Flower & Hayes (1980) conclude that writing is interactive and recursive, rather than linear, and offer a theoretical framework for future research. However, the Flower & Hayes model is criticized for the assumption that there is a single writing process for all writers, skilled or less skilled writers, alike (Alhaysony, 2008).

According to Flower & Hayes, good and poor writers do the same things while they write, only good writers do them better. In response to critics, Alhaysony (2008) argued that the model has the ability to handle a great variety of variation in what is done in different boxes and in the order.

To summarize, this researcher asserts that writing pedagogy and research were remarkably influenced by Flower & Hayes's model, and considerable work has been on extending the model to account for L2 writing. This researcher assumes that L2 writers go through the same process as L1 writers, and therefore introduces mind mapping as a pre-writing strategy to be used during the planning process.

2.4 The Strategy of Mind Mapping

One of the main contributions of writing process research is the recognition of writing strategies. The term “strategy” has been defined by many researchers. In the field of language learning, Cohen (1998, p.7) defined strategies as "Thoughts and actions, consciously chosen and operationalized by language learners, to assist them in carrying out a multiplicity of tasks from the very onset of learning to the most advanced levels of target-language performance". Likewise, Leki (1995) defined strategies as the sort of actions writers carry out to produce a written text. A more recent definition was offered by Kieft et al. (2006) who considers writing strategies to be the ways or methods that a person uses to organize cognitive activities such as planning, formulating and reviewing.

Mind mapping is one strategy used in education, described by Zaid (1995) (as cited in Saed & AL-Omari (2014, p.92) as “a picture worth a thousand words”. According to Buzan (2006) a mind map is a strategy for thinking and organizing information in a clear and visual manner and in enjoyable ways, using forms, colours or sketches, and clarifying the relationships between elements.

The basic idea in cognitive psychology is that learning occurs by assimilating new concepts and propositions into lists and frameworks proposed by the learner. This knowledge structure, maintained by the learner, is also referred to as the cognitive structure of the individual (Novak & Canas, 2006). Thus, meaningful learning results when people associate new knowledge with relevant concepts and knowledge that they already possess. According to Novak & Canas (2006), this contributes to making learning meaningful, durable and strong, whereas rote learning is easily forgotten and not easily applied in new learning or problem-solving situations.

Mind mapping has been used as a learning tool and for teaching different language skills. Mind mapping was first proposed by Tony Busan in the late 1960s and then, as noted by Saed & AL-Omari (2014), mind mapping was further developed by Joseph Novak and his research team at Cornell University in the early 1970s. The use of mind mapping has shown important results in improving composition. In addition, mind mapping can be used as a blueprint for writing a short essay on a subject, or a part of the map can be used to write a paragraph. Mind mapping proved to be useful before, during and after writing (Zaid, 2011). Mind mapping also helps students see the relationship between ideas and communication, between known information and new information. Furthermore, mind mapping is a valuable tool for developing vocabulary and conceptual understanding in students. It can help writers commit to a topic by putting their ideas in front of them as they write and also helps them keep ideas in order. Mind mapping is also a tool that can guide students through the four stages of writing: writing, drafting, editing, and revision (Saed & AL-Omari, 2014).

Tucker, Armstrong, & Massad (2010) defined the mind map as a visual tool to organize and relate themes, objectives and the relationships between them by adding images and drawings that show the general structure of the problem and the topic to be studied in a way that attracts the learner's attention and helps him or her to understand. Liu, Zhao, Ma & Bo (2014) define the mind map as an expression that involves reading the ideas stored in the human mind by crystallizing the main subject and its sub-branches and ideas through a series of drawings and lines. These drawings and lines are used in a new way, attracting the attention of the reader, and serve as a catalyst to help him retrieve information in the short term. Moreover, mind mapping is an effective way to generate limitless main ideas and subsets of these each subdivided into subgroups with sub-ideas and so on (Fiktorius, 2013).

Mind mapping is sometimes known as cognitive mapping, cartography, semantic mapping, and graphic organizing. It is one of the strategies used as a pre-writing strategy to enable the writer to plan by visualizing the organization of the text before and during drafting (Sundeen, 2012). Mind-mapping keywords are placed in a way that indicates a relationship to the main idea. The branches are developed from the main idea to allow expanding the concept and visualization of components so that relationships become visible (Boyle, 1996). Previous studies have clearly demonstrated that graphic organizers are an effective tool for student's planning during a writing task. The visual organizer provides a form in which the initial concept is formulated in the centre of the paper and expanded by physically connecting ideas to each other in a spiderweb-like pattern (Sundeen, 2012), (Tayib, 2015).

Correspondingly, a mind map consists of a central idea or a theme to which related ideas are connected by connecting hooks. Subsequent ideas are then linked together, and a hierarchical map of user ideas related to a particular subject becomes apparent. The mind map is based on irradiated thinking, a concept that mirrors the human brain and how it manipulates various ideas and information which are interconnected by the hooks of the relationship. A variety of applications can be developed through mind mapping (Arulselvi, 2017).

The preparation of a map of the mind is clear and simple. This aspect helps to distinguish the mind map from other schemes, because of the ease of use. The components of a mind map develop in several stages, according to Davies (2011). First, the writer should place an image or subject in the centre, using at least three colours, and use images, icons, and dimensions throughout the mind map. Then, he should write keywords, each on its own line. The writer should then connect the lines starting from the central image. The central lines are thicker, organic and flowing, becoming thinner

as they radiate away from the centre. The writer should make the lines the same length as image and use color-coding around his mind map.

Figure2.3: Example of a student-generated mind map using a mind mapping software

Adopted from (Al-Jarf 2009, p.379)

Additionally, mind mapping is used as a method of memory usage. It relies on visual memory in an easy-to-read illustration and easy-to-remember diagram that clearly shows ideas in the form of relationships (Tayib, 2016). Mind maps are one of the easiest instructional technological methods, having all the characteristics of a certain natural form which is separated from the central form by lines, symbols, images, and words, according to a set of simple, basic, natural rules favoured by the mind, and represents how the human mind thinks, where the words and meanings are linked to images. The different meanings are linked to each other as branches (Arulselvi, 2017).

Finally, Davies (2011) notes that the mind map increases learning efficiency by using both the left and right brain.

2.4.1 Mind mapping in education

Mind mapping was not originally invented as an educational tool, but it is found that it has a variety of applications in teaching and learning processes (Brinkmann, 2003). Mind mapping has been popular in the L2 classroom and other areas of education among teachers and students because of its effectiveness and versatility. This technique can help its users to brainstorm, organize, generate ideas, memorize and solve problems. It is also very easy and flexible to use inside and outside the classroom and there are even free online apps that make it more convenient (Arulselvi, 2017).

Studies have revealed the importance of mind maps in learning and teaching. Brinkmann (2003) listed several advantages for the use of mind maps in education. First, mind maps help students connect, organize, memorize and recall information. They can also be very beneficial in summarizing lessons. They also help teachers introduce new topics and show connections between concepts and topics. Mind maps not only help students connect ideas, but they also help them generate more ideas. Some examples of the use of mind mapping strategy in education are reviewed next.

Mento et al. (1999) studied mind mapping in executive education. The researchers noticed that executive students did a very comprehensible and clear presentation by using a transparency of their mind maps instead of note cards. In addition, they were able to confidently answer questions and recall information easily, because it was stored in a cohesive manner where associations are made in a nonlinear way.

Additionally, Goodnough & Long (2002) allowed a sixth-grade science class to explore mind mapping as a learning tool and found that students could benefit from it

to introduce and develop concepts. It could be used to assess learning of individuals and to give students a greater choice on how to finish projects and assignments. Brinkmann (2003) reported that Mathematics teachers were very enthusiastic about using mind mapping as a pedagogical tool to teach Mathematics. Teachers noted that students who found the subject challenging benefited from mind mapping because they can realize connections between mathematical concepts while they made their own maps. because the graphic display helped them organize their knowledge.

Another example is a study by Abi-El-Mona & Adb-El-Khalick (2008), in which they tested the effect of mind maps as a learning tool for eighth graders' achievement in Science class, besides whether mind mapping was facilitated by the students' prior scholastic achievement. The results were encouraging. The experimental group's Science achievement was significantly higher than that of the control group, and the improvement was not mediated by the students' prior scholastic achievement.

D'Antoni & Pianto Zipp (2005) suggested that teachers and educators could employ mind maps in many ways. Teachers could use mind maps before class to introduce concepts from assigned readings to be reviewed during class, or they could use mind maps to sum up what already had been reviewed at the end of class. Teachers could also use mind maps in presentations.

Mind mapping was used in different ways inside L2 classrooms. Al-Jarf (2011) examined the use of mind mapping to improve EFL students' spelling skills. The researcher used mind map software to help students associate spoken phonemes with their written forms. The mind mapping software was used to group, categorize, and classify words according to their sound associations. As Al-Jarf (2011) explains, a mind map begins with inserting a phonics category at the centre of the screen, which is used

as a base for grouping, categorizing and sub-categorizing words with the same phoneme-grapheme relationship. Branches spreading from the phonic category are drawn from the sub-categories and examples with the same phoneme-grapheme relationship. Sub-categories, examples and words are produced from students, grouped into related phonics sub-categories and radiating out from the central phonics category. The students used mind mapping to develop related, rather than isolated, knowledge of phonics. In addition, they developed the skill of differentiating and making associations between phonemes and graphemes.

Mind mapping as a graphic organizer was also used as a strategy for L2 reading comprehension. Manoli & Papadopoulou (2012, p.348) asserted that "when [graphic organizers] are deployed in the various language courses, [they] improve students' reading comprehension skills and contribute to the acquisition of the target language".

Similarly, Khajavi & Ketabi (2012) conducted a study on 60 second-year university students enrolled in an English reading comprehension course. The participants, 21 males and 39 females, ranged in age from nineteen to twenty-three years. The participants were divided equally into a control and an experimental group. Prior to the treatment, both groups took a pre-test in reading comprehension and a self-efficacy questionnaire. For ten weeks, the experimental group was trained to use concept mapping for reading comprehension. At the end of the training, both groups received the reading comprehension post-test and the self-efficacy questionnaire to evaluate the influence of the concept mapping program. The results of data analyses were encouraging, since the experimental group results showed greater improvement in reading comprehension as well as self-efficacy.

In L2 writing, the focus of this thesis, a mind map starts with the topic of the planned text at the centre of the map. Main ideas can flow out of the topic and are mainly presented by verbs; further details can also flow out of each main idea. To help students memorize and associate different vocabulary words needed for the text, verbs, adjectives and nouns related to each idea can be linked to the vocabulary words, or they can independently flow out of the main topic. Adding linguistic clues to the map can help students to first, find appropriate linguistic elements and second, to facilitate the studying and memorization of those elements.

2.5 Studies on Writing and Mind Mapping

Several studies have addressed the unique relationship between drawing and writing and their use during the planning phase of children's writing. A good example is a study by Norris, Mokhtari & Reichard (1998) which explored the relationship between drawing and writing. The study revealed significant differences between the treatment and the control group on all measures used. Students who drew before writing tended to produce more words, sentences, and idea units and their overall writing performance and the writing achievement were higher. Additionally, the result showed that drawing became an effective planning strategy for the students who appeared to rely on their drawings as a reference point to prompt them toward what should come next in their writing. Integrating drawing and writing may also be used as a way of motivating students to write and enjoy doing it.

Using mind maps to organize, generate ideas, and make associations between different topics through drawing has been investigated to test its effect on writing. Sundeen (2012) examined the effects of an explicit organizational strategy (mind-mapping) on the writing of high school students with learning disabilities. The results of the study indicated an improvement in the quality of data from a writing pre- and

post-test. The participants' interviews suggested that students felt that the use of the strategy and explicit strategic instructions helped to improve their writing. Their teachers believe that the strategy has greatly helped them and described improvements in pre-writing planning.

In particular, mind mapping to teach writing in a foreign language was found to be useful for both children and adults. Studies such as (Al-Jarf, 2009; Al Naqbi, 2011; Fiktorius, 2013; Shakoori et al., 2017) show the effect that mind mapping has on both writing achievement and attitudes. The following section reviews studies that have addressed the relationship between the study variables.

Fiktorius (2013) explored the integration of mind mapping in the EFL classroom. As a result of the discussions and review of previous literature, Fiktorius (2013) concluded that mind mapping is an effective way to take notes and share ideas. The strategy seems particularly appropriate in helping students plan their writings and encouraging them to reach a deeper level of understanding of writing topics, suggesting that mind mapping may affect students in terms of the ability to plan and organize their ideas for writing assignments under exam conditions. The results also indicated that mind maps are most valuable when the main objective is to develop a comprehensive understanding of all basic concepts' participation in the subject area, and can help to achieve creativity, organization, productivity, as well as stimulate memory.

Al Naqbi (2011) conducted an investigation to help students in the eleventh-grade move from a product-based approach to a process-type approach to writing, and to evaluate the use of mind mapping in this context as a pre- brainstorming strategy in the EFL classroom. Initial results indicate that using mind maps was associated with a noticeable shift in the writing of students, making them more active learners. As such, they began to practice different skills, like asking questions to understand writing topics

and generating their own ideas for different writing tasks. Moreover, the students seemed more understanding of the mind map technique and the rationale underlying it.

Shakoori et al. (2017) researched the effect of concept mapping as a graphic tool in writing achievement among EFL learners. In a semi-experimental design, 28 students from the Danesh Gostar Foreign Language centre in Tehran, Iran, were selected as a sample group and divided into an experimental and a control group. The experimental group received instruction through conceptual mapping while the other group practiced the traditional education model. Results showed that the use of conceptual drawing did affect writing of the experimental group, leading the authors to conclude that the mapping method is effective. As concluded by Shakoori et al. (2017) mapping excels as a graphic tool to represent knowledge that emphasizes the relationships between concepts, facilitates writing, makes writing practice interesting for EFL learners, and provides the depth and meaning of learning.

In addition to the studies mentioned, Khudhair (2016) conducted a study to investigate the impact of mind mapping as a pre-writing tool on the essay writing of Iraqi EFL college students. In his study, 60 EFL college students were randomly selected and then divided into an experimental and a control group. First of all, participants of the two groups were given a pre-test in order to ensure comparability of their essay writing. Unlike the control group, the experimental group was then trained to write using mind mapping as a pre-writing strategy. A post-test was administered to both groups to measure the effect of the intervention. The results showed a significant difference in writing achievement between the two groups in favour of the experimental group.

Other studies have also showed that the mind mapping strategy is popular among students and teachers as a result of its positive impact on writing achievement.

Nurlaila (2013) conducted a study on the use of mind the mapping technique in writing a descriptive text. The results showed a significant improvement in the ability of students to write after mind mapping. In addition, most of the students gave positive responses to the mind mapping strategy in writing descriptive texts. In addition, the researcher conducted interviews with the students which revealed that the students liked this technique as it motivated them to write descriptive texts in an enjoyable way and improved their writing. It increased vocabulary and creativity, and it helped them to arrange sentences and organize ideas. Nurlaila (2013) recommended using the technique of mind mapping in teaching writing of different types of texts and at levels of education.

In 2009, Al-Jarf published a study in which he investigated the students' attitudes towards using mind mapping software to help them with their English writing. The sample consists of students in their first writing course in EFL who had difficulty generating ideas in writing paragraphs with topic sentences and supporting details. The mind mapping program was used to help half of students exchange ideas, generate ideas, and link key ideas with supporting details. Mind mapping software used lines, colours, arrows, and branches to show connections between ideas created on the mind map. The program was used to create mind maps for writing articles every week. Previous to use of the mind mapping software, there were no differences between the two groups in their ability to write. After half of the students learned through the program, post-test results showed that the experimental students who had used mental mapping programs achieved higher writing gains. Additionally, those students had positive attitudes towards using the mind mapping software.

The mind mapping strategy also affects the way students perceive writing in English. Saed & Al-Omari (2014) studied the effectiveness of a mind mapping program

to develop writing achievement skills among Jordanian high school students and to assess the role that mind mapping strategy can play in enhancing student attitudes towards writing. The results showed statistically significant differences in the mean scores of students in their academic achievement and their attitudes towards writing, in favour of the experimental group. In other words, there was no significant difference between the teaching method and the students level in English (good, middle or poor) in terms of the students' achievement or attitudes towards writing, indicating that the mind mapping training had a positive effect on both achievement and attitudes regardless of students' overall language level.

Also, Shakoori & Kadivar (2015) conducted a study on concept mapping as a pre-writing strategy and examined its effect on EFL learners' writing achievement and interest. The participants were students from Danesh Gostar Foreign Language center in Tehran, Iran, ranging from 12 to 18 years old. The results showed that conceptual drawing was effective in improving the writing of the experimental group and also in increasing the interest of EFL learners in writing English as a foreign language. Shakoori & Kadivar (2015) note that the use of effective and practical methods such as concept mapping can facilitate writing as well as make writing interesting for EFL learners. It can give depth and meaning to their learning, increase their interest in writing specifically, and generally motivate them to learn English as a foreign language.

Previously, Zaid (2011) had made a study to assess the impact of multimedia conceptual mapping and online reading before writing on the quality of students' compositions and their fear of writing. Results shows that online reading and multimedia conceptual mapping to be more effective than traditional writing instruction. In addition, multimedia conceptual mapping was proven to be more effective than online reading as a pre-writing strategy. Results also indicates that both

educational strategies used had a significant impact on improving students' writing. However, the multimedia conceptual mapping increased students' apprehension. Zaid (2011) suggested that the increase in fear could be due to the pressure that such techniques put on the students, especially because students had to use sophisticated and demanding software to design concept maps.

Similarly, Tayib (2015) conducted a study to determine the effect of using graphic organizers on students' writing achievement, and to explore the impact of graphic organisers on students' attitudes towards writing. The sample was first-year male students at the preparatory college at Umm-Al-Qura University in Makkah, Saudi Arabia, whose ages ranged from 17 to 19 years. The participants completed a writing test before and after the treatment as well as an attitude questionnaire. The findings showed that students' writing ability had improved and that their attitudes towards writing in English were positively affected.

Previous studies used mind mapping strategy as a pre-writing strategy to manage the process of L1 and L2 writing. Mind mapping strategy in these studies is used to generate and connect ideas and, in some cases, related vocabularies are added. However, none of them intended to organize grammatical knowledge inside the mind map.

2.6 Conclusion

Along with reading and comprehension, writing is indispensable. Writing skills are an indicator of educational achievement and a prerequisite for involvement in public life and in the international economy. Nevertheless, a large number of school students are graduating without the required levels of writing skills (Dean, 2010).

As suggested by extant literature, using strategies, especially those that mirror how the human mind works, can help students have some control over the skills and

cognitive processes necessary when writing and thus improve their writing and attitudes. Mind mapping as an educational strategy is supported by empirical evidence, as several studies have reported that mind maps helped improve students' L2 writing achievement and attitudes toward writing. In addition, mind mapping was positively perceived by students as well as teachers as a tool that can improve students' L2 writing.

However, none of the previous studies on mind maps included grammatical clues or syntactical structures. Mind maps were only used as a tool to generate and organize ideas and sub-ideas, although in some cases it included related vocabulary. As stated by Sturm & Rankin-Erickson (2002), mind mapping helps students write with more confidence by breaking down the skills and tasks they have to handle during writing. It also helps them consciously and separately think about different linguistic aspects of their writing. Motivated by previous studies on the problems facing first-year female Saudi EFL students, the researcher intends to include syntactical structures and grammatical clues to the map to help students manage and organize linguistic knowledge while writing.

To summarize, writing in general, and in L2 writing in particular, is a highly complex skill as it includes several cognitive processes. This researcher recognizes the importance of planning in helping writers write more effectively. The researcher finds it interesting and worthwhile to investigate planning strategies that can enhance students' writing such as methods that have the ability to support the cognitive processes. Mind mapping, as a proposed strategy, supported by theoretical and empirical evidence, has the potential to be a successful method in enhancing L2 writing.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

The objective of this study is to explore the effect of using the strategy of mind mapping on the writing achievement and attitudes of a sample of first-year female Saudi EFL students at Taif University. The target population consists totally of first-year female EFL students studying at Taif University, all native speakers of Arabic.

The research method and approach, the description of the method, the study population, the methods and tools used in collection of data, the dependent and independent variables in the research study are presented. Furthermore, the implementation of the method, the considerations of the reliability and validity, the models for the study and statistical methods and finally, the summary, are described in detail.

3.2 The Study Methodology

This research is quasi-experimental in nature, and also a correlational study because the effect of using the strategy of mind mapping on the writing achievement and attitudes towards writing is reported. In addition, this correlational study reflects cross-sectional research, since it shows the students' behaviour during a specific period of time.

A mixed method approach was used to collect and analyse data, check compatibility results, and integrate results and conclusions. Mixed Method Research (MMR) is defined as a blend of qualitative and quantitative techniques generated by the researcher or by a research team and aims to obtain depth along with the width of realization or confirmation with a high level of support within a single study or directly related studies (Creswell and Clark, 2011).

According to Creswell (2008), mixed methods research is a specialized form of study that combines quantitative and qualitative data to observe, analyse and integrate. Furthermore, the mixed method approach is a practical approach by which the researcher gathers data via both quantitative followed by qualitative techniques or vice versa, or even simultaneously (Creswell and Clark, 2011). Thus, the method that was used by the researcher involved firstly an experiment with a quasi-experimental design to gather the quantitative data, followed by interviews to gather the qualitative data.

If the researcher collects data through a quantitative approach (quasi-experimental design) and follows this up by conducting interviews with the people included in the sample who participated in the experiment to discuss the experimental results in greater depth, the findings will be more useful and will generate added value (Creswell and Clark 2011).

Thus, a mix between quantitative and qualitative approaches was utilized in this study to generate more in-depth and accurate information on the research topic. The survey was distributed to the sample of 128 first-year female EFL students at Taif University, and the interviews were conducted with a sample of 10 female students from the experimental group after completing the post-test and after answering the questionnaire.

3.3 Description of Methodology

This study was undertaken in three phases: The pre-experimental phase, which took place during the first week, the experimental phase, which started in the 2nd week and ended on the 10th week, and the post-experimental phase, which took place during the 11th week. It was performed during the first semester of the academic year

2017/2018. The study lasted for eleven weeks, considering that mid-term exams week was excluded.

Table 3.1: Data collection

Groups Phases	Control group	Experimental group
Pre-experimental phase (week one)	<ul style="list-style-type: none"> • Writing achievement pre-test. • Writing attitudes questionnaire. 	<ul style="list-style-type: none"> • Writing achievement pre-test. • Writing attitudes questionnaire
Experimental phase (weeks two to ten)	Traditional writing instruction.	Mind mapping writing sessions.
Post-experimental phase (week eleven)	<ul style="list-style-type: none"> • Writing achievement post-test. • Writing attitudes questionnaire 	<ul style="list-style-type: none"> • Writing achievement post-test. • Writing attitudes questionnaire • Interview

As Table 3.1 shows, each phase is characterized by its situation: in the pre-experimental phase (week one) the control group received the writing achievement pre-test and answered the writing attitudes questionnaire; in the experimental phase (weeks two to ten), the control group received traditional writing instructions. Finally, in the post-experimental phase (week eleven), the control group took the writing achievement post-test and answered the writing attitudes questionnaire.

Likewise, in the pre-experimental phase (week one) the experimental group was tested by the writing achievement pre-test and answered the writing attitudes

questionnaire. In the experimental phase (weeks two to ten), the experimental group received mind mapping writing sessions. Finally, in the post-experimental phase (week eleven), the experimental group completed the writing achievement post-test and answered the writing attitudes questionnaire. The reason behind conducting a post-test was to assess and compare progress and achievements of students in each group to evaluate the impact of the mind mapping sessions.

All this is followed by interviews with ten students, chosen at random, who formed the focus group drawn from the experimental group, to enhance the results by obtaining more in-depth data from students regarding their writing problems, strategy use and their attitudes towards the strategy of mind mapping.

In conclusion, a Mixed Methods Approach was used to address the study research questions. The methodology design was quasi-experimental and consisted of setting up two groups: control, and experimental. Pre-tests and post-tests were used beside quasi-experimental methods.

3.4 Study Population

Female first-year EFL students from the College of Science at Taif University are targeted for the study sample. All are native speakers of Arabic and had received formal English language instruction for at least six years before starting university. The students live in Taif or the surrounding towns and villages and are between 18 to 23 years old.

3.5 Pilot Study

Prior to the planned study, a pilot study was conducted, with the objective of calculating psychometric characteristics of scales and checking the validity and reliability of the questionnaire and the writing achievement test. The pilot study sample

included 42 female students from the College of Science, more specifically the Biology department, whose ages ranged from 18-24 years, mean was 18.929. The standard deviation was (1.369) years, and their academic level 1.

3.6 Study Sample

The study sample comprised 128 students whose ages ranged from 18-23 years at the time of the study, registered in the first-year EFL course at Taif University. The sample was divided into two groups: the control group consisted of 71 students, and the experimental group included 57 students. In the control group, the students received traditional writing instructions. In the experimental group, the students were taught through a program of mind mapping writing sessions.

A total of 128 female first-year EFL students at Taif University participated in the study. They were chosen at random from the first-year cohort of the university. The students' ages ranged from 18-23 years $M=18.652$, $SD=.812$. They were divided into two groups: the experimental group, 57 students, whose age ranged from 18-23 years, $M=18.474$, $SD=0.710$, and the control group 71 students, whose age was between 18-23, $M=18.662$ $SD=0.926$.

3.7 Study Variables

The independent variable for the current study was the teaching method used to teach writing. This variable has two levels:

1. Traditional method.
2. Mind mapping program

The dependent variables for the current study were:

1. Writing achievement
2. Students' attitudes towards writing

These variables were measured before and after the treatment by using pre and post writing achievement tests as well as pre and post writing attitudes questionnaires.

3.8 Study Instruments

Data were collected using a mixed methods approach from two main sources. The primary data was collected via questionnaires, interviews and the writing achievement tests. Detailed descriptions of the tools are provided in 3.8.1, 3.8.2 and 3.8.3, including the terms of their contents, justifications for their choices, and further details.

3.8.1 The writing attitudes questionnaire

A writing attitudes questionnaire was adapted from Sturm (1996) for the purpose of studying students' attitudes towards writing before and after the treatment. The researcher added seven additional statements to serve the purpose of the current study. This attitude questionnaire addressed the constructs of enjoyment (6 items), ease (6 items), competence/ability (7 items), and strategy used to write (6 items) (see Appendix A). The total was 25 Likert-scale items. Choices on the scale ranged from 1 (strongly disagree) to 5 (strongly agree).

3.8.1.1 Development and use of the writing attitudes questionnaire

The main goal of using this writing attitudes questionnaire adapted from Sturm (1996) was to investigate the students' attitudes towards writing in English before and after the treatment. Appropriate statements were drawn from and added to Sturm's (1996) questionnaire, paraphrased and modified to suit this study. The researcher then presented this questionnaire to her research supervisor at the university, and to some academic instructors working at Taif University, who provided valued notes and recommended some alterations. At this stage, the questionnaire consisted of 25

statements spread over 4 dimensions. These were reduced to 23 items after the pilot study (see Appendix A). In order to preserve validity, the questionnaire was then translated into Arabic by the researcher, because all sample students are native speakers of Arabic who might not understand the questionnaire details in English.

Then, the Arabic version of the questionnaire was again presented to several translation-certified instructors from the English Language Centre for their views concerning the suitability of the translation, its clarity, the correlation of each question with respect to the questionnaire dimensions and the accuracy of the Arabic grammatical phrasing of the questions. To increase the credibility of the study instrument, it was revised through various steps.

The first step was the translation of the questionnaire from English to Arabic. After the translation, it was revised by an Arabic language editor in order to improve its language. Then, a professional colleague, a native speaker of English with Arabic as a second language, was asked to re-translate the questionnaire (Arabic to English). This was done to allow a comparison of the Arabic version with the original English version of the questionnaire, in order to check for differences in terms of translation and to produce the final edition of the questionnaire before the distribution. Thus, the questionnaire passed through three stages of translation and revision (English-Arabic-English), for both Arabic and English versions. The participants were asked to respond to each item by ticking the appropriate response from five choices. The reliability of the questionnaire was confirmed, and Cronbach's alpha was used to check the consistency of the results produced by the scale. According to Sekaran (2004), the values of Cronbach's Alpha for each variable of the questionnaire and for the entire questionnaire should exceed 0.60 in order to consider the result acceptable.

1.Content validity of students` writing attitudes.

For content validity, the measurement was presented to five experts from the English Language Centre and Foreign Language Department to verify that each item belonged to its dimension, and to correct it if adjustment was required.

2. Construction validity of students` writing attitudes.

The researcher used the item-total correlation by Pearson correlation coefficient as in the following Table 3.2.

Table 3.2: Item-total correlation for students` attitudes toward writing (n=42)

1-Enjoyment		2-Ease		3-Competence		4-Strategy use	
Items No	r	Items No	r	Items No	r	Items No	r
1	.805**	7	.024	13	.434**	20	.849**
2	.412**	8	.699**	14	.688**	21	.713**
3	.764**	9	.780**	15	.683**	22	.134
4	.550**	10	.841**	16	.684 **	23	.614**
5	.806**	11	.758**	17	.574**	24	.775**
6	.669**	12	.819**	18	.594**	25	.731**
				19	.564**		
r: Pearson correlation coefficient **Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.							

As shown in Table 3.2, all items have significant correlation with the total score at level (0.01). Two items (7 and 22) had no significant correlation with the total score of its dimension, so they were omitted, making the final number of the measurement items 23 items.

3. Validity and reliability of students' writing attitudes questionnaire.

The researcher calculated the reliability using two methods, Cronbach's Alpha and Split-half (Spearman-Brown) as shown in the following Table 3.3.

Table 3.3: Reliability for questionnaire on Students' Attitudes Toward Writing

Methods	1- Enjoyment	2-Ease	3- Competence	4-Strategy use	Total score
Cronbach's Alpha	0.760	0.824	0.714	0.786	0.887
Split-half	0.841	0.882	0.826	0.849	0.932

As shown in Table 3.3, the reliability coefficient was very high in both methods Cronbach's Alpha and Split-half 0.887 and 0.932 respectively. This indicates that the reliability for the questionnaire on students' attitudes toward writing was very high. For dimensions methods, Cronbach's Alpha coefficients ranged from 0.714 to 0.824, and Split-half coefficients ranged from 0.826 - 0.882, both high.

3.8.2 Writing rubric (for the writing achievement test)

A writing achievement test was prepared by the researcher and a rubric was used to assess the students' writing. The writing achievement test was administered to determine students' writing achievement before and after the treatment. The pre-test was administered at the start to both the control and experimental groups. The post-test was used to assess the progress of both groups at the end of the writing sessions. In other words, the test was administered twice to both groups, first during the pre-experimental phase during the first week, and secondly during the post-experimental

phase in the eighth week. The duration allotted for both tests was 45 minutes. Students were not allowed to use dictionaries during either exams.

Consequently, the following points were checked in advance, as this test would be used with the study research participants (see Appendix B):

- The appropriateness and relevance of the questions to the goals of the course.
- The appropriateness and relevance of the questions to the purposes of the course.
- The linguistic clarity of the questions.
- Verification that the items measured what they purported to measure.

The importance of the writing achievement test is summarized by its role as the main evaluation of students' achievement and their progress. Therefore, to determine the validity of the writing test, the researcher calculated the following

1. Content validity of the writing achievement test

The test was submitted to five university teachers who are specialists in English, for their opinions on the subject of writing and helping words. Then the researcher made adjustments to the test and its instructions according to their observations and suggestions.

2. Reliability of the writing achievement test

The researcher used the inter-rater reliability method. For the pilot study, the researcher corrected students' exam papers without writing the score on the test papers, then asked her colleagues to correct the same papers of the pilot sample. The Pearson correlation coefficient of measurement reliability of the test was 0.807, while it is significant at 0.001. This means the test that was used for this study has high reliability.

3.8.3 Interviews

The researcher chose to interview students to determine their views and sensitivities regarding their writing difficulties and the writing strategies that were used, in addition to a question about whether they think mind mapping helped them with writing in English. The interviews took place after the experimental group's post-test, to elicit the students' attitudes towards writing in English and their usage of writing strategies.

Interviews were conducted on a focus group of 10 students selected from the experimental group. Five students were selected for being the highest achievers and five for being the lowest achievers. Face-to-face interviews (interviews with each student separately) were conducted in a suitable and quiet location at the university, each lasting for approximately twenty minutes. Some students refused to allow recording of the interview, so the researcher took notes. The questions were:

1. What difficulties do you face to write in English?
2. What strategies do you use to overcome these difficulties?
3. Does mind mapping help you to write in English? How?

3.8.3.1 Interview analyses

The interview answers were read, analysed and coded. Responses were classified, according to what the code described. Each code covered several sub codes as follows.

1. WRITING DIFFICULTIES

- Spelling
- Organization
- Ideas

- Vocabulary
- Grammar

2. WRITING STRATEGIES USED

- Memorization
- Mimicry
- Practice
- Self-correction

3. ATTITUDES TO MIND MAPPING

Positive attitudes

- Organization
- Vocabulary
- Grammar

Negative attitudes

3.9 The Mind Mapping Program

A total of 128 female Saudi learners of English as a foreign language participated in an 11-week study with a pre-test, post-test program. During the first week the writing achievement test and the writing attitudes questionnaire were administered to both groups. However, in the first week, during the first welcoming session, the experimental group watched a Power Point presentation on mind mapping strategy and its uses and benefits that the control group did not view. From week 2 to week 10, all students had writing sessions on the following topics.

Talk about yourself/father/mother/friend, my house, my family, my street, my favorite restaurant, likes and dislikes, things you usually do on the weekend, how you spend your free time, sleeping habits, clothes and colors you like, my daily routine, things

students can do at the university, last weekend, last holiday, a city you visited recently, my life now and then, my grandfather's life, life in Saudi Arabia before oil.

In each of the one- hour sessions (with a total of 18 sessions), the participants received different pre-writing instructions. The experimental group, consisting of 57 students, practiced using mind maps to plan their writings, whereas the control group of 71 students worked according to the traditional writing teaching methods. The researcher taught both groups who were enrolled in an English1 course for six hours per week, meant for beginner-level students. Two of the six hours a week were dedicated to writing sessions for both groups. However, during the sessions of the experimental group, while the teacher used coloured whiteboard markers to draw a sample mind map on the board, the students used crayons and blank A4 sized papers to draw their own mind maps in order to plan their writing.

Since the students of both groups were considered beginners, they were only expected to write simple paragraphs using simple sentences. The researcher had noticed from previous experience and from the pre-test writing achievement test that the students struggled even on the sentence-writing level.

Consequently, the mind mapping writing sessions for the experimental group were designed as follows. First, the teacher introduced the topic to the students before reviewing related vocabulary that had been introduced in previous lectures. Then, students were asked to draw a theme picture representing the topic at the centre of the blank A4 page. After that, students were instructed to think about related ideas, reflecting on the appropriate tense to be used. On the sheet, each idea was represented by a verb branching out from the main theme. The students then decided the subject (nouns, noun phrases, pronouns) of each sentence and added those in front of the verb already written on the sheet. The students then added several possible details branching

out from each verb (nouns, noun phrases, adjectives, prepositional phrases). Each main branch was drawn in a different colour. Images, symbols and emojis could be added to the map, as shown in figure 3.1.

Figure 3. 1: A sample of students' hand drawn mind maps

After the map was ready, each branch of the map would represent a path which, if followed by students, would help them construct a full simple sentence. Connecting words such as “and” and “but” would interconnect the branches, if needed. Then the students logically numbered their sentences. Students were then able to write their first drafts, following their map. Students could add adverbs, adjectives in their proper positions to further enrich their sentences. Students then revised their writing to check their grammar, vocabulary, spelling, punctuation and coherence. Finally, students wrote

the final text. Using this process, and depending on the topic, one map could be a part of another map. For example, a short paragraph about "my father" could be a part of a longer paragraph talking about "my family,"

3.10 Conclusion

To summarize, the objective of this study was to investigate the effect of using mind mapping strategy on first year EFL students' writing achievement and their attitudes towards writing in English. In order to achieve the aims, the researcher adopted a quasi-experimental design to test the effect of using the independent variable (teaching method) on the dependent variables, i.e. writing achievement and attitudes towards writing. The researcher also investigated difficulties faced by students and strategies they use to overcome them. In addition, their views on the effectiveness of mind mapping on their English writing were investigated. In order to collect data, the researcher administered pre- and post- writing achievement tests, pre- and post-questionnaires on writing attitudes, and interviewed participants in a focal group. A pilot study was done prior to the study to confirm the validity and reliability of the study instruments.

CHAPTER FOUR: FINDINGS

4.1 Introduction

This chapter will contain results of the effect of mind mapping to enhance EFL students' writing achievement and their attitudes towards writing. The researcher used the statistical package of social sciences (SPSS) to analyze data and to test the study hypotheses.

Table 4. 1: Comparison of the control and experimental groups on the pre-test of writing achievement and attitudes towards writing

Writing Attitudes Questionnaire Subscales and Writing Achievement	Group	<i>n</i>	Mean	Std. Deviation	<i>t</i>	df	Sig.
Writing achievement	Experimental	57	7.412	1.411	.226	126	.821
	Control	71	7.359	1.243			
Enjoyment	Experimental	57	16.912	3.275	.678	126	.499
	Control	71	16.451	4.218			
Ease	Experimental	57	13.175	3.263	.096	126	.923
	Control	71	13.113	3.944			
Competence	Experimental	57	20.614	4.030	.903	126	.368
	Control	71	19.817	5.597			
Strategy use	Experimental	57	18.175	3.007	- .167	126	.868
	Control	71	18.282	3.983			
Total score for attitudes questionnaire	Experimental	57	68.877	9.430	.564	126	.574
	Control	71	67.662	13.887			

Table 4.1 shows no significant difference between the control and the experimental groups in pre-tests in both writing and also in the attitudes towards writing and its factors, indicating initial equivalence between the control and experimental groups.

4.2 Findings

4.2.1. Quantitative data

4.2.1.1 Research question 1

To answer research question 1, are there any significant differences between the mean scores of the experimental group and the control group on the post-tests of the students' writing attitudes and writing achievement? Hypothesis 1 (H_1) is that there are significant differences between the mean scores of the experimental group and the control group on the writing achievement post-tests of the first-year female Saudi EFL students and their attitudes toward writing in favor of the experimental group. The corresponding null hypothesis is that there are no differences between the experimental and control groups on the post-test. To test this hypothesis the researcher performed an independent sample t-test, as reported in Table 4.2.

Table 4.2: Difference between the experimental and the control groups' mean scores on the post-tests of writing achievement and attitudes towards writing

Writing Attitudes Questionnaire Subscales and Writing Achievement	Group	<i>n</i>	Mean	SD	<i>t</i>	df	Sig.
Writing	Experimental	57	9.219	.443	4.839	126	.000
	Control	71	8.613	.859			
Enjoyment	Experimental	57	21.667	2.734	4.749	126	.000
	Control	71	18.662	4.099			
Ease	Experimental	57	16.667	4.397	2.662	126	.009
	Control	71	14.563	4.478			
Competence	Experimental	57	24.509	2.331	3.306	126	.001
	Control	71	22.127	5.020			
Strategy use	Experimental	57	21.193	3.628	2.941	126	.004
	Control	71	19.197	3.959			
Total scores of attitudes	Experimental	57	84.035	7.443	4.596	126	.000
	Control	71	74.549	14.074			

Table 4.2 shows significant differences between the experimental group's mean scores and the control group's mean scores on the post-test of writing achievement $t(126) = 4.839, p \leq 0.001$, in favour of the experimental group. In addition, there are differences between the experimental group's mean scores and the control group's mean scores on the post-tests of the students' attitudes towards writing and its factors,

in favour of experimental group. For Enjoyment $t(126) = 4.749$, $P \leq 0.001$, for Ease $t(126) = 2.662$, $p \leq 0.009$, for Competence $t(126) = 3.306$, $p \leq 0.001$, and for Strategy use $t(126) = 2.941$, $p \leq 0.004$ and total scores of attitudes $t(126) = 4.586$, $p \leq 0.001$. Thus, the researcher accepts H_1 and rejects the null hypothesis. The scores show also that the content of each session was suitable for the learners' level.

Figure 4.1 Comparison of scores on pre and post-test of experimental and control group

4.2.1.2 Research question 2

To answer research question 2, are there any significant differences between the mean scores of the pre- and post-tests of writing attitudes and writing achievement for the experimental group? Hypothesis2 (H_2) says that there exists significant differences between the mean scores of the pre- and post-tests of the first-year female Saudi EFL

students' writing achievement and attitudes towards writing, who have received mind mapping training, in favour of the post-tests. The corresponding null hypothesis is that there are no significant differences between the mean scores of the experimental group when the pre-test and post-tests are compared. To test this hypothesis, the researcher used a paired sample *t*-test, as illustrated in Table 4.3.

Table 4.3: Differences between the mean scores of the pre- and post-tests of writing achievement and attitudes towards writing for the experimental group

Writing Attitudes Questionnaire Subscales and Writing Achievement	Applied	Mean	<i>n</i>	Std. Deviation	Paired Differences means	<i>t</i>	Df	Sig.
Writing achievement	Pre	7.412	57	1.411	1.807	9.324	56	.000
	Post	9.219	57	0.443				
1. Enjoyment	Pre	16.912	57	3.275	4.754	9.021	56	.000
	Post	21.667	57	2.734				
2. Ease	Pre	13.175	57	3.263	3.491	5.483	56	.000
	Post	16.667	57	4.397				
3. Competence	Pre	20.614	57	4.030	3.895	7.297	56	.000
	Post	24.508	57	2.331				
4. Strategy use	Pre	18.1754	57	3.0007	3.018	4.859	56	.000
	Post	21.1930	57	3.6275				
Total score of the attitudes questionnaire	Pre	68.8772	57	9.4303	15.158	10.89	56	.000
	Post	84.0351	57	7.4426		4		

Table 4.3 shows significant differences between the mean scores of the pre- and post-tests of the female Saudi EFL students' writing achievement $t(57) = 9.324$,

$p \leq 0.001$ in favor of the post-test. There are significant differences between the mean scores of the pre- and post-tests of the female Saudi EFL students' attitudes towards writing $t(57) = 9.021, p \leq 0.001$ in favor of the post-test, too. There are significant differences between the mean scores of the pre- and post-tests of the female Saudi EFL students' factors of attitudes towards writing (Enjoyment, Ease, Competence and strategy use), $t(57) = 9.021, p \leq 0.0001$; $t(57) = 5.483, p \leq 0.001$; $t(57) = 7.297, p \leq 0.001$; and $t(57) = 4.859, p \leq 0.001$, respectively, in favor of the post-tests. Thus, the researcher accepts H_2 and rejects the null hypothesis for this question. This means that the mind mapping training was effective with the students and the content of each session was suitable for the learners' level. The following figure illustrates these values.

Figure 4.2 Mean scores of pre- and post-tests on writing achievement and attitudes towards writing

4.2.2. Qualitative data

In order to answer the third, fourth and fifth research questions, qualitative data from interviews were collected. A focus group consisting of ten students equally divided into high and low achievers was interviewed.

The researcher interviewed five high achievers from the experimental group. The students were named HS1, HS2 ... (HS5). The researcher also interviewed five low achievers from the experimental group. The students were named (LS1), (LS2) ... (LS5). The following is an overview of the students' answers and study findings using data from the interview.

4.2.2.1. Research question 3

In order to answer study question 3, what are the difficulties that the students face in writing in English? Hypothesis 3 (H₃) states that Saudi first-year EFL students face difficulties writing in English on the sentence level. The corresponding null hypothesis is that they do not face difficulties writing sentences in English. To test (H₃) the students were asked "*What difficulties do you face while writing in English?*" The high achievers' group's answers fell in to three categories: organization, vocabulary and spelling. The students' main concern was about spelling (four out of five students) and two out of five students said that they had problems related to vocabulary. Student (HS1) said "*I first think about the vocabulary that I know is right, then I write a sentence*". Two out of the five students were concerned about organization. For example, student (HS5) said, "*it is hard for me to organize my ideas*". However, student (HS4) said that she did not have any problems in writing because she had "*time to think about the sentences before writing*".

On the other hand, low achievers' answers were classified into five categories: vocabulary, grammar, organization, ideas and spelling. The majority of the low achievers group (four out five) said that one of the difficulties was related to grammar. For example, student (LS3) said, *"It was hard for me to write a correct sentence. I was confused about the sentence structure."* Three out of five students struggled with having enough vocabulary. Student (LS5) said, *"Sometimes I am confused about choosing the right verb."* In addition, three out of five students had problems in spelling. (LS2) said, *"It is easy for me to read but it is hard for me to write, maybe because of spelling."* Organization and ideas were the two least problematic issues of students, with only one student reporting each.

The students' answers assert that students face difficulties in writing in English related to grammar, vocabulary and spelling in addition to ideas and organization. Thus, the researcher accepts H₃ and rejects the null hypothesis for this question.

4.2.2.2. Research question 4

To answer study question 4, which writing strategies do students use to overcome writing problems? Hypothesis 4 (H₄) says that students do not use pre-writing strategies to plan their writing. The corresponding null hypothesis is that they use pre-writing strategies to plan their writing. To test H₄ the researcher asked the students *"What strategies do you use to overcome these difficulties?"* The answers were limited to memorization, practice and self-correction. Most high achievers said that they used methods related to memorization, except for one (HS1) who said, *"actually I did nothing. I felt like I can express myself, so I did nothing"*. However, all students mentioned that they memorize words for meaning and spelling, but not that they memorize sentences or paragraphs for the exams. For example, student (HS3) said, *"I make a list of words and memorize it"*. Three out of five students said that they just

practice. Student (HS2), who also was the only one who used self-correction, said, *"I write, and I use websites to correct my writing"*.

On the other hand, low achievers' answers were limited to two categories: memorisation and mimicry. All students relied on strategies related to memorization. Student (LS5) answered the question by saying, *"Honestly, I just memorize"*. Student (LS4) who also is the only student who used mimicry said, *"I mimic the paragraphs written in the book and then memorize them for the exam."*

Students answers regarding writing strategies show that they use strategies only to pass the exam and that they do not have clear understanding of writing strategies. The answers most importantly show that they do not plan their writings which confirms hypothesis 4. Therefore, the researcher accepts H₄ and rejects the null hypothesis for this question.

4.2.2.3. Research question 5

To answer study question 5, do students think that mind mapping helped them write better and how? Hypothesis 5 (H₅) states that students think that using mind mapping helped them write better. The corresponding null hypothesis is that they do not think it helped them. To test H₅ the researcher asked the third interview question *"Did the use of mind maps help you write in English? How?"* Three out of five high achievers students answered affirmatively for the first part of the question except for students (HS1) and (HS2) who said, *"I do not need to waste time on it. Instead I can organize it in my head and then write."* Student (HS2) said, *"I taught my young cousin to use it to write in English and she really liked it"*. She also mentioned that, *"if the map includes only ideas it can help me organize my ideas, because I do not need it for grammar."* The other three students' answers fell into two categories: organization and

grammar. For example, student (HS5) thought that the strategy helped her *"use the correct form of the verb and organize ideas"*.

As for low achievers group, all students answered yes to the first part of the question. For answering the question, *"how mind mapping helped you?"*, students' answers were within three categories: organization, vocabulary and grammar. As for grammar, all students thought that mind mapping strategy helped them with sentence structure, as (LS2) mentioned, *"It was useful for me because I was not good at constructing sentences."* As mentioned by two students, mind mapping also helped them with vocabulary, as stated by (LS5), *"when I think about an idea, it is easier to think of the appropriate verb and then make a sentence."* Only one student thought that mind mapping helped her with the organization of ideas. Student (LS4) said, *"it wasn't easy for me to organize my ideas."*

Answers show that students generally think that mind mapping helped them write better in English. Students expressed that it helped in vocabulary, grammar as well as organization. Accordingly, the researcher accepts H₅ and rejects the null hypothesis for this question.

4.3 Conclusion

The aim of the current study is to test the effect of using mind mapping strategy on female EFL students' writing achievement and their attitudes towards writing. The researcher also investigates some of the difficulties faced by students during writing and strategies they use to overcome them. In addition, the researcher questioned if student think that mind mapping strategy helped them write better in English. The findings of the current study were the following.

1. There exists differences between the mean scores of the experimental and the control group on the post-tests of the students' writing achievement and writing attitudes, in favor of the experimental group.

2. There exists significant differences between the mean scores of the experimental group pre- and post-tests in writing achievement and writing attitudes, in favor of the post-test.

3. The students' answers indicate that their difficulties to write in English include lack of vocabulary, organization, spelling and grammar.

4. The students' answers indicate that they are accustomed to memorizing, practicing, and self-correcting, which indicates they are not used to planning their writing.

5. In general, the students positively perceived the strategy of mind mapping and thought it helped them in aspects like grammar, vocabular and organization. Mind mapping eventually helped them write in English.

CHAPTER FIVE - DISCUSSION

5.1 Introduction

This thesis was undertaken to explore the effect of using a mind mapping strategy to enhance Saudi female EFL students' writing skills and improve their attitudes towards writing in English. The control and experimental groups were both tested for writing achievement and surveyed in order to determine their attitudes towards writing. The experimental group received instruction with mind mapping, whereas the control group received traditional instruction without mind mapping. The data were analyzed quantitatively. Data were also collected from a focus group consisting of ten students from the experimental group by interview and the data from the interviews were analyzed qualitatively.

Results from the present study might contribute to extend research in the area of strategy use to teach EFL writing in general, and in the context of Saudi Arabia in particular. The findings can also give some insight on the applicability and usefulness of using mind mapping to teach different skills inside the EFL classroom in general, and specifically, writing skills. The aim of this chapter is to discuss the findings and conclusions drawn from this study with reference to the research questions. In addition, recommendations for future research and possible implications are discussed in this chapter.

5.2 Discussion of Findings

5.2.1 The strategy of mind mapping and writing achievement

The findings of the current study show that using the strategy of mind mapping is closely associated with statistically significant positive influence on students' writing achievement. Texts were scored for grammar, vocabulary, task fulfilment and

coherence. The findings support the findings of Zaid (2011), Khudhair (2016), and Shakoori et al. (2017), who found that using mind mapping strategy as a prewriting strategy can enhance the writing achievement of EFL students. The positive impact on writing achievement may be due to the ability of mind maps to support knowledge acquisition and retrieval through the aid of visual clues such as colors, lines and images (Khudhair, 2016).

The researcher also noted that some students used the mind mapping strategy during the midterm and final exams to plan their writings. Student (LS1) expressed that during her interview. Verification of that is mentioned in the conclusion of Khudhair (2016), that mind mapping helps students plan their writing under exam conditions, and not only help them remember, but most importantly help them compose during writing exams.

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

5.2.2 The strategy of mind mapping and writing attitudes

The findings of the study show that mind mapping strategy has significantly improved the students' attitudes towards writing in English in terms of ease, enjoyment, competence and strategy use. These findings support some previous studies on the same subject. Studies by Saed & AL-Omari (2014), Tayib (2015), and Shakoori & Kadivar

(2015) contains confirmation on the positive effect mind mapping has on students' attitudes towards writing in English. The authors mentioned above investigate students' attitudes in terms of ease, enjoyment, competence and general interest towards writing in English. Tayib (2015) states that students are more motivated to write in English since they view it as an easier, more fun task after learning to use graphic organizers. It should be noted, however, that a study by Zaid (2011) reports that mind mapping has a negative impact on students' attitudes towards writing because it increases students' apprehension. These findings contrast with those of Al Asmari (2013), who reports lower apprehension with strategy use. Zaid (2011) explains his findings by assuming that students find it stressful because they have to deal with sophisticated software to design mind maps for their writings. Furthermore, while Zaid (2011) investigates attitudes by measuring apprehension, the current and previous studies such as (Sakoori & Kadivar, 2015), (Tayib, 2015) and (Saed & AL-Omari, 2014) studies attitudes in terms of ease, enjoyment, competence, strategy use and general interest in the writing task.

5.2.3 Students' writing problems

Data collected from interviews showed that most high achievers from the focus group had problems related to ideas and organization. On the other hand, interviews done with the low achievers revealed that they had more concerns about the grammatical aspects of the writing task. These findings support the conclusions of several studies including those of Zamel (1983) and Jones (1982), in that skilled writers mainly focus and make adjustments to ideas while poor writers are mostly concerned about making adjustments related to form. However, these findings contrast with the findings of Jones (1982), who found that poor writers mainly struggle with composing itself not with grammar and their linguistic competence. Nevertheless, from the

researcher's experience, students usually do very well on objective questions related to grammar and vocabulary, yet they fail to apply grammar and vocabulary in writing tasks, implying that students might be overwhelmed by the amount of information processing they have to simultaneously manage while writing. These observations agree with the conclusions in Raimes' (1985) study on unskilled writers, where he concludes that there is no relation between the students' linguistic proficiency and their writing proficiency, and hence, that writing is not simply a reflection of students' linguistic competence.

5.2.4 Students' writing strategies

Data from the interviews show that all low achievers, from the focus group, memorized whole paragraphs when studying for writing. One low achiever reports in her interview, that she mimics writings from the course textbook. On the other hand, high achievers mentioned methods related to practicing, self-correction as well as memorization of vocabulary and spelling. From the students' answers, it is clear that they do not have an understanding of the meaning of writing strategies. This confirms Alnofal's (2003) conclusion that Saudi students, in general, lack knowledge of how to approach writing in both their native and their second language. Their main focus is on the formal aspects of writing, such as grammar, spelling, and vocabulary.

5.2.5 Students' attitudes towards the strategy of mind mapping

Students' interviews regarding their feelings towards the mind mapping strategy show that most students like it and thought that it helps them to organize their ideas, decide on the appropriate tense and write well-structured sentences. Some studies, such as those by Al-Jarf (2009) and Nurlaila (2013), had also found that using mind mapping, whether drawn by hand or using software, was positively perceived by students. The reason students liked it, according to Nurlaila (2013), is that it helped motivate them by

making writing more enjoyable. Al-Jarf (2009) noted that students liked mind mapping because it helped them to visualize the structure of their writing as well as to make meaningful relationships between ideas.

It should not be overlooked, however, that two students, (HS1) and (HS2) from the high achievers focus group, conveyed that they did not like using mind mapping before writing. First, they believe that they do not need it, and second, they feel it is a waste of time, as was mentioned by (HS1) *"I do not need to waste time on it, instead I can organize it in my head and then write"*. Nevertheless, student (HS2) indicated that she had been teaching her younger cousin to use it to write in English. She mentioned that the cousin liked it very much, and that it had really improved her cousin's writing. A possible reason is that higher-level students find mind maps as used in this study too detailed for them, and that they do not need to think about these details while writing. In other words, high achievers may be able to do the organizing in their heads, and that ability is what causes them to be high achievers in the first place.

5.3 Pedagogical Implications of the Study

This study emphasizes the importance of implementing specific strategic writing instruction in EFL classrooms, by confirming that, instead of teaching the students what to write, teaching them how to write had positive effect on their writing achievement and their attitudes towards writing. The positive effect could be because students using the mind mapping strategy have more control over the process of writing.

The study also confirms the applicability and likability for the strategy of mind mapping in the EFL classroom, to teach different skills in general, and writing skills in particular. Because of mind mapping's ability to display words, pictures, along with associations, it can help students process, store, and recall information. The mind mapping strategy allows students to break down writing tasks and enables them to make

decisions, both consciously and unconsciously, regarding each aspect of the writing task. In addition, the strategy was positively perceived by teachers and students as being fun, creative way to teach and to learn writing. Besides, it is an easy, affordable strategy that does not need many resources to be implemented in EFL classes.

5.4 Suggestion for Future Research

Further research on the effect of using the mind mapping strategy to teach the specific skills of vocabulary, grammar and reading would enrich current literature and give more precise uses for the strategy. Additionally, while this study is limited to the use of the strategy of mind mapping with beginner EFL students, research is needed into its applicability with non-EFL students such as those majoring in English as well as with EFL at different learning levels, to include secondary school.

Because this study is limited to female EFL students, there is room for research into gender differences in Saudi Arabia and other contexts. Finally, the relationship between learning styles and the strategy of mind mapping can be investigated to determine if its success is limited to visual learners.

5.5 Conclusion

This researcher has reported on the use of mind mapping as a pre-writing strategy and its impact on the writing achievement of first-year female EFL students at Taif university, as well as on its effect on their attitudes towards writing. Findings show that mind mapping has a significant positive effect on the students' writing achievement as well as their attitudes towards writing in English. Conclusions of this particular study emphasize the usefulness of integrating grammatical clues along with syntactical associations within the mind maps, to help low-level learners apply grammatical rules while writing.

Furthermore, the study shed some light on the problems faced by EFL students at Taif University. The results show that while high achievers suffer from problems related to ideas and organization, low achievers are more concerned about form at the sentence level. The interviews with students from the focus group selected from the experimental group, also reveal that students have misconceptions regarding the meaning of writing strategies.

Overall, the findings reveal that the strategy of mind mapping is positively perceived by students and especially by lower-level students. Students participating in this study find it to be a very helpful tool in writing. They find it helpful because it helps them organize ideas, gather vocabulary and apply grammatical rules.

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APPENDECIES

Appendix A (Attitudes Questionnaire)

Name _____ Age _____

Major: _____ ID no _____.

The following are statements about your attitudes towards writing in English. In front of each statement are five answers, please place (√) to choose the answer that fits you well. This questionnaire is only going to be used for research purposes. Kindly take your time and answer as honestly as possible.

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
Enjoyment					
1) I like to write in English.					
2) Writing in English is a waste of time.					
3) I feel relaxed when I write in English. *					
4) I like people to read what I've written in English.					
5) I enjoy writing in English. *					
6) I feel excited about writing in English. *					
Ease					
7) It's easy for me to write in English.					
8) It's easy for me to remember information when I am writing in English.					
9) It is easy for me to organize my ideas when I write in English.					

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
10) It is easy for me to get ideas when I write in English.					
11) It is easy for me to write my ideas in English.					
Ability/ competence					
12) People understand what I'm saying when I write in English.					
13) I like my English writing to be graded.					
14) I can express my ideas when I write in English. *					
15) I think my English papers look good.					
16) I think about how long my English writing should be.					
17) I think I am a good writer.					
18) I get high grades for my English writings. *					
Strategy use					
19) Before I write, I outline the ideas I want to write. *					
20) Before I write, it helps me to mentally visualize the ideas I want to write. *					
21) Before I write in English, I like to plan what I am going to write.					
22) When I write in English, I think about the paragraphs I want to use.					
23) When I write in English, I think about the topic sentences I want to use.					

Thank you

الاسم _____ العمر _____
 لتخصص: _____ الرقم الجامعي: _____

فيما يلي مجموعة من المفردات تمثل توجهاتك أثناء الكتابة باللغة الإنجليزية، وأمام كل عبارة مجموعة من الاختيارات، برجاء وضع علامة (✓) أمام الإجابة التي تعبر عنك جيداً. اجاباتك ستستخدم لأغراض البحث العلمي فقط. ارجو ان تكون الإجابات صادقة قدر الإمكان.

لا اتفق بشدة	لا اتفق	غير متأكد	اتفق	اتفق بشدة
الاستمتاع				
				(1) أحب أن أكتب باللغة الإنجليزية.
				(2) أعتقد أن الكتابة باللغة الإنجليزية هي مضيعة للوقت.
				(3) أشعر بالراحة عندما أكتب باللغة الإنجليزية. *
				(4) أحب أن يقرأ الناس ما قمت بكتابته باللغة الإنجليزية.
				(5) أستمتع بالكتابة باللغة الإنجليزية. *
				(6) أشعرُ بأنني متحمسة للكتابة باللغة الإنجليزية. *
السهولة				
				(7) من السهل بالنسبة لي الكتابة باللغة الإنجليزية.
				(8) من السهل عليّ تذكر المعلومات عندما أكتب باللغة الإنجليزية.
				(9) من السهل عليّ تنظيم افكاري عندما أكتب باللغة الانجليزية.
				(10) من السهل إيجاد الأفكار عندما أكتب باللغة الإنجليزية.

لا اتفق بشدة	لا اتفق	غير متأكد	اتفق	اتفق بشدة
11) من السهل كتابة أفكار بالغة الإنجليزية.				
القدرة/ المهارة				
12) يفهم الناس ما أعبر عنه عندما أكتبه بالغة الإنجليزية.				
13) أحب أن تُقيم كتاباتي باللغة الإنجليزية.				
14) أستطيع أن اعبر عن أفكار عندما أكتب باللغة الإنجليزية. *				
15) أظن أن كتاباتي باللغة الإنجليزية تبدو جيدة.				
16) أفكر في كيف يجب أن يكون طول كتاباتي باللغة الإنجليزية.				
17) أعتقد أنني كاتبة جيدة.				
18) أحصل على درجات مرتفعة عندما أكتب باللغة الإنجليزية. *				
استخدام الاستراتيجيات				
19) قبل أن أكتب باللغة الإنجليزية، أخص الأفكار التي أريد كتابتها. *				
20) قبل أن أكتب، تصور الأفكار التي أريد كتابتها تصوراً ذهنياً يساعدني على الكتابة. *				
21) أحب التخطيط لما سأقوم بكتابته باللغة الانجليزية.				
22) عندما أكتب باللغة الإنجليزية، أفكر في عدد الفقرات التي أريد كتابتها.				
23) عندما أكتب باللغة الإنجليزية، أفكر في الجمل الرئيسية التي أريد كتابتها.				

شكراً جزيلاً

Appendix B (Writing Rubric)

	MR (Meets Requirements: 50%-100%)	DR (Does not Meet requirements: 0-49%)	Score out of 25%
1. Task Fulfillment <u>Task Requirements</u> 1.1 The text is approximately 6 sentences. 1.2 The information is presented in the student's own words. <u>Linguistic Features</u> 1.3 Writes a variety of simple and compound sentences	<ul style="list-style-type: none"> - Task Requirements are mostly fulfilled. - Appropriate linguistic features are mostly used. 	<ul style="list-style-type: none"> - Task Requirements are not fulfilled. - Appropriate linguistic features are rarely used. 	
2. Coherence & Cohesion	<ul style="list-style-type: none"> - Sentences usually convey meaning. - Ideas on selected topics are mostly expressed logically at a text level. 	<ul style="list-style-type: none"> - Sentences rarely convey meaning. - Ideas on selected topics are not expressed logically at a text level. 	
3. Grammatical Range and Accuracy	<ul style="list-style-type: none"> - Grammatical control of level-appropriate structures is mostly maintained. - Simple and compound sentence structures are used accurately most of the time. - Punctuation is used but occasional errors occur. 	<ul style="list-style-type: none"> - Grammatical control of level-appropriate structures is not consistently maintained. - Simple and compound sentence structures are often inaccurate which causes significant strain on the reader. - Punctuation errors occur frequently. 	
4. Lexical Range and Accuracy	<ul style="list-style-type: none"> - An adequate variety of level-appropriate vocabulary is used but some errors occur. - Spelling errors may occur which occasionally interfere with comprehension. 	<ul style="list-style-type: none"> - A limited range of level-appropriate vocabulary is used, and many errors occur. - Spelling errors occur consistently and significantly interfere with comprehension. 	

Appendix C (Student-drawn Mind Maps)

Talk about three people you know.

Appendix D (Samples of Student Interviews)

high

الاسم مريم (الحادي) العمر ١٨ (h2)
التخصص كيمياء الرقم الجامعي ١١٩٠٠٠٤٣٨

أجيبني على الأسئلة التالية المتعلقة بمهارة الكتابة باللغة الإنجليزية.
الرجاء تحزي الصدق والشفافية في الإجابة قدر الإمكان حيث أن الإجابات ستستخدم لأغراض البحث فقط.

1- ما هي الصعوبات التي تواجهينها أثناء الكتابة باللغة الإنجليزية؟

أولها أني أرتكب أخطاء في إملاء الكلمات والعبارات الطويلة
والجمل الطويلة. الفقرة الأولى أهم عندي خاصة بس وأختي تلاحظ
هذه عندي.

2- ما هي الاستراتيجيات التي تتبعينها للتغلب على هذه الصعوبات؟

أعيد أكثر من مرة وأصحح لنفسي الأخطاء
أكتب أولاً حركات ومواضع الألفبائية تصحطلي كتابتي.

3- هل ساعدك استخدام الخرائط الذهنية في الكتابة باللغة الإنجليزية؟ كيف؟

لا. أنا أصلاً ما كنت أستخدمها أصلاً. أنا جربت مع (طغلة) بنت
أختي وبنه عصبها. أنا كنت أستخدمها وأستخدمها لأختي
الآن بطلت أستخدمها. أنا كنت أستخدمها وأستخدمها لأختي.
أنا ما أستخدمها أصلاً.

د. س. ل.

الاسم ابراهيم المكي العمر 25 الرقم الجامعي ٤٣٨٠١٩٩
التخصص رياضيات

أجيبني على الأسئلة التالية المتعلقة بمهارة الكتابة باللغة الإنجليزية.
الرجاء تحري الصدق والشفافية في الإجابة قدر الإمكان حيث أن الإجابات ستستخدم لأغراض البحث فقط.

1- ما هي الصعوبات التي تواجهينها أثناء الكتابة باللغة الإنجليزية؟

صعوبات كثيرة (أجرام) لامل حوا غير عن التي يتجاه الاستعداد
والقسط في الرسم والكتابة

2- ما هي الاستراتيجيات التي تتبعينها للتغلب على هذه الصعوبات؟

كنت افقط عزمه

3- هل ساعدك استخدام الخرائط الذهنية في الكتابة باللغة الإنجليزية؟ كيف؟

أبوه والله أعمدني، اعلم على أصيب الفكرة واضح
الافعال المناسبة وارتب الكلمات صلة اسهل
اني ارتبها الجمله