The Impact of Applying Mind Mapping Technique as a Pre-Writing Tool on EFL College Students in Essay Writing

Nisreen Kadhim Khudhair
Nana_kh_2009@yahoo.com
Ministry of Education- The General District of Al-Karkh the Second

Abstract

Based on the assumption that the more teachers know about brain science, the better prepared they will be to make instructional decisions.

Mind Mapping is a powerful tool for assisting any form of writing. Language is an important device and a very beneficial means for human being to communicate with other people .Writing is one of the language   skills that will never be left in education.

The study aims at investigating the Impact of applying mind mapping technique as a pre-writing tool on Iraqi EFL college students in essay writing. To do so, 60 EFL college students were divided randomly selected and divided into two groups experimental and control. Prior to treatment, participants of the both groups were given a pretest in order to ensure comparability of their essay writing. Having introduced the mind mapping technique to members of the experimental group and finished the treatment period, a posttest was administered to measure the effect of the intervention for both groups.

In order to compare the experimental and control groups, the *t*- test for two independent samples is used. The result reveals that the mean score of the experimental group is 14.46 and that of the control group is 8.80. The computed *t*- value 8.494 is higher than the table *t*- value (2) at 0.05 level of significance and under 58 degrees of freedom.

The comparison between the pre and post test scores reveals a significant difference in writing essay between the college students who were taught by using mind mapping strategy and those who were not. These experimental students could improve their essay writing significantly better.

أثر تطبيق تقنية الخارطة العقلية كأداة في مرحلة ما قبل الكتابة على طلبة الكلية العراقيين متعلمي اللغة الانكليزية كلغة اجنبية في كتابة المقالة

نسرين كاظم خضير
وزارة التربية ـ مديرية تربية بغداد الكرخ الثانية

الملخص

استنادا إلى افتراضية أنه كلما ازدادت معرفة المعلمين بعلم الدماغ، كلما كانوا أفضل استعدادا في اتخاذ القرارات التعليمية ، تعتبر الخارطة العقلية ألاداة القوية لمساعدة تعلم أي شكل من أشكال الكتابة .فاللغة هي وسيلة مهمة ومفيدة جدا للإنسان من اجل التواصل الانساني مع الآخرين .لذلك فأن الكتابة تعتبر واحدة من المهارات اللغوية التي لن تترك في التعليم.

تهدف الدراسة الحالية إلى التعرف على أثر تطبيق تقنية الخارطة العقلية كأداة في مرحلة ما قبل الكتابة على طلبة الكلية العراقيين متعلمي اللغة الانكليزية كلغة اجنبية في كتابة الانشاء.

وللقيام بذلك، تم تقسيم 60 طالب من طلاب الكلية إلى مجموعتين هما التجريبية والضابطة.

قبل بدء التجربة، أعطي مشتركوا المجموعتين الاختبار القبلي من أجل ضمان إمكانية المقارنة في مهاراتهم في كتابة الانشاء . ثم بعد تطبيق تقنية الخارطة العقلية لأعضاء المجموعة التجريبية وانتهاء فترة التجربة ، تم اعطاء الاختبار البعدي لكلا المجموعتين لقياس أثر هذه التقنية.ومن أجل المقارنة بين المجموعات التجريبية والضابطة، تم استخدام اختبار العينتين المستقلتين.

واظهرت النتائج ان متوسط الدرجات للمجموعة التجريبية كانت 14.63   بينما المجموعة الضابطة هي 8.80.وان القيمة المحسوبة هي 8.494 كانت أعلى من القيمة الجدولية (2) وبمستوى 0.05 وتحت درجة الحرية 58. وبالمقارنة بين درجات الاختبار القبلي والبعدي كشفت النتائج عن الاختلاف الكبير في كتابة الانشاء بين طلاب الجامعة الذين تعلموا باستخدام تقنية الخارطة العقلية وأولئك الذين لم يتدربوا عليها .وان طلاب المجموعة التجريبية قد تحسنت كتابة الانشاء لديهم على نحو أفضل بكثير من غيرهم.

Introduction
1.1   The Problem and its Significance
The reason for teaching students writing for English as a foreign language includes language development, language style, and most importantly writing as a skill in its own right .One of the major problems for the writing process is getting started while having the thoughts and ideas in students' minds well-organized. In order to create a rich piece of writing, lexical, mechanical, and organizational aspects should be taken into account and work simultaneously. Some EFL students stick to the first two at the expense of the organizational part (Harmer, 2001).

Byrd (2011:22) states that unfortunately most students do not take the time to form and organize their ideas in an L2 writing task, rather they simply aim for the final product, they need many techniques to facilitate writing process. Rustler & Buzan (2012:41) argue that the mind map is   a visual technique for structuring and organizing ideas which is easy and intuitive to use and help students to generate ideas and information processing .Mueller et al (2002:50) describe how the use of mind maps for community college has resulted in enhance thinking skills including critical thinking, whole-brain thinking and comprehensive thinking.

The researcher believes that most students try to memorize information for their exams, rather than understanding it. So, the inability of EFL college students to organize their ideas and thoughts is sometime due to lack of knowledge about different techniques in this respect which can be applied during the pre-writing process. EFL college students have less grammatical and lexical and more organizational problems.

The present study aims at investigating the impact of mind mapping on the Iraqi EFL college students   in essay writing.

1.2   Aim of the Study
The study aims at investigating the impact of applying mind mapping technique as a pre-writing tool on Iraqi EFL college students in essay writing.

1.3   The Hypothesis
The use of mind mapping technique has no impact on improvement of the Iraqi college EFL students in essay writing .

1.4   Limits of the study
This study is limited to :
1. applying mind mapping technique as a pre-writing tool .
2. Iraqi EFL college second stage students .

1.5   Procedures
To achieve the aim of the present study, the following procedures will be adopted by the researcher to collect and analyze data:
1.Choosing a number of Iraqi EFL college students (at random) to represent the study sample.
2.Preparing pre and post test for the students under the supervision of   a number of specialists who examine its validity and make comments, suggestions and modifications if necessary.
3. Interpreting the results in the light of the hypothesis by using the proper statistical means that suit the study.

1.6 Value of the Study
1. The present study is expected to be of value for teachers of English to devise the essential methods and techniques that will promote students ideas in writing task.
2.To help Iraqi EFL college students organize their ideas and steps of their essay writing .

2. Theoretical Background
2.1 Teaching Writing
     The writing process involves generating ideas, developing and organizing the ideas, and revising and editing them**.** Writing involves all aspects of language: grammar, vocabulary, word order, spelling and logical arrangement of ideas .The objective of teaching writing in a foreign language is to help learners to acquire the abilities and skills that they need to produce kinds of written texts similar to those an educated person would be expected to produce in his own language (Hunt& Timothy ,2009:55) .

     The varieties of advanced writing might be journal writing, short in-class writings, reports, and expository essays. Students need to be able to respond to author's ideas, write to analyze a character's motivation, write from different points of view, and write to clarify their own feelings, and so on. As they develop increased proficiency in English, they will need to write for more specific purposes and in particular domains. Two other activities: reformulation and literature-based, drama-inspired tasks are particularly useful with advanced ESL students (Scarcella &Oxford, 1992:132). Teachers should promote the quality of students' written skills can take definite steps toward changing their basic approach to writing as a means of self-expression. This can be achieved by using many effective classroom techniques (Sorenson, 2010: 3).

     Once the conception of writing changes from the product to the process, teachers begin to emphasize the need to provide more assistance during all writing steps; prewriting, writing, and postwriting steps. Teachers required to include a variety of classroom activities designed to prepare the students to do their tasks better with fewer problems, to teach the students how to manage the writing process, and to give the students feedback that is more useful(Chastain,1988: 253).

2.2 Prewriting Process
      McCuen-Metherell &Winkler (2009: 76) state that prewriting refers to all the preliminary steps a writer might take in preparing themselves to write.It includes random thinking about the topic,systematically gathering information about it, and sketching out a possible structure for the essay.

     The prewriting steps vary with the kind of writing students are planning. By this step students will have laid their groundwork .Having selected a topic, the students explore the theme that will provide large variety of viewpoints related to their various backgrounds and imaginations. This step stimulates students' schemata, generates needed vocabulary, helps them to organize ideas, and activates their imagination (Sorenson,2010:4).

      Chastain(1988:255) assert that "The teacher's role during the prewriting phase is to get students to recall related information and skills from their past, to activate their imaginations beyond their own experience, and to motivate students through using many effective techniques". All students have the capacity to be creates and to experience the joy associated with making something new, but first teachers must give them a strong base for creativity. Sometimes teachers and parents unintentionally limit what students can do by sending messages that express or imply limit the students' potential accomplishments (Sternberg, 2010:156).

2.3 Definition of Mind Map
     Mind mapping is a creative note-taking method, which eases us to remember much information (De Porter, etal, 1999:175).

Buzan (as cited in Roebuck,2012:164) claims that the mind map is a vastly superior note-taking method because it does not lead to "semi-hypnotic trance" state included by other note forms. Buzan also argues that the mind map uses the full range of left and right human cortical skills, balances the brain .Mind maps provide an effective study technique when applied to written material (Roebuck ,2012:164).

McGriff states that "mind maps are an excellent way to help learners organize knowledge,to empower themselves to better comprehend the key concepts, and principles in lectures, readings, or other instructional materials" (2000:9).Mind maps go under a variety of names. They are known as concept maps, semantic mapping, knowledge mapping, think-links,graphic organizers or cognitive maps (Svantesson, 1989).

According to   Buzan (1993:1) mind mapping is a powerful graphic technique, which provides a universal key to unlock the potential of brain. Mind mapping technique imitates the thinking process, namely enabling us to move from one topic to another topics back and forth. Recording the information through symbols, pictures, emotional meaning and colors, it exactly does the same like our brains process it. The best mind mapping is colorful and uses much pictures and symbols; usually like an art.

2.4 Parts of Mind Mapping Technique
There are some parts of mind mapping (Windura, 2008:77-80) namely; (1) central image, (2) key word, (3) basic ordering ideas, (4) branches, (5) color and (6) picture.

1) Central Image
A central image has to describe the main idea of a mind mapping and put it on the centre of the paper. It is to activate the students' right brain, strengthen the students' memory and make the learning activity enjoyable.

2) Key Word
A key word is a word that can lead a sentence or event. Identifying a familiar word in one's own language or another language that sounds like the new word and using only one key word per line. It is an urge to remember a lot of words for the students. It is a strong noun or verb that creates image to trigger the recall of the memory.

3) Basic Ordering Ideas
Basic ordering ideas are the branches that collect and sort information and it connected to the central topic that radiates out from the centre. Making basic ordering ideas can direct our mind to make a mind mapping and they need creativity to encourage the students to understand to the material. They are thin and thinner at the ends. They can be seen as headings for your topic and spread anywhere but do not become steep.

4) Branches
The branches should be curvy and in the same length as the words or pictures above them. These branches can be seen as sub headings. There are thinner branches and contain details.

5) Color
Color is a very good memory sign and it involves the right brain in learning for long term memory. Colors encourage creativity and help in memorization. Adding plenty of colors via branches, map background and images will add life to your mind map. It makes easier to comprehend and remember.

6) Picture
In mind mapping, pictures can change or strengthen a key word that has been written before.

2.5 Mind Mapping as an Effective Classroom Strategy
Some EFL teachers may face problems in their writing classes as they sometimes cannot find an efficient way to awaken students' imagination and set their minds working .

Mind Mapping is an active and collaborative learning tool that allows an educator to move beyond the traditional 'chalk and talk' style of teaching.Results from an in-class strategy (Budd,2004:61) which introduced a group of students to Mind Maps and then a topic to Mind Map, supported the idea that students can be engaged in active learning. Students were divided into groups of three to facilitate more in-depth analysis of the topic and to collaborate with others. In particular, students with higher scores for a 'doing' learning style agreed that they learned a lot from the Mind Map strategy (ibid:35).

Using effective mind maps as classroom strategy can assist students to activate their prior knowledge and skills to apply to the writing task, and find out what information they already have and what they still need (Harmer,2001:75). Moreover, many strategies can help students to remember semantic information and to increase the students' achievement these are as follows:

- mind map
- peer teaching
- questioning strategies
- summarizing
- role play
- outlining
- practice tests
- paraphrasing (Sprenger ,1999:66).

2.6 The Use of Mind Mapping as a Brainstorming Exercise

Brainstorming exercise is an individual or group method for generating ideas and increasing creative efficacy. Teacher can use Brainstorming as a first step in the learning process in order to create new ideas, find solutions to specific problems ,support conceptual design by generating metaphors ,ideas, generate social cohesion within product teams (Wilson ,2013:5).

According to Scane, Guy and Wenstrom (1991:14) "brainstorming activities motivate students who do not usually want to write by creating   a nonthreatening atmosphere" .

Therefore, in an EFL environment where students typically struggle with writing tasks, a nonthreatening atmosphere might assist in the development of their writing skills.   In addition, in each classroom, it is valuable to teach students different brainstorming techniques in order to activate their thinking and create ideas which are essential to second language acquisition . However, the ideas obtained at this stage may or may not be directly related to the topics, so brainstorming is beneficial in giving students the opportunity to see their own ideas down on paper before they actually begin to write (Harmer, 2001:78).

Mind-mapping may be a very effective strategy teachers can use as brainstorming excise for activating students' prior knowledge about   a certain topic in writing tasks to get the   achievement goals. However, it may be inappropriate when making choices about vocabulary in writing   a piece of narrative prose (Hewitt, 2008:23).

2.7 Mind Mapping for enhancing students' writing

Essentially, writing is a way of expressing thoughts, and good writing comes from good thinking and preparation .Before students start writing something, it seems reasonable to offer them opportunities to think about the topic in question. Writing is an essential skill in the teaching and learning of English as a Foreign Language. On one hand, it stimulates thinking, compels students to concentrate and organize their ideas, and cultivates their abilities to summarize, analyze, and criticize.On the other hand, it reinforces learning, thinking, and reflecting on the English language (Harmer, 2001).

Nevertheless, students find composing in English difficult because the writing process demands that they utilize many cognitive and linguistic strategies of which they are uncertain (Peregoy & Boyle, 2005). Mind mapping to help teachers and students organize information

quickly by using drawings or key words .Mind map can be used across the curriculum for writing task, note taking and problem solving. This techniqu*e* of drawing images and using key words helps students remember things more easily because an image is very memorable(Maccagnano,2007:96)**.**

2.8 Steps for Making Mind Mapping Technique
        Buzan (in Purwoko, 2005:20) suggests many steps in how to make mind mapping, they are presented below;

1) Take a piece of white paper in a landscape position.
2) Start by drawing a colored image in the centre of the paper and write the key word with capital letters.
3) Choose a color and draw the main themes of the mind mapping on the thick branches radiating out from the central image.
4) Add other main themes branches around the map.
5) Make thick and colorful branches spanning out from your mind map.
6) Write basic ideas about the key word and still use the capital letters.
7) Add an image to all the main branches to represent each key theme and also use images to visualize every important key word on your map.
8) Let your mind mapping be as imaginative as possible.

        Moreover, generating a mind map has been a successful strategy for students. Some students may remember the colors, words, and some may remember the position of the information on the page. Teachers can use many means such as pictures ,overhead , and data show to promote students generate suitable mind map for their writing tasks (Sprenger ,1999:65).

2.9 Some Advantages of Using Mind Mapping Technique
        DePorter and Hernacki(2008:172) state that there are some advantages of using the mind mapping technique, they are as follows;

1-Flexible
        Explaining something can be easy without confusing on how to add the material based on the mind mapping. We can put the label and category of something based on our own opinion anywhere in the mind mapping.

2-Concentrate on the Topic
        Getting the subtopics of what we talk about with the focus on the main ideas easily. Keep focus on the keyword can help us to make it simple and it does not waste the time.

3-Increasing Comprehension
        Using mind mapping can make easy in understanding the material. Mind mapping is a simple think pattern so it does not make us confuse to understand what we have learned and easy to remember the material.

4-Enjoyable
   Imagination and creativity are unlimited in using mind mapping, so it can be funny to learn. By using pictures and colors, mind mapping makes the brain enjoy and get excited in thinking what we want about the material .

3. Procedures
3.1 The Experimental Design
     The experimental design represents the strategy which is set by the researcher to collect the necessary information and control the factors or variables which may affect this information and finally carrying out the suitable analysis to test the hypotheses of the research within a comprehensive plan (Brown and Rodgers, 2002: 210).
      In order to achieve the aim of the study, the researcher has used "the pre- post test control group design". This design takes the following form:

Table 1: The Experimental Design

Experimental group	Pre-test	Independent variable (Mind Map Technique)	Post –test
Control group	Pre-test	-------------	Post –test

3.2 Population and Sample

Population is the group of all individuals that could be involved in the study (Blankenship , 2010:82). The population of this study consists of the 2nd year students in the Departments of English, University of Baghdad. It includes students enrolled at College of Education/ Ibn Rushd, College of Education for Women,the College of Arts, and College of Languages during the academic year 2014-2015.The total number of the 2nd year students' population is 476 students (see Table 2).

Table 2: The Population and Sample of the Study

Colleges	Number of 2nd year students
College of Education/Ibn Rushd	157
College of Education for Women	110
College of Arts	58
College of Languages	131
Total	456

9   To achieve the aim of the study, the researcher has randomly chosen the College of Education Ibn Rushd to represent the sample of the study.

Two sections out of four have been selected randomly. In the same way, one section has been selected randomly as an experimental group; it is section (D) which includes 30 students .Another section has been also selected randomly as a control group; it is section (A) which includes 30 subjects is 60 female students.

3.3 Equivalence of the Sample:

In order to increase the sensitivity of the experiment, the researcher has equated the subjects on the basis of four variables.
1. The age of the students.
2. The level of fathers' education.
3. The level of mothers' education.
4. The students' pre- test performance in composition writing.

3.4 The Pre and Post Test

A test is any procedure for measuring ability, knowledge, or performance   (Richards et al, 1992:377). In order to achieve the aim of the study, a pre-post test has been used. The pre test is conducted to ensure the equalization of the groups involved in the study and the post test to evaluate the effectiveness of the experimental procedure.

Ten continuous class sessions were assigned to treatment of the experimental group. During the treatment phase the researcher introduced the mind mapping technique to the participants of the experimental group , how it is made, and its worldwide usages in addition to its application as   a prewriting activity in composition writing.

A pretest was run by giving the same composition topics to the members of both groups one week before the treatment was started in order to make sure that the two groups were comparable prior to the intervention.

Participants were given 40 minutes for writing their composition in five paragraphs consisting of 200-250 words and then, participants were asked to follow the traditional instructions they had received for composition writing. In the post test, all members of the

experimental group were asked to draw a mind mapping as a prewriting technique and before starting essay writing ,and the members of the control group were asked to write their composition according to the usual instruction they had received on writing. Once again, their papers were collected and scored.

3.3 The Choice of the Test Material

The material of the composition test has been chosen according to the students' interests so as to ensure that mostly all students are motivated to take the test willingly and that even the weak students will have something to write. This is done by using an open questionnaire. Six selected subjects have been exposed to the same jury members to choose the two most suitable topics that can serve the aim of the study .

3.4 Scoring Scheme

The pre and post test for writing task has been scored according to five components as follows (Table 3):

1- **content:** it focuses on thesis statement, development of ideas, use of description, and consistent focus,

2- **organization:** it focuses on effectiveness of introduction, sequence of ideas, conclusion, and appropriate length,

3- **discourse:** it focuses on the topic sentence, paragraph unity, discourse markers, cohesion, and fluency,

4- **vocabulary :** it focuses on selection of words ,

5- **mechanics:** it focuses on neatness and appearance, spelling, and punctuation. Each of the five components has 4 scores as seen in (Table 3). The total score for each of the pre and post test is 20 scores.

Table 3
The Holistic Scoring Scheme

Content	focuses on thesis statement , development of ideas through personal experience , use of description , and consistent focus	4 scores
Organization	effectiveness of introduction , sequence of ideas , conclusion , and appropriate length	4 scores
Discourse	topic sentence , paragraph unity, discourse markers, cohesion ,and fluency	4 scores
Vocabulary	selection of words	4 scores
Mechanics	neatness and appearance, spelling and punctuation	4 scores
Total		20 scores

3.5 Face Validity

According to Yallen (2008:17) ,validity determines whether the research instruments truly measures what it was intended to measure .It is the extent to which the conclusions drawn from a specific sample are applicable to a large population. Face validity of the topics of the pre and post test and the scoring scheme has been achieved by exposing them to a number of jurors[*].

3.6 The Pilot Administration of the Test

The aim of conducting the pilot study is to :

1-determine the workability of the test and the clarity of its instructions,

2- estimate the time required to answer the test,

3- calculate the reliability of the test , and

4- analyze the test items in order to find out the difficulty level and discriminating power.

The test is given to 55 second year college students taken from sections A and C of the Department of English, College of Arts. The pilot test is a try out for the test instructions, and the time required for the students to complete the test, which is found out to range between 35and 45 minutes.

So the average length of time needed for the test is 40 minutes, which means that the time of one lecture is enough for taking the test, and it also shows that the instructions of the test are clear and that there is no ambiguity in it .

3.7 Final Administration of the Post Test

The post test has been administered at the end of the experiment to the sample of the present study. The test is time-scheduled, i.e., to be finished in 40 minutes. The testees were instructed to do the particular composition writing. The total score is 20. For the purpose of objectivity and reliability, the researcher has adopted the same holistic scoring scheme in scoring students' responses as explained previously in Table 3 .

4. Results, Conclusions, Recommendations & Suggestions for Further Research

4. 1 Results

In order to compare the experimental and control groups, the *t-* test for two independent samples is used. In fact, the comparison between the pre-test and post –test scores revealed a significant difference in writing achievement between the students who were taught by using mind mapping strategy and those who were not. These experimental students could improve their writing achievement significantly better.

The result reveals that the mean score of the experimental group is 14.63 and that of the control group is 8.80. The computed *t-* value 8.494 is higher than the table *t-* value (2) at 0.05 level of significance and under 58 degrees of freedom as shown in Table 3.

Table 3: t-test Values for Finding out the Significance Difference among the Mean Scores in the Students' Post test

Group	No.	Mean	SD	t- values		d.f	Level of Sig. 0.05
				Computed t- values	*Table t-value*		
Exp.	30	14.63	0.728	8.494	2	58	
Con.	30	8.80	0.761				

This result shows that there is a statistically significant difference between the two groups in the composing component of the post test. That is, the experimental group is better than the control group; so the null hypothesis which indicates that there is no statistically significant difference between the experimental group achievement and that of the control group in the composing component of the post test, is rejected.

In sum, the null hypothesis which states that " the use of mind mapping technique has no impact on improvement of the Iraqi college EFL student**s** in essay writing " is rejected.

4.2 Conclusions

All findings of the present study demonstrate the positive impact of the mind map technique on students in composition writing. The reasons behind the results are due to the fact that using the mind map technique provides opportunities for students to come up with original and useful ideas. There are many conclusions such as

1-Mind-mapping is a technique for facilitating knowledge acquisition and

retrieval through the use of visual clues such as images ,lines, and colors.

2-A mind mapping technique can help students think with greater clarity to explore

    relationships between ideas and elements of an argument and to generate solutions to

problems. It puts a new perspective on things by allowing students to see all the relevant issues and analyze choices in light of the big picture.

3-The evidence improves that mind mapping may impact on EFL students' abilities to plan and organize their ideas for composition writing under exam conditions rather than using just recalling information

4- All EFL students could apply mind mapping technique for learning new vocabulary and generating new ideas to their writing tasks in the class. Regular practice with mind maps diagrams can encourage the students to apply the technique in their own learning process.

5-Through this study, we found that helping EFL students to create personalized and interesting mind maps could ease their difficulties to acquire and recall the information for a longer period of time in writing process.

6- Teaching and learning by mind-mapping technique is fun because they help to motivate students to study and use new words regularly. Besides, the skills of drawing mind-maps are easy to manage. Moreover, using the mind mapping technique can help in developing students' cognition skills and aid in information recovery in an assessment situation.

7-It also becomes easier by using mind mapping technique to integrate new knowledge and organize information logically. So, regular practice is needed for the mastery of mind-mapping techniques in order to facilitate learning process.

4.2 Recommendations

On the basis of the results of the study, the following recommendations are proposed:

1. Syllabus designers have to allocate time and give more emphasis to the practical aspect in teaching composition writing.
2. Departments of English in Iraqi Colleges are invited to adopt and develop modern techniques in teaching composition writing and other skills based on the level of language proficiency of their students.
3. Classroom -size must be expanded in order to meet the needs of the large number of students and to fit the use of the mind map technique.
4. Instructors have to support students' creative growth by teaching creativity as a process focusing on developing students' divergent thinking ability in composition writing and in any other skill.

4.3 Suggestions for Further Research

1. A similar research is needed to investigate the effect of hot seat technique on student achievement for essay writing.
2- A similar research is needed to investigate the effect of mind map technique on students' achievement in vocabulary teaching.

References

- Blankenship, D. (2010). **Applied Research and Evaluation Methods in Recreation** .New York: Human Kinetics.
- Budd, J. (2004), Mind Maps as Classroom Exercises. **Journal of Economic Education,** Vol. 35 (1)35-49.
- Buzan, T. (1993). **The Mind Map Book.** London: BBC Books.
- Byrd, D. (2011). Putting the Writing Process into Action in the L2 classroom: Prewriting Techniques that work. *The Journal of Language Teaching and Learning* 1 64-77.
- Chastain, K. (1988). **Developing Second-Language Skills: Theory and Practice.** New York: Harcourt Brace Jovanovich.
- DePorter, B., Reardon,M., and Nourie S.(1999). **Quantum Teaching : Orchestrating Students' Success.** Boston. A Pearson Education Company.
- _____ ,and Hernacki.M.(2008).**Quantum Learning : Membiasakan Belajar Nyaman dan Menyenangkan.** Jakarta. Kaifa.

- •Harmer. (2001). **The Practice of English Language Teaching**.3rd ed. Edinburgh Harlow: Longman.
- Hewitt , D.(2008).**Understanding Effective Learning: Strategies for the Classroom.** London: Hill Education .
- Hunt,G.,and Timothy,J.T.(2009). **Effective Teaching: Preparation and Implementation**. California: Charles Thomas-Publisher, Ltd.
- Maccagnano,A.(2007).**Identifying and Enhancing the Strengths of Gifted Learners**. California: Corwin Press.
- McCuen-Metherell, J.R., and Winkler, A.(2009). **From Idea to Essay: A Rhetoric, Reader, and Handbook**. Boston: Houghton Mifflin Harcourt Publishing Company.
- Mueller, A., Johnston, M. and Bligh, D. (2002), 'Joining Mind Mapping and Care Planning to Enhance Student Critical Thinking and Achieve Holistic Nursing Care' *Nursing Diagnosis,* 13, 1, pg. 24. 51 Paper presented at the Annual Meeting of the Society for the Study of Social Problems, San Francisco, CA, Aug 1998.
- Peregoy, S. F., & Boyle, O. F. (2005). **Reading, writing and learning in ESL** (4th ed.). Boston: Pearson Education Inc.
- Richards, J.C. ,Platt, J., and Platt, H. (1992). *Longman Dictionary of Language Teaching and Applied Linguistics.* London: Longman.
- Roebuck,K.(2012). **Idea Management: High-impact Strategies -What you need to know.** New York: Emereo Publishing.
- Rustler,F.and Buzan,T.(2012).**Mind Mapping for Dummies.** New York:John Wiley&Son.
- Scane, J., Guy, A. M., & Wenstrom, L. (1991). **Think, Write, Share: Process Writing for Adult ESL and Basic Education Students**. Toronto : The Ontario Institute for Studies in Education .
- Scarcella, R., and Oxford. (1992). **The Tapestry of Language Learning: The Individual in the Communicative Classroom**. Rowley, MA: House Newbury Press.
- Sorenson,S.(2010).**Webster's New World Student Writing Handbook**. Canada,NJ :Wiley Hoboken,.
- Sprenger ,M.(1999).**Learning and Memory:The Brain in Action.** Alexandria: ASCD Publications.
- Sternberg, R. J. (2010). **College Admissions for the 21st Century**.New York: The President and Fellows of Harvard College.
- Wilson ,C(2013). **Brainstorming and Beyond: A User-Centered Design Method.** Oxford: Elsevier Inc.
- Windura, S. (2008). **Mind Map : Langkah Demi Langkah**. Jakarta: PT. Elex Media Komputindo.
- Yallen ,A(2008). **Validity and Reliability of a Measure of Latina Mother's Nutritional Self-efficacy**. New York: ProQuest.

Notes

* The jury of experts were:
- Asst.Prof. Bushra Al-Noori**,** PH.D University of Baghdad. College of Education Ibn Rushd for Human Sciences.
- Instr .Khnsaa Hasan, PH.D College of Al-Imam Al-Kadhim / Department of English.
- Instr .Liqa'a Habeb Aboud , PH.D University of Diyala / College of Education / Department of English.
- Instr. Huda Hadi, M.A**,** University of Baghdad, College of Education for Women / Department of English.