

Research Article

THE EFFECT OF MIND MAPPING TECHNIQUE ON THE ENHANCEMENT OF ADVANCED IRANIAN EFL LEARNERS' ESSAY WRITING ABILITY THROUGH ORGANIZING INFORMATION AND THOUGHTS

***Azadeh Nemati, Shahrokh Jahandar and Morteza Khodabandehlou**

Department of English Language, Guilan Science and Research Branch, Islamic Azad University, Guilan, Iran

** Author for Correspondence*

ABSTRACT

The principal objective of the present research was making an effort to investigate the impact of applying Mind Mapping technique as a pre-writing tool on enhancement of organization (as the major purpose) and overall quality of Iranian EFL learners' essay writing ability at the advanced level. To do so, 40 EFL learners at the same proficiency level (selected based on their OPT scores) were divided into two experimental and control groups. Prior to treatment, participants of the both groups were given a pretest in order to ensure comparability of their essay writing skill. 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. During the treatment period, participants were instructed how to make mind maps work in generating ideas ,connecting them by the use of codes, colors and images and finally creating a well-organized piece of writing. The findings were analyzed through a MANCOVA test and the results showed improvement in essay writing ability of the experimental group.

Keywords: *Writing, Mind Mapping, Radiant Thinking, EFL Learners*

INTRODUCTION

English is the most dominant language used for international communication by people with different native languages all over the world in a variety of areas such as education, science, business, tourism, and... . Therefore the necessity for learning and mastering its different skills and sub-skills is deeply felt. However, one of its most essential and challenging components is writing which is found a complex, boring, and devastating task by most EFL/ESL learners. Writing is a difficult skill to acquire in the writers' native languages and apparently the difficulty gets huger as far as the second or foreign languages are concerned.

Notwithstanding the important position of writing, EFL teachers often avoid giving explicit instruction on composition skills or give less priority to them. According to Richards (cited in Shafiee *et al.*, 2003), the nature and significance of writing has historically been underestimated in language teaching. Baroudy (2008) also indicates, research and experience show that teaching and learning EFL/ESL writing has been a sad failure. Almost no one, whether a teacher or a learner is found quite satisfied with the type of teaching/learning experience undergone in second/foreign language settings.

One of the major problems of writers is getting started while having the thoughts and ideas in their minds well-organized. Although in order to create a rich piece of writing, lexical, mechanical, and organizational aspects should be taken into account and work simultaneously, some EFL learners stick to the first two at the expense of the organizational part. Such a thing ends in losing track of what they have in mind regarding the topic they are supposed to write about. Obviously, a cluttered and poorly-organized piece of writing leads to losing the message that the writer intends to impart to the reader. According to Byrd (2011) unfortunately most students do not take the time to form and organize their ideas in an L2 writing project, rather they simply aim for the final product, thinking that one draft is enough.

The inability of EFL writers to organize their ideas and thoughts is sometime due to lack of their knowledge about different techniques in this respect which can be applied during the pre-writing process.

Research Article

Consequently, looking for a technique to make writing a fascinating and interesting experience for EFL writers and to improve their ability to write well, specifically with regard to the organizational aspect, is heavily required. One technique which can be used in this respect is mind-mapping. Generally speaking, mapping may be seen as a type of brainstorming. Brainstorming can be used to encourage the generation of new ideas, and to establish possible relationships between these (Pishghadam and Ghanizadeh, 2006).

Mc. Griff (cited in Al Naqbi, 2011) states 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. It is seen as a powerful tool to help students overcome problems with the organization of their ideas and thoughts. Therefore, by mastering this technique, writers can have the ability to create and organize their ideas and thoughts. If you just start writing paragraphs, it is easy to forget the main idea you presented in the introduction whilst filling out details of supporting paragraphs. But if you have a mind map to refer back, you can quickly and easily check the relevancy of what you are typing (Fotheringham, 2012).

The present study aims at investigating the impact of mind mapping on the enhancement of Iranian EFL learners' essay writing ability through organizing ideas and thoughts at advanced level at which EFL learners have less grammatical and lexical and more organizational problems. Pishghadam and Ghanizadeh (2006) point out that many students with several years of foreign language instruction are still unable to express themselves in a clear, well-organized and comprehensible manner in writing.

Review of Literature

Due to complexity of the composing ability to EFL/ESL learners and its high importance amid the four language skills, over the last decades different theories and approaches to teaching writing have been brought into existence from which a variety of strategies and techniques have been emerged. Yet, different studies (Ojima, 2006; Baroudy, 2008; Mahnam and Nejadansari, 2012; Zheng and Dai, 2012) signify that this issue continues to be a subject of controversy and language learners still fail to reach the main purpose of writing, namely fluent communication.

Mind mapping, first originated by Buzan in 1970s, is a brain-based technique. He has defined the technique as an expression of Radiant Thinking and therefore a natural function of the human mind. It is a powerful graphic technique which provides a universal key to unlocking the potential of the brain. During his research, Buzan found out that brain functions more effectively if its different physical aspects and intellectual skills are allowed to work harmoniously with each other, rather than being divided and isolated. He further pointed out that by using the both sides of the brain, human being can make the most of it. A case in point of applying the technique in question is in the writing skill. Buzan and Buzan (1993) believe that by separating thinking from writing, the ability to think more clearly and extensively increases. They also express that using mind maps decreases the writers' stress and unhappiness caused by disorganization and helps them overcome the hurdle of the writers' block. Furthermore, they find the ability to gain new information which then enhances creativity and originality.

Bringing the subject matter into EFL/ESL context and considering the two main approaches to writing, namely the product –based approach (Barnet, 1992; Nunan, 1999; Badger and White, 2000) and the process-based approach (Lee, 2006; Brown 2001; Haghi and Gholami Pasand, 2012; Bae ,2011), mind mapping has been suggested to be used as a pre-writing activity by some researchers (Riswanto, and Prandika Putra, 2012; Al Naqbi, 2011; Ogawa, and Toshimi, 2009; Regina Lo, 1996; Casco, 2009; Kaur, and Singh, 2004).

Davis (2011) states, “during the last 5 years, variety of packages have been used to enable the visual display information, concepts, and relations between ideas such as concept mapping, mind mapping and argument mapping.” A few other studies have concentrated on the effect of Mind Mapping strategy on language learners' writing achievement (Riswanto, and Prandika Putra, 2012; Al Naqbi, 2011; Ogawa, and Toshimi, 2009; Regina, 1996; Casco, 2009; Kaur and Singh, 2004). In an article written by Kaur, and Singh, in addition to other techniques, mind mapping is introduced as a pre-writing tool for Japanese students to enhance their writing ability. They claim, The difficulty for most Japanese students who are learning English as a second language is not the language barrier itself, but the student's desire to

Research Article

maintain a comfort level that is most familiar to the learner. And then came to a conclusion that by applying mind mapping technique, the linking of words with images for the pre-writing stages can be accessed as a feasible goal for students while providing some related skill-building objectives to enhance and achieve the final stages of writing readable prose.

Al Jarf (2009) found a significant difference between the group of students who used the Mind Mapping Software while writing and the ones who did not. She states, Since students have difficulty generating ideas in EFL and writing paragraphs with topic sentences and supporting details, a Mind Mapping Software was used to help student's brain-storm, generate ideas, relate main ideas, and supporting details. Her research was done on freshman students who were divided into two experimental and control groups. The result of the post-test showed that the members of the experimental group had higher gains in their final writings.

Al Naqbi (2011) carried out a probe to evaluate the use of mind mapping in EFL context as a pre-writing brainstorming strategy under exam conditions. She had an aim to help students plan and organize their ideas and answers about the writing topic rather than answering the exam questions without prior planning. She states that students should act differently under exam conditions due to time limitation. In other words, they have less time to think about the questions and in such a case Mind Mapping strategy can help them give responses to the questions more effectively. For this reason, she applied observation, interviews, and sample of students' work (artifacts) as data collection instruments. Actually, the researcher believes that most students try to memorize information for their exams, rather than understanding it. Therefore, applying a strategy such as Mind Mapping can improve the students' ability to plan and organize their ideas before the exam starts. By conducting the study, she found out that by mastering the technique, students' thinking and cognitive skills were developed and they became better in generating ideas, evaluating them and activating their background knowledge. The present study was designed to find the answers to the following research questions.

Research Questions

- 1) Does the use of mind mapping technique improve the advanced Iranian EFL learners' essay writing ability through organizing information and thought?
- 2) Does the use of mind mapping technique enhance the overall quality of essay writing ability of advanced Iranian EFL learners?

Research Hypothesis

- 1) The use of mind mapping technique has no effect on improvement of the advanced Iranian EFL learners' essay writing ability through organization of ideas.
- 2) The use of mind mapping technique does not enhance the general essay writing skill ability of advanced Iranian EFL learners.

MATERIALS AND METHODS

Participants

The participants of the present research were 40 advanced students in Gap institute in Tehran, Iran, including 12 males and 28 females aged from 18 to 40. In fact, gender was not a matter under investigation. They were all native speakers of Farsi and had received prior English instruction in Iran, but in different language institutes. The target population was 100 out of which 40 learners were selected as samples to attend the research and the rest were excluded from the study. In order to homogenize the participants and make sure they were at the same English proficiency level, an Oxford Placement Test (which is a standardized test and there is no need for the reliability and validity to be tested) was conducted on 100 learners, their papers were scored, the Mean and SD were calculated and eventually 40 learners with the score of 1 SD above and below the mean ($1SD \pm \text{mean}$) were selected to participate the research and then were randomly divided into two groups of 20 one of which was a control group and the other one was an experimental group.

Research Article

The Research Design and Materials

The study was based on a quasi-experimental pretest-posttest design. During the process the following activities for conducting the research and collecting the required data were put into action and also some materials as indicated below were used:

Phase one:

A pretest was run by giving the same essay topic 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 essays in five paragraphs consisting of 200-250 words and then. Subjects were asked to follow the traditional instructions they had received for essay writing.

Phase two:

Half an hour of ten continuous class sessions was assigned to treatment of the experimental group, accompanied by reading the prepared pamphlet by the participants. During the treatment phase the researcher introduced the Mind Mapping technique to the participants, how it is made, and its worldwide usages in addition to its application as a prewriting activity in essay writing.

Phase three:

Having finished the intervention, the posttest was administered two weeks later and all the participants including the control group and experimental group were given another essay topic to write about. Apparently, the members of the experimental group were asked to draw a Mind Map as a prewriting activity and before starting essay writing and the members of the control group were asked to write their essays according to the usual instruction they had received on writing. Once again, their papers were collected and scored.

Phase four:

Having collected all the necessary and required data, the results were analyzed and interpreted in order to achieve responses to the posed research questions.

RESULTS AND DISCUSSION

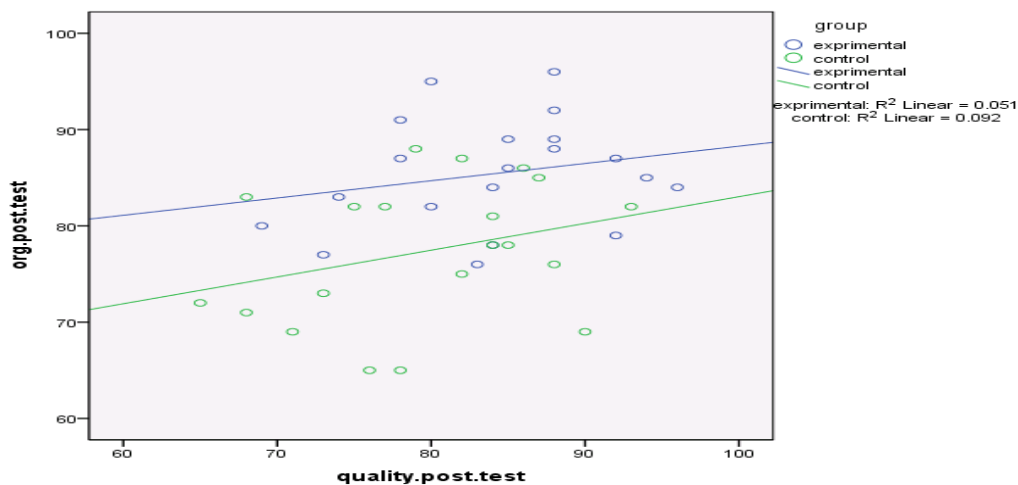
The collected data was analyzed quantitatively through descriptive method (mean and standard deviation) and inferential statistics (T-test) and multivariate analysis of covariance (MANCOVA). MANCOVA is an appropriate statistical analysis because it allows us to not only assess the impact of different independent variables and their interactions and eliminate the impact of certain variables, but also shows the relationship between different dependent variables. Since this method can show all these dependencies and relationships at the same time, we can assess the difference between different levels of a dependent variable and measure their difference in a new combination of several dependent variables. In multivariate analysis of covariance, four statistics of Pillai's trace, Wilks' Lambda, Hotelling-Lawley's trace and Roy's largest root are shown. If the results are statistically significant and meaningful, one way to identify which dependent variable influences the final results is to use the analysis of variance for a single variable. In this case, Bonferroni test is used in order to prevent the first type error.

Certain assumptions must be met for the MANCOVA to be used appropriately:

1. Normality: For each group, each dependent variable must represent a normal distribution of scores. Furthermore, any linear combination of dependent variables must be normally distributed. Transformation or removal of outliers can help ensure this assumption is met.
2. Homogeneity of variances and covariance matrices.
3. Equality of the variances
4. Homogeneity between dependent variables

Each of the assumptions above was assessed respectively in the present research to ensure the appropriateness of using MANCOVA. The result showed the possibility of running the MANCOVA analysis. By analyzing the diagram of the relationship between the dependent variables, it was identified that a linear relationship exists between these variables.

Research Article



Furthermore, examining the results of Box's Test showed that the test in question is not meaningful and significant ($P=0.790$, $F(3, 259920.000)=0.349$, Box's $M=1.109$), and consequently the assumption of homogeneity of variances and covariances matrices is not rejected. Based on the results of Levene's Test, as illustrated in table 1, and since there is a significant and acceptable relationship between the two dependent variables, the third assumption i.e. equality of variances is met and therefore MANCOVA can be applied.

Table 1: Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
org.post.test	7.796	1	38	.008
quality.post.test	3.648	1	38	.064

The correlation coefficient between the dependent variables is seen in table 2.

Table 2: The correlation coefficient between the dependent variable of overall quality and organization of writing (n=40)

P	Writing skill	Variables
0.018	*0.372	organization

* $p < 0.05$

The correlation results show that there is a significant and acceptable relationship between the two dependent variables and therefore MANCOVA can be applied.

Statistical characteristics of pre-test and post-test in the both experimental and control groups have been presented in table 3.

Table 3: Paired Samples Statistics

group			Mean	N	Std. Deviation	Std. Error Mean
experimental	Pair 1	org.pre.test	77.65	20	7.822	1.749
		org.post.test	85.40	20	5.725	1.280
	Pair 2	quality.pre.test	79.70	20	8.079	1.807
		quality.post.test	83.95	20	7.215	1.613
control	Pair 1	org.pre.test	76.90	20	7.867	1.759
		org.post.test	77.35	20	7.220	1.615
	Pair 2	quality.pre.test	79.05	20	7.522	1.682
		quality.post.test	79.55	20	7.870	1.760

Research Article

As table 3 indicates, there is a difference between the means of the pre-test and post-test scores of both variables in the experimental group and these differences show that the treatment has been beneficial, while such a difference in the control group is small.

The statistical characteristics and the results of paired T-test have been shown in table 4.

Table 4: Statistical characteristics and paired T-test results in control and experimental groups

Group			Paired Differences					
			Mean	S. D	S. E	t	df	Sig
experimental	Pair 1	org.pre.test - org.post.test	-7.750	4.506	1.008	-7.692	19	.000
	Pair 2	quality.pre.test - quality.post.test	-4.250	2.552	.571	-7.447	19	.000
control	Pair 1	org.pre.test - org.post.test	-.450	1.572	.352	-1.280	19	.216
	Pair 2	quality.pre.test - quality.post.test	-.500	1.469	.328	-1.522	19	.144

As the results of the paired T-test indicate, there is a difference between the means of the pre-test and post-test results of both variables in the experimental group and the difference is significant at the level 0.01. Such a significant difference between the both dependent variables, is beneficial to the post-test, while such a difference in the control group is not significant. To clarify, it should be pointed out that improvement in the test scores in the experimental group is apparent.

The results of adjusted means for dependent variables have been shown in table 5.

Table 5: Adjusted means and Standard deviation for dependent variables

Dependent Variable	group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
org.post.test	experimental	85.106 ^a	.630	83.828	86.384
	control	77.644 ^a	.630	76.366	78.922
quality.post.test	experimental	83.623 ^a	.445	82.721	84.526
	control	79.877 ^a	.445	78.974	80.779

In the above table, adjusted means for dependent variables are presented. In fact, the effect of random variables has been statistically removed and the means in question indicate that the means of the experimental group have been placed at a higher level, compared to the control group.

The results of MANCOVA analysis for each variable have been presented in table 6.

Table 6: F ratio multivariate analysis for measuring combination of variables

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.676	36.512 ^a	2.000	35.000	.000	.676
Wilks' lambda	.324	36.512 ^a	2.000	35.000	.000	.676
Hotelling's trace	2.086	36.512 ^a	2.000	35.000	.000	.676
Roy's largest root	2.086	36.512 ^a	2.000	35.000	.000	.676

Partial Eta Squared measurements, as seen in table 6, are parts of variances related to the new combination of variables. The general principle is that it is to great effect if such value is more than 0.14. In the table above, the measured amount for the new combination of variables is 0.676, which is a sign of high effect. Besides, the results of Wilks' lambda test concerning the combination of variables, is significant. In other words, the significant difference in the new combination of variables, indicate that the

Research Article

members of experimental and control groups vary in their essay writing ability and the effect of Mind Mapping technique as an independent variable has been high on the dependent variables in the experimental group.

The results of univariate tests of the dependent variables are presented in table 7.

Table 7: The results of Univariate Tests

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
org.post.test	Contrast	554.747	1	554.747	69.975	.000	.660
	Error	285.401	36	7.928			
quality.post.test	Contrast	139.803	1	139.803	35.364	.000	.496
	Error	142.316	36	3.953			

The figures in the table above indicate the results of ANCOVA analysis. Since there are two dependent variables, Bonferroni Correction is performed to divide 0.05 by 2. Therefore the significant level is below 0.025 and such a thing holds true for both variables. The amounts of Eta show that almost 66 per cent of the organization variable and 50 per cent of the overall quality variable are contributed to the variable of the experimental group. Based on tables 6 and 7, the following inferences have been made from the data.

Major hypothesis: the use of Mind Mapping technique is effective on enhancement of organization and overall quality of EFL learners' essay writing ability.

The results of table 4.6 show that there is a significant difference between the experimental group which received the instruction on using Mind Mapping technique and the control group which received no instruction ($F(35,2)=36.512$, $P=0.000$, $ETA=0.676$). In the meantime, based on the adjusted means, such a difference has been beneficial to the experimental group.

First hypothesis: the use of Mind Mapping technique is effective on enhancement of essay organization written by EFL learners.

As seen in table 4.7, there is a significant difference between the adjusted means of both groups in organizing information and thoughts ($F(36, 1)=69.975$, $P=0.000$, $ETA=0.660$).

In order to clarify what mentioned above, the related information in this respect has been illustrated in diagram 2. If the two levels of control and experimental groups are presented in the X axis and the dependent variable of writing organization in the Y axis, the result will be as follows:

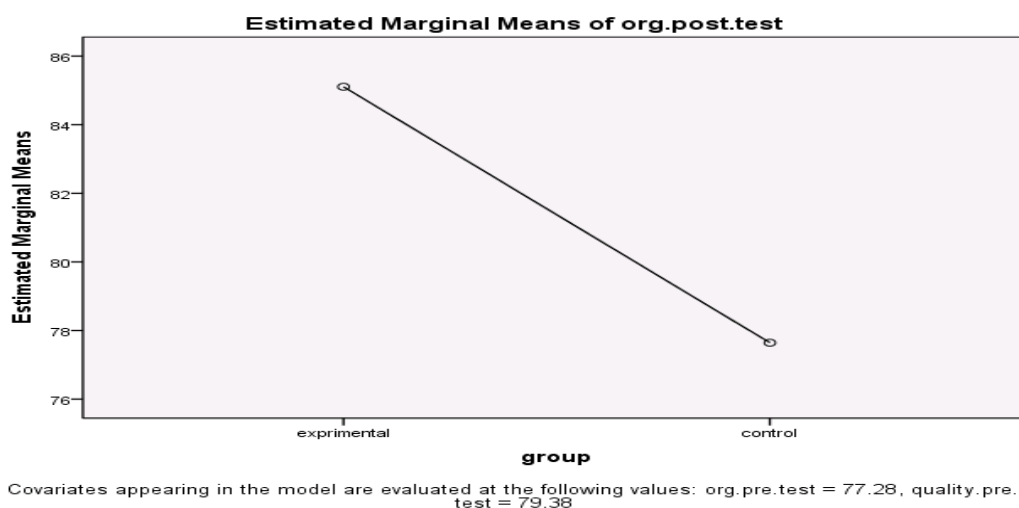


Diagram 2: Means of post-tests of experimental and control groups in terms of essay organization ability

The diagram clearly shows that the group which has been under treatment performed better compared to the control group that received no treatment in terms of essay writing organization.

Research Article

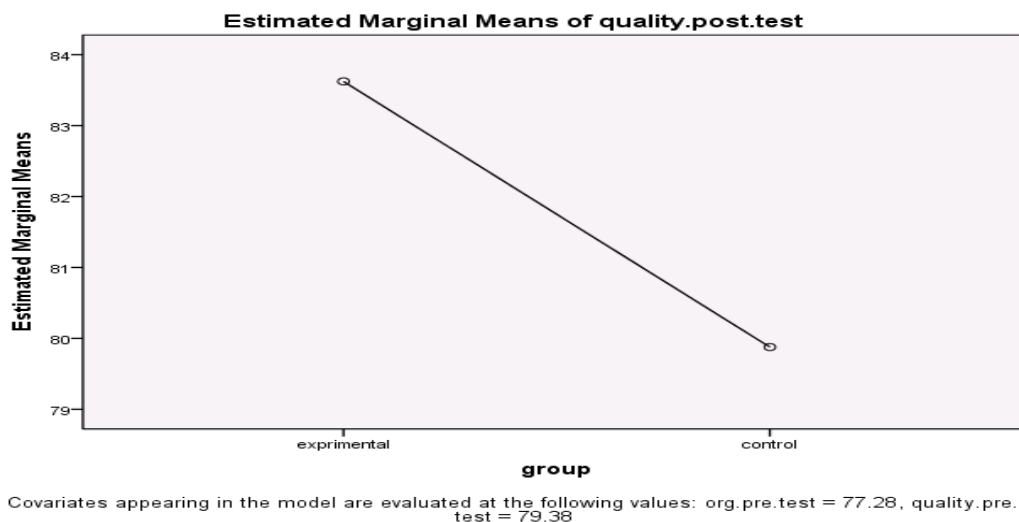


Diagram 3: Means of post-tests of experimental and control groups in terms of overall essay writing ability

Second hypothesis: the use of Mind Mapping technique is effective on enhancement of overall quality of EFL learners' essay writing ability. As seen in table 7, there is a significant difference between the both groups in terms of overall quality of essay writing ability ($F(36,1) = 69.975$, $P = 0.000$, $\eta^2 = 0.496$). Once more, in order to clarify what mentioned above, the related information in this respect has been illustrated in diagram 3. If the two levels of control and experimental groups are presented in the X axis and the dependent variable of overall essay writing ability in the Y axis, the result will be as follows:

By taking a look at the above diagram, it can be found out that the EFL learners who received explicit instruction have made progress in terms of overall quality of essay writing ability compared to the members of the control group.

Conclusion

To be a successful instructor, it is a good idea for one to be armed with new techniques and strategies of teaching, to be able to understand the students' needs and potentialities, to identify the problems that the students might confront during the process of learning, to make an effort to offer practical suggestions based on his/her knowledge and experience, and finally try to implement the new techniques when needed, in order to make teaching and learning more effective. Definitely, an EFL instructor is of no exception. Mind Mapping is a technique which is beneficial to be applied by instructors in EFL classes.

Based on the results shown above, the both null hypotheses presented in previous parts were rejected. In fact, the comparison between the pre-test and post-test scores in the experimental group, revealed a significant difference in EFL learners' essay writing performance, either in terms of the organizational aspect or the overall quality of writing. To put it simply, the results showed improvement in EFL learners essay writing ability among the members of the experimental group who were instructed how to use Mind Mapping technique as a pre-writing activity and consequently the technique was found effective.

ACKNOWLEDGEMENT

I would like to express my enormous thanks and special appreciation to my supervisor, Dr. Shahrokh Jahandar, who provided me with his beneficial suggestions and invaluable support during my research. I would also like to thank my advisor, Dr. Morteza Khodabandelou, whose profound insights and helpful advice were of great benefit to me.

REFERENCES

Al Jarf R (2009). Enhancing freshman students' writing skills with a mind mapping software. *The 5th International Scientific Conference, Elearning and Software for Education, Bucharest*

Research Article

- Al Naqbi S (2011).** The Use of Mind mapping to Develop Writing Skills in UAE Schools, Education, Business, and Society. *Contemporary Middle Eastern Issues* **4** 120-133.
- Badger R and White G (2000).** A process genre approach to teaching writing. *English Language Teaching Journal* **54**(2) 153-160.
- Bae J (2011).** Teaching Process Writing for Intermediate/Advanced Learners in South Korea. Unpublished Master's thesis. University of Wisconsin-River Falls
- Barnet M (1992).** *Writing as process. North-East conference, University of Virginia* 16-55.
- Brown HD (2001).** *Teaching by Principles: an Interactive Approach to Language Pedagogy* (White Plains, NY: Longman).
- Buzan T (2002).** *How to Mind Map?* (Thorsons, London).
- Buzan T and Buzan B (1993).** *The Mind Map Book. How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential* (Penguin Group, London).
- 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.
- Casco M (2009).** The Use of "Mind maps" in the Teaching of Foreign Languages. *Unpublished Article*.
- Davis M (2011).** Concept Mapping, Mind Mapping and Argument Mapping: What are the differences and do they matter? *Higher Education* **62** 279 -301.
- Fotheringham J (2012).** Mind mapping and Language Learning. Available: <http://www.language mastery.com>
- Gholami Pasand P and Bazarmaj Haghi E (2013).** Process-Product Approach to Writing: the Effect of Model Essays on EFL Learners' Writing Accuracy. *International Journal of Applied Linguistics and English Literature* **2**(1) 75-79.
- Kaur J and Amar Singh K (2004).** The effects of mind mapping strategies on the development of writing skills of selected from three students, Unpublished Master's Thesis, Universiti Putra Malaysia.
- Lee YJ (2006).** The process-oriented ESL writing assessment: Promises and challenges. *Journal of Second Language Writing* **15** 307-330.
- Mahnam L and Nejadansari D (2012).** The effects of different pre-writing strategies on Iranian EFL writing achievement. *International Education Studies* **5**(1) 154-160.
- Nunan D (1999).** *Second Language Teaching and Learning* (Newbury House Teacher, Boston, Massachusetts).
- Ogawa and Toshimi R (2009).** Mind Mapping as a pre-writing Tool in Teaching College- Level Writing Course. *Unpublished Article*
- Ojima M (2006).** Concept mapping as pre-task planning: A case study of three Japanese ESL writers. *System* **34** 566-585.
- Pishghadam R and Ghanizadeh A (2006).** On the Impact of Concept Mapping as a Pre-writing Activity on EFL Learners' Writing Ability. *Iranian Journal of Applied Linguistics* **9**(2).
- Regina Lo SM (1996).** A possible approach to improve teaching of writing. *Teaching English as a Second Language* **29**(1) 10-20.
- Riswanto and Prandika Putra P (2012).** The Use of Mind Mapping Strategy in the Teaching of Writing at SMAN 3 Bengkulu, Indonesia. *International Journal of Humanities and Social Science* **2** 60-68.
- Shafiee S, Koosha M and Afghari A (2013).** The Effect of Conventional, Web-based, and Hybrid Teaching of Prewriting Strategies on Iranian EFL Learners' Writing Performance. *International Research Journal of Applied and Basic Sciences* **4**(2) 393-401.
- Zheng Sh and Dai W (2012).** Studies and suggestions on prewriting activities. *Higher Education Studies* **2**(1) 79-87.