The Effect of Graphic Organizers on Students’ Writings: The Case of EFL Students, Islamic Azad University, Malayer Branch

Hamid Reza Khalaji1*

1. Assistant Professor, Department of English Language Teaching, Malayer Branch, Islamic Azad University, Malayer, Iran.

* Corresponding Author’s Email: hrkhalaji20@gmail.com

Abstract – Writing in a foreign language has always been regarded as a complicated task by EFL learners. There has not been a complete method for teaching writing to EFL learners. Accordingly, various methods and approaches have been examined to explore better and more effective ways to teach this skill. In order to do the investigation, the researcher selected 25 male and female upper intermediate EFL M.A. students from among the ones who are studying English at Islamic Azad University, Malayer branch. The researcher conducted a training class of writing multi-paragraph essay and the participants were going to develop five-paragraph essays based on the prompts chosen from IELTS. The participants had no chance to use graphic organizers. After six sessions of writing five-paragraph essays, the researcher taught them how to use graphic organizers to develop essays. Then, they were assigned five-paragraph essays again by introducing one prompt in each session. This time, they were told to develop their essays on the basis of their obtained information on graphic organizers. The writing samples developed in the two phases of the training sessions were scored and compared using paired samples t-test the result of which showed that using graphic organizers significantly affects the writing ability of EFL learners.

Keywords: writing, graphic organizers, multi-paragraph essay, prompt

1. INTRODUCTION

There are a lot of studies on graphic organizers and their relations with language skills. Since Iranian students especially those who are college students have a hard time while writing in a second language, it seems any step towards helping students write easily and comfortably will be appreciated by all foreign language teachers and students themselves. One way to help make a curriculum more supportive of students and teachers is to use graphic organizers. A graphic organizer is a visual and graphic display that depicts the relationships between facts, terms, and or ideas within a learning task. Graphic organizers are also sometimes referred to as knowledge maps, concept maps, story maps, cognitive organizers, advance organizers, or concept diagrams. Graphic organizers come in many varieties and have been widely researched for their effectiveness in improving learning outcomes for various students.

Concept mapping was developed in the 1960s by Joseph Novak of Stanford University. According to Novak (1991), graphic organizers are used to represent children’s
conceptual understanding. One of the powerful uses of graphic organizers is not only as a learning tool but also as an evaluation tool, thus encouraging students to use meaningful mode learning patterns. Perhaps by using graphic organizers in the classrooms, the students’ writing will significantly improve.

Kroll and Paziotopoulos (2004) described a graphic organizer as a concrete Skyscraper Model, to help students become creative and analytical thinkers. It is a step by step process from general knowledge at the lowest point to being able to connect to real life and give an opinion at the highest point, which allows students to understand information. This helps students develop further skills interactively through our ever changing “visual” world.

Based on Sakta’s opinion (1992) before expecting children to use graphic organizers, the teacher must first help the students understand the main idea and supporting details of a topic. Washington (1988) states that the teacher needs to model for the children the way a paragraph is developed by using one strand of the organizer and having the children make up sentences to correlate with the phrase in the map.

Some students need assistance in learning how to group information. Fleener and Marek (1992) support the concept that this clustering process will furnish valuable information to the teacher revealing gaps or misconceptions in the students understanding. After the student forms word groups, the student can then provide category names for the headings (Fleener&Marek, 1992).

2. LITERATURE REVIEW

2.1. Preliminaries

Undoubtedly planning plays a very important role in improving writings of EFL learners. There are a plenty of studies which support the idea of planning and organization while writing. As Romero (2008) believes, every time proficient writers write, they begin by planning, organizing, varying word usage, and adapting writing based upon the purpose, form, and intended audience. Culham, (2003) shares this belief and states that the organization of writing should enhance the topic. The piece of writing should contain a motivating introduction with a strong body that gives all necessary support and information as well as a strong conclusion. Making a sequence throughout the writing should be logical and effective.

Just as organization is important to writing, it is also important and beneficial to move the organization of information into memory. Smith (1978) conducted an experiment research case study in which he gave fifty picture cards to two different groups of students (each group had twelve students). The first group was told to memorize the cards and the second group was told to organize the cards into categories. Smith’s hypothesis stated that the second group of students would remember more information from the cards because they would be categorizing based upon their thoughts and ideas. After ten minutes, both groups of students were tested on their memory of what was on the picture cards. The second group of students remembered far more card content than the first group. Why? These students categorized and organized the cards so that they made more sense to them and the cards were fluent with each
other. This proved the point Smith was trying to make sure readers and writers learn through organizing and building categories.

Arthaud and Goracke (2006) conducted a case study of twenty fourth graders during the first quarter of the school year. A majority of these students were not scoring proficiently on the state standardized tests. Their study implemented the introduction of story webs and outlines. Students were taught how to use them through different lessons, and teacher support was gradually pulled away. By the fourth quarter when the students took the 2009 state assessment test, results were exemplary. Every student had met and exceeded all the state standards by using the organizational approaches.

2.2. Kellog’s Model of Writing

Kellog’s (1996) model involves three basic systems (Ellis & Yuan, 2004). Each system involves two processes. The first system is Formulation and involves (i) ‘planning’ in which goals are set and ideas are organized, and (ii) ‘translation’ in which lexical units and syntactic frames are selected; then they are phonologically and graphologically represented to be ready for execution. The second system is Execution and involves (i) ‘programming’ where the output from translation is converted into production schema, and (ii) ‘executing’ which is the actual production of a sentence. The third system is Monitoring which involves (i) ‘reading’ in which the writer reads his/her production, and (ii) ‘editing’ in which the writer attends to either micro aspects (such as linguistic errors) and/or macro aspects (such as text organization) of the text. According to Kellogg, the Execution system which is responsible for problem solving and mental calculation is involved in all sub-processes with the exception of executing in which there is no need for controlled processing.

On the other hand, Ellis (2005) believes that Kellogg considers an adult, native-like automacity in handwriting and typing which might not be present in L2 learners with limited proficiency, especially those whose L1 employs a different script. Therefore, he concludes that the execution system would be called upon during executing by some L2 writers.

Undoubtedly, Levelt's (1989) model and Kellogg's (1996) model have many things in common (Ellis & Yuan, 2004). Kellogg's 'planning' corresponds to Levelt's 'conceptualization'; 'translating' corresponds to 'formulation', and 'execution'.

2.3. The Nature of Writing

Writing stands out among the four basic skills of language learning. Olshtain (1993) explores the special status of writing within the framework of language teaching. She identifies:

“The skill of writing enjoys special status. It is via writing that a person can communicate a variety of meanings to close or distant, known or unknown readers. Such communication is extremely important in the modern world, whether the interaction takes the form of a traditional paper and pencil writing or the most advanced electronic mail. As
Olshtain (1993, p.235) puts it, “writing as a communicative activity needs to be encouraged and nurtured during the language learners’ course of study”.

Olshtain addresses the prominence of composition with reference to various audiences and the miscellaneous of its use. But, Chastain points to the significance of writing with respect to its relationship with language proficiency and level of education. According to Chastain, writing is a kind of communication skill as well as a unique asset in the process of second language learning. He further argues that “writing with its unique features contributes to overall language learning. Both aspects of writing are important in the typical language class and both can serve to reinforce the other. Moreover, “writing is the distinctive ability of educated people” (Chastain, 1980, p.244).

Irrespective speaking, writing is a much slower process. Raimes (1983) draws our attention to a fact that everybody learns speech as a mother tongue, but he/she is not able to acquire how to read or write. All forms of communication such as facial expressions, gestures, all non-verbal forms are transformed to linguistic and mechanical forms in writing, and one needs to be informed of all these forms.

Writing poses some limitations, but unlike speaking, causes writing to be more flexible than speaking. Speakers may violate the grammar rules, but writing will be remained as a valid document and is subject to different forms of criticism. Consequently, writing is the last skill in the sequence to develop, should be learned by study in a longer process of time. Harris (1969) states: “writing as a complex skill involves the spontaneous practice of a number of very different abilities, some of which are never fully achieved by many students even in their native language” (p.68) Writing, and specifically academic writing, requires training, instruction, practice, experience and purpose.” (Grabe and Kaplan, 1996, p.6)

After explaining the tasks and different type of it as well as the various aspects of writing, it is reasonable to pay attention to the studies which have been previously performed in Iran regarding the task planning and language skills. In the following section, these studies have been briefly mentioned.

3. METHODOLOGY

3.1. Participants

In order to do the investigation, the researcher selected 25 EFL M.A. students from among the ones who are studying English at Islamic Azad University, Malayer branch. The students were both males and females. Ten of them were male and the other fifteen were female. The age of the students was not considered since the researcher’s aim was to conduct the whole class to gather the necessary data for his investigation. The students were considered upper-intermediate since they would graduate soon.

3.2. Procedures

At the beginning of the study, the researcher told the participants how to compose a five-paragraph essay. In other words, the researcher conducted a training class of writing
multi-paragraph essay. After that, the researcher gave the participants a writing prompt based on which they were going to develop a five-paragraph essay. The prompts were chosen from IELTS to assure the researcher of their reliability. The participants had no chance to use graphic organizers. The researcher introduced more writing prompts to develop five-paragraph essays.

After six sessions of writing five-paragraph essays, the researcher taught them how to use graphic organizers to write essays. The participants were given some sample writings during the period which primarily focused on topics related to compare and contrast, cause and effect, drawing conclusion, summary writing, and main idea and supporting details. They had to distinguish the genre of the essay and based on the instruction they had received and then they were asked to prepare a graphic organizer for each one. Then, they were assigned five-paragraph essays again by introducing one prompt in each session. This time, they were told to develop their essays on the basis of their obtained information on graphic organizers. The experiment was performed for six sessions too. It should be noted that the prompts were completely different from those which were given to them at the first phase of the study.

Next, the essays developed by the participants in the two mentioned phases were gathered. The essays were scored based on the TEEP criteria. According to the TEEP, criteria such as idea, organization, style, and conventions will be considered while scoring a given essay. The scores were all on the scale of 100. Using the TEEP criteria, the scoring procedure was assumed to be reliable. The writings were also given to two other professors to ensure the researcher the scores were reliable as far as inter-rater reliability was concerned.

Then, two sets of scores were obtained for the participants. One set of scores related to the writings in which they had no chance to use graphic organizers while developing essays. The other set related to the essays in which they had already been taught the graphic organizers and in which they had practically made use of graphic organizers. These two sets of scores were fed into SPSS software for analyzing the probable differences.

Finally, the participants were given a questionnaire to complete. The questionnaire prepared by the researcher was composed of five items which were designed to elicit the participants’ ideas on using graphic organizers and their probable effects on their writing quality. In this case the researcher was sure that whether they had used graphic organizers as they had been supposed to. Moreover, the questionnaire revealed that whether the use of graphic organizers would be beneficial and whether they would feel any change in their writing abilities from the time they made use of these organizers.

According to the procedures explained, the present study is an experimental one in which the treatment introduces graphic organizers to the participants. A T-test was used to compare the performance of the two groups. Of course, the scores of males and females in the study were also compared using another T-test to see whether the males made better use of the graphic organizers in their writing or females. Thus, the design of the study will be as follow:
3.3. Research Design

The design of this study is shown in the following diagram.

As can be seen from the schematic representation of the design, the participants were given two different writing tasks, one without introducing graphic organizers and the other with graphic organizers. The graphic organizer task results were compared with those of non-graphic organizers.

3.3. Instruments

The materials which were used in the study included the IELTS (1997), General Training Module which was focused on reading and writing skills. Of course, because of the nature of the study the researcher used the section related to the writing skill. The participants had to use the IELTS for getting idea and practicing writing a standard way. Also some samples were chosen from another version of IELTS for the students to practice distinguishing the used genres in them and prepare the outline or graphic representation for each.

4. STATISTICAL CALCULATION

To answer the research questions, the researcher applied T-tests to capture any possible differences between the scores obtained from the participants in two separate sets and also to see whether the male and female participants of the study had performed significantly in their writing tasks or not. Paired-samples t-tests or matched t-tests as Dornyei (2007) has stated are used for research designs where we want to compare two sets of score obtained from the same group or when the same participants are measured more than once. This statistical
procedure examines different results obtained from the same group. Therefore for examining the effect of graphic organizers on the writing of students which is related to the same group, paired-samples t-test was run.

For comparing the results of male and female participants of the study, the researcher used a one-way ANOVA since they were considered as two different groups.

4.1. Preliminaries

When learners are taught using graphic organizers, the learning process will be highly facilitated. It makes no difference whether the learners are focusing on speaking, listening, reading, or writing. Since graphic organizers shape the organization of learning process, they must have a positive effect on any type of learning. In the present chapter the results of the study which confirm the findings of other theorizers and researchers will be explained in details. The necessary tables which include the statistical information will be brought together with the interpretation and the discussion of the findings.

4.2. The Results of the Graphic Organizers’ Effect on Participants’ Writings

In order to test the first hypothesis, the researcher conducted paired-samples t-test on the results of the tests. In the following section the related tables have been brought.

Table 1: Paired Samples Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Graphic</td>
<td>61.40</td>
<td>25</td>
<td>13.916</td>
<td>2.783</td>
</tr>
<tr>
<td>NoGraphic</td>
<td>60.00</td>
<td>25</td>
<td>14.051</td>
<td>2.810</td>
</tr>
</tbody>
</table>

According to the Table 1, there was a significant difference in the scores for graphic condition (M=61.40, SD=13.91) and no-graphic condition (M=60.00, SD=14.05). A comparison between the participants’ exposure to graphic organizers and lack of their exposure to those organizers causes us to infer that the mean of the graphic condition is more than that of the no-graphic one. Since the participants have been the same who have experienced various conditions of writing, a careful look at the Table 2 shows that the correlation is highly relevant. But the difference in the means of their performance in two conditions cannot be considered to be insignificant. As it is seen in the Table 4.2, p = .001. It shows that the difference between the two conditions is highly significant. Thus, the mean differences which were seen in Table 1 are not accidental.
Table 2: Paired Samples Correlations

<table>
<thead>
<tr>
<th>Pair 1</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic &amp; No-Graphic</td>
<td>25</td>
<td>.976</td>
<td>.001</td>
</tr>
</tbody>
</table>

Table 3 confirms the above interpretations too. As it is observed, in the following table, the results \((t=2.2, \, df=24, \, p = .03)\) confirm the fact that the difference between the performance of the participants under two various conditions is significant.

Table 3: Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td>Upper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphic – No-Graphic</td>
<td>1.40</td>
<td>3.055</td>
<td>.611</td>
<td>.139</td>
<td>2.661</td>
<td>24</td>
<td>.031</td>
</tr>
</tbody>
</table>

On the basis of the information obtained from SPSS procedures, it was shown that the graphic condition significantly affected the quality of the writing tasks composed by the participants of the study.

4.3. The Results of the Male and Female Participants’ Performance on Writing Tasks Using Graphic Organizers

The second research question was about the relationship between the participants’ genders and tasks with graphic organizers. In order to see whether there is any significant difference between the performance of male and female participants in tasks with graphic organizers, the researcher ran a one-way ANOVA.

Table 4: Descriptive Analysis of the Males’ vs. Females’ Performance in Graphic Task

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval for Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>54.10</td>
<td>14.341</td>
<td>4.535</td>
<td>43.84</td>
<td>64.36</td>
<td>37</td>
</tr>
<tr>
<td>female</td>
<td>15</td>
<td>66.27</td>
<td>11.677</td>
<td>3.015</td>
<td>59.80</td>
<td>72.73</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>61.40</td>
<td>13.916</td>
<td>2.783</td>
<td>55.66</td>
<td>67.14</td>
<td>37</td>
</tr>
</tbody>
</table>
It can be inferred from Table 4 that the female participants in the study have performed differently from the male ones. As it is shown in the above table, the females’ mean is 66.27 while that of males is 54.10. This information is related to the writing tasks with graphic organizers.

Table 5: The Results of One-way ANOVA for the Differences between Male and Females in Graphic Task

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>888.167</td>
<td>1</td>
<td>888.167</td>
<td>5.433</td>
</tr>
<tr>
<td>Within Groups</td>
<td>3759.833</td>
<td>23</td>
<td>163.471</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4648.000</td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the information presented in the Table 5, the F-value is 5.433 which can confirm the difference between males and females participating in the study. The difference is significant at .029 which is less than .05. Accordingly, the participants of the study were different as far as their gender is considered. Thus, in writings where the learners make use of organizers the females may perform better and benefit more from these organizers. The following plot depicts the mean difference between males and females in a better way.

Figure 1: The Gender Difference in Performing on Graphic Organizer-based Writing Tasks
Based on the plot, there is a sharp difference between males and females who composed their writings using graphic organizers. Thus, the second hypothesis can be safely rejected on the basis of the statistics which was presented.

There may be another question whether the male and female participants were also different while writing without using graphic organizers. In order to answer this question, the researcher conducted another one-way ANOVA and the following table and plot were resulted.

5. CONCLUSION

This study found significant effects of graphic organizers on the writing ability and quality of Iranian EFL learners. Significant differences were observed between the graphic and non-graphic conditions of writing. The graphic organizers cause learners to plan for their writing.

Due to the unfamiliarity with graphic organizer condition, as the verification of the results reveals, participants in the non-graphic condition were not able to generate ideas in a way that resembles skilled writing. Their written notes show that they only wrote sentences and phrases that were ready for execution in the process of writing. In other words, their processing was of a local sort taking into account only the immediate context or general topic. Moreover, they complained that they were not able to write academically. This is because they were struggling with lower-level writing skills such as transcription and text generation, indicating that more resources were devoted to processing at the expense of storage.

In the graphic condition, the participants focused more on the organization of sentences. In fact, the chronological order and the sequence of the sentences were more observed in this condition in comparison with the non-organizer condition of writing. The order of the sentences and the use of the words and expressions like first, then, last, and so forth is an indication of this fact. The graphic condition creates order and organization in the minds of writers. It can be judged that these types of organizers are to be considered for any level since the learners at any level need these types of challenges and working with various kinds of organizers.

The other important factor which should not ignored concerning the effect of graphic organizers on the writing quality of learners is the effect of gender on writing while the writers make use of these organizers. Based on the obtained information from both statistics it was inferred that gender does not have a significant effect on the writing quality in the presence of graphic organizers. One of the other conclusions of this study is that perhaps the organization is a property which does not depend on the gender of persons. As it was observed in the study, the females and males performed equally well in writing while they were given graphic organizers at the very beginning of writing.
6. ACKNOWLEDGEMENTS

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