

Using Teacher- and Student-Developed Graphic Organizers as a Writing Tool

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ABSTRACT

This study investigated 1) whether the effect of teacher-developed graphic organizers vis-à-vis student-developed ones was more significant on improving intermediate EFL learners' writing, and 2) whether the use of both graphic organizers had any impact on their writing. The participants were selected in two stages: 130 students sat for a piloted proficiency test. Those who scored above half of the total score (N = 93) took part in a writing test and, ultimately, 60 whose scores fell between one standard deviation above and below the mean were divided equally and randomly into two experimental and control groups. Both groups underwent a 20-session course of which 10 sessions were allocated to teaching writing with the experimental group receiving five sessions of student-developed organizers first and, subsequently, another five sessions of teacher-developed ones. At the end of each series of five sessions, a writing test was administered to both groups. To verify the two null hypotheses, a mixed ANOVA was run (between-subject factor of having organizers in the experimental group and within-subject factor of organizer type in the experimental group). The data revealed that using graphic organizers had no significant impact on improving EFL learners' writing; however, the use of teacher-developed graphic organizers did have a more significant effect than that of student-developed ones.

Keywords: *graphic organizers, advance organizers, writing*

Introduction

Language is by no means a single-aspect phenomenon; quite the contrary, it includes different skills and sub-skills. Hence, the speakers of a language possess and employ their knowledge of the different skills and sub-skills in their everyday interactions through language. English, like all other spoken-written languages, consists of four skills: listening, speaking, reading, and writing and as students of English learn to control different oral registers, they must also be able to write in different purposes (Rappen, 1995, p. 321).

The ability to write effectively is becoming increasingly important in our global community, and instruction in writing is thus assuming a prominent role in both second- and foreign-language education. To this end, the ability to

write in English is becoming widely recognized as an important skill for educational, business, and personal reasons (Cushing-Weigle, 2002).

Writing is both time-consuming and difficult to teach; indeed, many teachers may not feel qualified to teach writing because they have not received enough specific training in the teaching of this skill. The problem is compounded by the fact that so many prospective teachers lack confidence in their own writing (Shin 2003, p. 3). And this is not merely an L2 problem; as Nunan (1989, p. 35) argues, "Learning to write fluently and expressively is the most difficult of the macroskills for all language users regardless of whether the language in question is a first, second, or foreign language".

There are different ideas about the difficulties of the writing process. Raimes (2002, p. 303)

believes that “the difficulty lies not only in generating and organizing ideas, but also translating these ideas into a readable text”. Hedge (2005) holds that the most arduous part of writing is getting started and that this problem is further foregrounded if the writer’s language proficiency is weak.

Research into writing demonstrates that students need to be exposed to and have practice with various genres in addition to narrative writing (Wright, 1996; Cumming, 1989; Olshtain, 2001; Ur, 1996). This is imperative for both native and nonnative speakers of English who are learning to write in English. Simply allowing students “to write a lot will not necessarily provide sufficient practice in the types of writing valued for academic learning” (Rappen 1995, p. 321). Accordingly, successful writing requires beyond the mere notion of practice makes perfect.

Successful Writing

The ELT literature is overwhelmed by both theorizations and empirical studies on the factors that contribute to successful writing (Atkinson & Ramanathan, 1995; Ferris & Hedgcock, 1998; Hyland, 2003; Raimes, 1998; Tickoo, 2001) with the latter, that is successful writing, of course being the overarching goal of any writing course.

According to Hairston (1998, p. 12), a successfully written piece is significant, clear, unified, and economical while enjoying an acceptable grammar and spelling. Raimes (1983) states that successful writing depends on more than the ability to produce correct sentences; in fact, he argues that writing tasks should help students write pieces of communication, think, and develop information, ideas, or arguments for a particular reader or readers. Nunan (1989) believes that successful writing involves all the way from the rudimentary steps of mastering the mechanics of letter formation and observing the conventions of spelling and punctuation to using one’s grammatical competence to convey his/her intended meaning and organizing content at the level of paragraph or a complete text. He further maintains that polishing and revising one’s intended efforts and selecting an appropriate style for the audience are also major aspects of successful writing.

Kroll (1991) states that writing assignments

constitute the key component of all writing classes. He argues that in any given term, the writing course consists of a series of assignments that are targeted and undertaken in a sequence of steps followed by a similar round until the time span of the course is over.

Albeit it would sound only commonsensical that successful writing would comprise the undertaking of a sequence of steps as Kroll (1991) has described above and that these sequences may be broadly seen as comprising the four main stages of planning, drafting, revising, and editing, one might be quite surprised to find out that this is not necessarily the case in real-life. Seow (2002) argues – not at all in isolation of course – that the above four stages are neither sequential nor orderly since as research vividly suggests, many good writers employ a recursive, nonlinear approach to writing: the drafting may be interrupted by more planning and revision may lead to reformulation with a great deal of recycling to earlier stages. Hedge (2000, p. 306) writes that, “Good writers also work episodically to set goals which structure the next unit of writing. This is often what they are doing during the pregnant pauses in composing”. Widdowson (1983, cited in Hedge, 2000, p. 306) maintains that, “In writing, one so frequently arrives at a destination not originally envisaged, by a route not yet planned for in the original itinerary”. And in the words of Shaughnessy (1977, cited in Hedge, 2000, p. 302), “One of the most important facts about the composing process that seems to get hidden from students is that the process that creates precision is itself messy”.

Hence, the implication of all this for the writing class is that perhaps a rigid adherence to the principle of sequentiality may need to be revisited with a certain extent of flexibility. And with this proposal in place, it may also sound plausible that the strict application of traditional methods of teaching writing – i.e. the teacher assigns a topic, the students write, and the teacher evaluates and provides feedback – requires revisiting too, and more modern-day techniques such as organizers may be worth pondering.

Advance Organizers

To become more independent and gain confidence in their learning, students need to acquire more skills in using metacognitive strategies. To

this end, the task of educators is to acknowledge and cultivate the metacognitive capabilities of learners (Winn & Snyder, 1996).

One such metacognitive strategy is the category of advance organizers which is a general preview of the organizing concept or principle in an anticipated learning activity (O'Malley, Chamot, Russo, & Kupper, 1985). First developed and systematically studied by Ausubel (1960), advance organizers provide scaffolding or support for new information which is achieved by directing attention to what is important in the coming material, highlighting relationships, and providing a reminder about relevant prior knowledge (Woolfolk, Winne, Perry, & Shapka, 2009).

The primary concept in Ausubel's theory is meaningful learning, as contrasted with rote learning, for which individuals must choose to relate new knowledge with relevant concepts and propositions they already know (Novak & Gowin, 1984). Accordingly, new knowledge can find the relevant, appropriate mental framework to join the existing previous knowledge, provided there is a suitable trigger to activate it too (Bromley, Irwin-DeVitis, & Modlo, 1995).

Advance organizers are used to provide support for new information. Woolfolk (2001) argues that they can "direct your attention to what is important in the coming material; they highlight relationships among ideas that will be presented and remind you of relevant information you already have" (p. 288). If no previous knowledge is available, advance organizers are used to give knowledge to the students in order for this framework to be followed and new information retained for recall and transfer (Mayer, 2003). One example provided by Mayer (2003) is giving students a diagram before listening to a passage which leads to better retention of material.

Ausubel has worked consistently to prove that advance organizers facilitate learning and much of his research has influenced others since the 1960s. To this end, much of the research suggests that the different kinds of advance organizers – which Bromley et al. (1995) list them as expository, narrative, skimming, concept mapping, and graphic organizers – are useful in improving the levels of learners' understanding and recall (Mayer, 2003).

Graphic Organizers

To understand graphic organizers, a brief dis-

cussion of their background of emergence is required. Cognitive psychologists generally agree that there are at least two distinct types of human knowledge: declarative and procedural (Jonassen, Beissner, & Yacci, 1993). The former is to know what something is, while the latter is to know how to do something with it. To help explain the transition between declarative and procedural knowledge thereby allowing one to actually transform his/her knowing to doing, some psychologists propose an intermediate knowledge type in which facts and concepts learned as declarative knowledge are interrelated with one another to form complex systems. This interrelationship of information, and the way in which people mentally organize it, has been called structural knowledge (Darch, Carnine, & Kammeenui, 1986; Diekhoff, 1983) which can be thought of as a network of mental connections or relationships between pieces of declarative knowledge. As learners develop these structures, they more easily associate independent ideas since structural knowledge networks appear to create the interconnectedness of ideas that support the development of procedural knowledge (Diekhoff, 1983).

A variety of techniques have been developed to elicit, represent, and convey structural knowledge; one such technique is using graphic organizers which are spatial metaphors that indicate relationships among concepts in a node-link-node visual display (Jonassen et al., 1993). Referred to also as knowledge maps, concept maps, cognitive organizers, or even concept diagrams, "a graphic organizer is a visual and graphic display that depicts the relationships between facts, terms, and/or ideas within a learning task" (Strangman et al., 2003, p. 2).

The visual representations in graphic organizers provide learners with a structural overview of information to be learned which, in turn, directs learners' attention towards key concepts and conceptual relationships rather than seemingly isolated facts. The use of such organizers thus enhances the understanding, organization, and long-term retention of information and accentuates meaningful learning and information manipulation while serving to prevent boredom (Jonassen et al., 1993).

Research shows that there is no single best way to introduce graphic organizers; rather, it is the type of thinking process produced by the various graphic techniques that would determine

what the learning outcome would be (Doff, 1988). This is perhaps why it is recommended to begin the work by introducing the idea of a concept map through certain preparing activities (Novak & Gowin, 1984) since with limited training and exposure to concept maps, students would not be able to use the tool to facilitate their application of the knowledge of general principles to specific contexts (Jonassen et al., 1993).

Merkley and Jefferies (2001, p. 351) also make specific suggestions for teaching with graphic organizers which include “verbalizing relationships between the concepts represented within the organizer, providing opportunities for student input, connecting new information to past learning, and making reference to upcoming text”.

With the numerous types of graphic organizers such as thematic or descriptive, network tree, spider map, problem and solution map, sequential episodic map, comparative and contrastive map, continuum scale, series of events chain, cycle map, and human interaction outline (Strangman et al., 2003), the literature is overwhelmed by studies which demonstrate the advantage of applying such organizers, even among those with learning disabilities (Boyle & Weishaar, 1997; Carnes, Lindbeck, & Griffin, 1987; Herl, O’Neil, Chung, & Schacter, 1999; Moore & Readence, 1984). In the words of Doff (1988, p. 82),

Showing visuals focuses attention on meaning and helps make the language use in class more real and alive. Visuals can be used in any stage of the lesson, to help in presenting new language or introducing a topic, as part of a language practice, and when reviewing language that has been presented earlier.

Having said the above on the possibility of employing graphic organizers in ELT classes and also the importance of writing, the researchers were interested to investigate whether the use of such organizers had any impact on the improvement of EFL learners’ writing performance. Furthermore, they sought to find out, in case the use of graphic organizers indeed had any impact, whether this impact were more considerable when students used teacher-developed organizers or those developed by themselves. To this end, the following null hypotheses were raised:

H₀₁: The use of graphic organizers has no

significant impact on the improvement of intermediate EFL learners’ writing performance.

H₀₂: There is no significant difference between the effect of using teacher-developed and student-developed graphic organizers on the improvement of intermediate EFL learners’ writing performance.

Method

Participants

Sixty female students studying at Tehran’s Shokoh Andisheh Language School participated in this study. This sample was selected through a proficiency test (Nelson 200B) which was administered to a total number of 130 students who had all passed a three-term writing course in the same language school. A total of 93 students who had scored 40 and above out of a maximum 76 on this proficiency test were given a writing test. Ultimately, 60 students whose scores fell one standard deviation above and below the mean were selected as the main participants of the study and were randomly and equally divided into two control and experimental groups. The proficiency test was first piloted among 30 students demonstrating similar characteristics as the target sample.

Instrumentations

Four tests and a rating scale for the writing tests were used in this study, the description of which is as follows.

Language Proficiency Test

A Nelson 200B general proficiency test consisting of 50 items (14 multiple-choice cloze items with focus on grammar and 36 multiple-choice items of grammar and vocabulary) was first piloted among 30 students. The item analysis revealed that 12 items were faulty and were thus discarded. The new format containing 38 items was thence administered to the 130 students already described in the previous section. The reliability of the test in this administration was 0.9.

Writing Test at the Outset

As described earlier, the 93 learners who

scored above 40 on the proficiency test sat for a writing test to ultimately select 60 participants for this study who bore no significant dissimilarity regarding the dependent variable under investigation, that is, writing. Accordingly, the 60 individuals whose scores on this test fell one standard deviation above and below the mean were chosen. It is worth noting here that this writing test also served as the pretest for the analysis required for verifying the second null hypothesis of this study. The topic was chosen among TWE topics.

Posttests

Two posttests of writing were used in this study: one after the first five sessions of instruction using student-made graphic organizers and the other after the next five sessions where teacher-made graphic organizers were used, which also marked the end of the treatment. The topics were again chosen among TWE topics.

Rating Scale for Writing

The analytic *Six-Trait Writing Assessment Rubric* (Spandel, 1996) was used in this study for all writing tests. As the name indicates, the rubric consisted of six sections: *voice*, *ideas and content*, *organization*, *word choice*, *sentence fluency*, and *conventions* with each section being measurable through the scores of 5, 3, 1, and 0, with the overall score thus being out of 30 (5×6).

Procedure

Following the participant selection and formation of the two groups, the treatment began. Each of these two groups underwent 20 sessions of instruction throughout the term, 10 of which were allocated to writing. Both groups had to write on the same topics including the four modes of writing: process (chain of events), cause and effect, comparison and contrast, and description throughout the term.

The brainstorming stage for both groups was also the same: at the beginning of each session, a new topic (taken from the TWE topics) was written on the board followed by some relevant questions which provided the opportunity for the learners to brainstorm. This took around 30 minutes.

Following the brainstorming, the participants in the control group were assigned to write on the topic individually until the end of the session. In

the experimental group, however, there were two phases. For the first five sessions of writing, once the brainstorming stage was over and the ideas were written on the board, the learners were asked to classify them and draw a graph or picture about each topic individually. They were not forced to include all the gathered points in their writings, rather, include the ones which they had experienced or were familiar with (student-developed organizers). They had to do this activity in around 15 minutes and were subsequently told to write on that topic for the remaining 45 minutes.

At the end of these five sessions, the first writing posttest was administered to both groups. The mean scores of this would be ultimately compared with that of the second posttest at the end of the instruction and also the writing pretest to monitor the improvement made in both groups from the beginning to the end of the treatment.

For the second five sessions of writing, again the control group underwent its previous procedure: brainstorming and writing assignment. In the experimental group, after the brainstorming was completed, the teacher (one of the researchers) drew a related original graph developed by Hall and Strangman (2002) on the board and the participants were assigned to fill it in together. The learners were thence assigned to write on that topic after this teacher-developed intervention of graphic organizers.

Following the second series of five sessions at the end of the semester, the second and final posttest was conducted in both groups. All papers at the pre- and posttest levels were scored based on the rating described above by two raters who had demonstrated inter-rater reliability.

Results and Discussion

Participant Selection

The participant selection consisted of the three stages of a pilot administration of the proficiency test, the actual administration, and the writing pretest.

Piloting the Proficiency Test

As discussed earlier, the Nelson 200B consisting of 50 multiple-choice items was piloted among 30 students. The descriptive statistics of this piloting appear in Table 1 below:

Administering the Proficiency Test

The modified version of the test comprising 38 items (already discussed in the instrumentation section) was administered to 130 intermediate learners. The mean and standard deviation of this administration were 64.33 and 7.85, respectively (Table 2).

The reliability was 0.9 based on the Cronbach Alpha procedure.

Administering the Writing Test at the Outset

The descriptive data of the scores of the 60 participants out of the total of 93 whose scores on the writing test fell within one standard deviation below and above the mean are presented in Table 3. These statistics are disaggregated by control and experimental group following the random division.

It is worth noting here that the inter-rater reliability for the two raters scoring the writing parts was 0.8.

Descriptive Statistics of Posttests 1 and 2

To give an overall assessment of both groups at the same time, the descriptive statistics of both posttests conducted in both groups (after the fifth and 10th sessions of the treatment) are displayed in Table 4 below.

As the table indicates, both distributions were normal (skewness ratios all falling within ± 1.96); hence, running ANOVA was legitimized.

Testing Both Hypotheses

To test the two null hypotheses of the study in one test, a mixed ANOVA was used. As the two following factors were involved in the statistical analysis of variance, each having two levels, a 2*2 Mixed ANOVA was employed with the dependent variable being the EFL learners' writing performance:

Table 1. Descriptive Statistics for the Nelson (200B) Pilot Test

Mean	59.13
Std error of mean	5.12
Std deviation	28.03

Table 2. Descriptive Statistics for the Nelson (200B) Administration

Mean	64.33
Std error of mean	1.01
Std deviation	7.85

Factor 1: Within-subject factor of 'type of organizers' with two levels: teacher-made vs. student-made organizers.

Factor 2: Between-subject factor of 'organizers' with two levels: absence of the organizers (for the control group) and presence of organizers (for the experimental group).

The first factor would investigate the difference between the effect of receiving teacher-made organizers and student-made organizers within the experimental group and the second factor would investigate any significant differences between the control and experimental group on the posttests of writing.

Table 5 shows the two within-subject factors: first level of this factor is posttest 1, which is the score of the candidates on the first posttest of writing after they received a period of practicing student-made organizers. The second level of the within-subject factor is posttest 2, which is the score of the subjects on the second posttest of writing after they received a period of practicing teacher-made organizers. Table 6 below shows the between-subject factors: the control group with 30 subjects and the experimental group with 30 subjects.

The next step was to run the multivariate tests (Table 7).

Table 3. Descriptive Statistics for the Writing Test at the Outset in the Two Control and Experimental Groups

	Nu mber	M ean	Std error of mean	Std deviation
Control	30	8.23	.76	4.16
Experi- mental	30	8.43	.73	3.99

Table 4. Descriptive Statistics for the Writing Posttest 1

	Group	N	Mea n	Std devia- tion	Skew- ness ratio
Post- test1	Control	30	19.03	3.55	1.01 <
	Experi- mental	30	17.27	4.24	.45 <
	Total	60	18.15	3.98	1.96
			0	5	
Posttest 2	Control	30	20.07	4.70	.39 <
	Experi- mental	30	19.97	5.17	.07 <
	Total	60	20.33	4.91	1.96
			0	3	

This was followed by the Mauchly's test of sphericity which indicates whether within-subject ANOVA can be run or not. As the results indicate (Table 8), the significance of the approximate chi-square value is less than 0.05 and, therefore, the assumptions behind the normal within-subjects ANOVA have been violated.

The researchers needed, thus, to report the corrections using the Epsilon when reporting the results of the within-subjects test. Since the number of subjects was sufficient in each group, the best estimate of Epsilon to report was the Greenhouse-Geisser Epsilon (Table 9).

According to the above table, the main effect of 'organizer type' was significant ($F_{(1,58)} = 31.6, p < 0.05$). Therefore, the researchers were able to reject the second null hypothesis of the study, that is, there was a significant difference between the effect of using teacher-developed and student developed graphic organizers on the improvement of intermediate EFL learners' writing per-

formance and as the mean score of the experimental group was 17.27 on the writing posttest 1 and turned to be 19.97 on the writing posttest 2 (Table 4), the significant difference found in Table 9 demonstrates that teacher-made organizers proved to be significantly more effective than student-made organizers.

Partial eta-squared, which demonstrates effect size as the magnitude of the impact of the independent variable on the dependent variable, was 0.299 (Table 9), showing that this factor accounted for 30% of the variance on scores.

Table 5. General Linear Model: 2*2 Mixed ANOVA (Within-Subjects Factor)

Organizer type	Dependent variable
1	Posttest 1
2	Posttest 2

Table 6. Between-Subjects Factors

Group	Value label	N
1.00	Control	30
2.00	Experimental	30

Table 7. Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
Organizer type	Pillai's Trace	.353	31.60 ^a	1.00	58.00	.00
	Wilks' Lambda	.647	31.60 ^a	1.00	58.00	.00
	Hotelling's Trace	.545	31.60 ^a	1.00	58.00	.00
	Roy's Largest Root	.545	31.60 ^a	1.00	58.00	.00
Organizer type*group	Pillai's Trace	.030	1.770 ^a	1.00	58.00	.19
	Wilks' Lambda	.970	1.770 ^a	1.00	58.00	.19
	Hotelling's Trace	.031	1.770 ^a	1.00	58.00	.19
	Roy's Largest Root	.031	1.770 ^a	1.00	58.00	.19

^a Exact statistic

Table 8. Mauchly's Test of Sphericity

Within subjects effect	Mauchly's W	Approx chi-square	df	Sig.	Epsilon ^a		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Organizer type	1.0	.00	0	-	1.0	1.0	1.0

^a May be used to adjust the degrees of freedom for the averaged tests of significance. Correlated tests are tests of within-subjects effects table.

Table 9. Greenhouse-Geisser Epsilon Tests of Within-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
<i>Organizer type</i>						
Sphericity assumed	143.00	1	143.00	31.60	.00	.299
Greenhouse-Geisser	143.00	1	143.00	31.60	.00	.299
Huynh-Feldt	143.00	1	143.00	31.60	.00	.299
Lower-bound	143.00	1	143.00	31.60	.00	.299
<i>Organizer type * group</i>						
Sphericity assumed	8.01	1	8.01	1.77	.19	.099
Greenhouse-Geisser	8.01	1	8.01	1.77	.19	.099
Huynh-Feldt	8.01	1	8.01	1.77	.19	.099
Lower-bound	8.01	1	8.01	1.77	.19	.099
<i>Error (Organizer type)</i>						
Sphericity assumed	262.48	58	4.53			
Greenhouse-Geisser	262.48	58	4.53			
Huynh-Feldt	262.48	58	4.53			
Lower-bound	262.48	58	4.53			

This effect size is quite large according to Larson-Hall (2010).

As for the 'group by organizer type' interaction, no interaction can logically be considered as the group factor has control and experimental in it and since the control group did not receive any type of organizers, no interaction between type of group and type of organizer can be considered.

Table 10 gives the results for the main effect of the group (the between-subjects effect), that is, the comparison between the control and experimental groups. The main effect of group was not significant ($F_{(1,58)} = 1.33, p = 0.25$) as the p value is larger than 0.05.

Therefore, the researchers were not able to reject the first null hypothesis of the study; that is, the use of graphic organizers has no statistically significant impact on the improvement of Iranian EFL learners' writing performance.

Graph 1 depicts the findings reported above. As it is clear, the control group obtained a higher mean score on writing posttest 1 than the experimental group. The control group also obtained a higher mean score on writing posttest 2 than the experimental group, though the difference between the two groups was not significant on the two tests (according to the above tables).

Moreover, the experimental group demonstrated improvement in writing posttest 2, and the improvement turned out to be significant. In this group that received two different types of treatment (the results of which are revealed through the two posttests), the improvement is indicative of the more significant impact of teacher-developed organizers over the student-developed organizers.

The plot also shows that the degree of improvement in the experimental group was much more than the control group, as the differences between the mean scores of posttests 1 and 2 within each group demonstrate this. That is, the mean difference for the control group ($20.7 - 19.03 = 1.67$) was much lower than the mean difference for the experimental group ($19.97 - 17.27 = 2.71$) on the two tests. In other words, the experimental group demonstrated a higher degree of improvement compared to the control group, though the results of the between-subjects test indicated that the difference in improvement of the control and experimental groups was not significant.

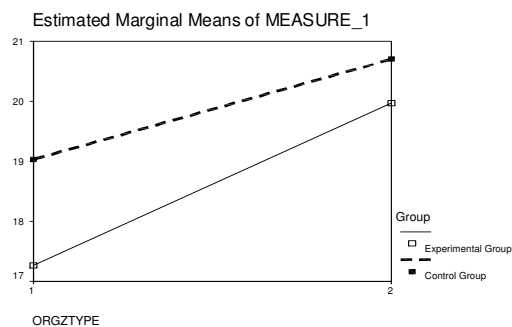
All in all, while the use of graphic organizers had no statistically significant impact on the improvement of EFL learners' writing performance, there was a significant difference between the effect of using teacher-developed and student-developed graphic organizers on the improvement of intermediate EFL learners' writing performance. And the effect of teacher-developed organizers was more significant than that of student-developed organizers.

Conclusion

Although there was no significant difference between the experimental group which underwent the organizer treatment with the group which did not in terms of improving their writing, more joy and motivation was clearly observed when these organizers were being used. Furthermore, there was a considerable progression of generating more organized ideas being visible among the learners in the experimental group.

Table 10. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	44429.01	1	44429.01	1263.41	.00
Group	46.88	1	46.88	1.33	.25
Error	2039.62	58			



Graph 1. Estimated Marginal Means of Between-Subjects Effects

This is perhaps clearly understandable as there is overwhelming evidence in the literature that the use of visuals contributes to enhancing the liveliness of the learning context (discussed in the first section of this paper).

As elaborated in the previous section, there was a significant difference in utilizing teacher-developed and student-developed graphic organizers regarding the impact on the writing performance of intermediate EFL learners with that effect of teacher-developed ones being more significant. The direct implication of this outcome would be that teachers can use such organizers to at least enable the learners to generate and organize more ideas and also use them to motivate the learners and show them how to write and from where they should start writing.

For the very same reason, syllabus designers and textbook writers can include these organizers in textbooks to motivate and attract the attention of students. They can be used to facilitate the process of writing for learners in general and, in a sense, alleviate the overall fear and hesitation that many learners may have when it comes to writing. This is especially true since a sizeable number of learners consider writing as a hardly tangible experience of thinking with no visible cues at hand. The application of graphic organizers could in effect allow them to use concrete aids in the process of developing a piece of writing thereby diminishing the somewhat vague abstractness that might encompass this skill.

While in this study, perhaps the instruction with student-made organizers coming first bore an impact on the instruction with teacher-made organizers and thus the sequence may have had a role in the final outcome, it would be interesting to see what the reverse order would lead to: utilizing teacher-made graphic organizers in the first section of the treatment followed by student-made ones in the latter stage. Differing results would of course provide more evidence on the order with which the two different set of organizers should be used to achieve optimal results on the improvement of EFL learners' writing.

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