The Journal of English Language Pedagogy and Practice
Vol. 16, No.32, Spring and Summer 2023(203-222)
DOI: 10.30495/jal.2023.1993532.1514

Research Article

The Effect of Graphic Organizer Strategy on Improving Iranian Intermediate EFL Learners' Writing Complexity

Maryam Hassanpour [1,] Fatemeh Mirzapour[*2]
1 Department of English, Tabriz Branch, Islamic Azad University, Tabriz, Iran
2 Department of English, Sofiyan Branch, Islamic Azad University, Sofiyan, Iran
*Corresponding author: fatemehmirzapour54@gmail.com
(Received:2023/08/15; Accepted: 2023/11/19)

Online publication: 2023/12/09

Abstract

Writing by which students can be assessed plays an important function in the education process. Hence, investigating the impact of graphic organizer strategy on improving Iranian intermediate EFL learners' writing complexity was the main goal of this study. Forty female intermediate EFL learners were selected as the participants of the study based on convenience sampling and the results of the Preliminary English Test. After that, they were randomly assigned to two experimental and control groups. To assess the initial writing complexity of the participants, both groups were given a pre-test prior to the treatment. After employing traditional method in the control group and the graphic organizer strategies in the experimental group, both groups received a post-test to examine the effect of the treatment. The design of the present research was quasi-experimental. To analyze the obtained data, the researchers conducted an independent samples t-test, and to examine the progression in the experimental group, a paired samples t- test was employed. The findings of the study indicated that graphic organizer strategies improved the learners' writing complexity. The results have some implications for EFL/ESL teachers, students, test and materials developers, and syllabus designers.

***Keywords*:** graphic organizer, EFL learners, complexity, writing performance

Introduction

Education has always been a focal point in the development of a country. Since a few decades ago, English has been regarded as a universal and international language. Learning English in particular has been one of the main subjects in most countries' school curricula for years for it has become the universal language in the world for decades. Iran has not been an exception in this regard and English has been taught as a foreign language at schools and universities. However, the education system needs to adopt strategies to improve the quality of teaching and promote the learning performance of learners.

Nowadays, language learners actively participate in the learning process, and their performance on several skills are crucial to successful language acquisition. The facilities students have in their language learning may influence their proficiency level, so studying language learners' proficiency has become the focus of a number of researchers (Aliakbari & Monfared, 2014). All four main skills of reading, writing, listening, and speaking are involved in a second language learning. After employing the other three skills, writing is approached. It appears that since the writing skill is the last one in the series, it sometimes remains neglected.

The writing skills assist the language learner to become fluent, independent, comprehensible, and creative in writing. They are significant skills that assist learners to express their ideas and thoughts meaningfully and to mentally tackle the message properly (Kondrat & Alla, 2010). Writing is an important communication ability which cannot be achieved; it can be taught through a formal instruction or it can be socially transmitted. The reader's interaction can be predicted and a text can be created by the writer based on cooperative principle (Grice, 1975). According to this principle, it is better for the writer to try to write important, fascinating, honest, paramount, reasonable, and useful content. So by bearing in mind the assumed purpose of the writer, the reader will interpret the text if he/she has access to the necessary pieces of information in the content. Association of thoughts, phonetic exactness, and lucidity of introduction are essential because they assist understanding (Bloomfield, Louis,2004). So, language learners have to develop their skills to provide adequate information in their writings, and teachers are supposed to apply an effective strategy to teach these skills to them.

The process of teaching writing is extremely difficult. According to Alber-Morgan, Hessler, and Konrad (2007), teaching writing is just as complicated as writing itself. Teachers try hard to convey knowledge and take use their

students' enthusiasm, creativity, and eagerness in order to develop strong writers who produce pieces of importance. These elements aid learners in becoming autonomous writers. The instructor serves as a facilitator as the students decide what to write about and how to prepare their writing (Marten, 2005). The techniques of real authors include brainstorming, multiple drafts, editing, word selection, and revisions before publication. Writing is therefore seen as a cycle rather than a program. Prewriting, drafting, revising, editing, and publishing as the stages of the writing process are continually advanced by students.

Besides, English is a foreign language rather than a second one in our country. So, there are several strategies or tools can be utilized by teachers to pave the way of foreign language learning process to improve the quality of teaching and promote the learning performance of learners such as Graphic Organizers (GOs).

Graphic organizers are defined as "visual and spatial displays designed to facilitate the teaching and learning of textual material through the use of lines, arrows and a spatial arrangement that describe text content, structure and key conceptual relationships" (Darch & Eaves, 1986, as cited in Kim, Vaughn, Wanzek, & Wei, 2004, p. 105).They are regarded as important instructional instruments in educational settings because "a good graphic representation can show at a glance the key parts of a whole and their relations, thereby allowing a holistic understanding that words alone cannot convey" (Jones, Pierce, & Hunter, 1989, as cited in Jiang & Grabe, 2007, p. 34).

Graphic organizers, also known as story map, knowledge map, concept diagram, concept map, are used to express thoughts, concepts, knowledge, or ideas, and their relationships. Therefore, providing visual aids to facilitate learning is the main goal of a Graphic Organizer (Amin, 2004). Besides, learners' thinking are guided by Graphic Organizers as they fill in and build upon a visual diagram or map. Graphic Organizers are the most influential visual learning aids for learners and are used to increase understanding and learning of the content. Depending upon the task, different forms of Graphic Organizers make learners' learning easy by assisting them to determine areas of focus within a broad topic, like an article or a novel (Ellis, 2004).

Graphic organizers must be simple and clear in order to be effective (Egan,1999). It means that they should not include too much distracters or information and should be properly constructed. Moreover, when a specific organizer is employed, explicit instruction must be provided by teachers on how to organize information. This will finally result in the fact that the learners to use these organizers independently (Baxendell, 2003). Griffin and Tulber (1995) suggested that to get better results, graphic organizers must be

used repeatedly. Because the regular use of graphic organizers in class contributes to internalizing the organizing procedures by the learners.

According to the studies, using graphic organizers to instruct and learn new material and broad concepts seemes to be a successful strategy. The value of relating new knowledge to existing understanding and experience (Jonassen, et al., 1999; Novak & Gowin, 1984; Cromley & Azevedo, 2007; O'Donnell, et al., 2002), the effectiveness of making visual-verbal representations of knowledge (Plotnik, 1997; Novak & Gowin, 1984; Jonassen, et al., 1999) and that knowledge is kept for long periods of time by these representations in comparison with using traditional text (McCagg & Dansereau, 1991; Jonassen, et al., 1999) are some arguments for graphic organizers. Plotnik (1997) outlined the functions of graphic organizers and claimed that their key benefits include the use of visual symbols, which are simple to recognize, scan for a particular phrase or broad idea, and allow for a more comprehensive comprehension of a concept. In order to address these issues, graphic organizers were employed as a study method to assist the learners to improve their comprehensions (Anderson, 1978).

In two decades ago, many researchers studied about graphic organizers as technique in learning the different content areas. The essential aim was to boost and improve learners' skills and assist the acquisition of the target language in the corporate learning process. Recent studies focused on how graphic organizers were applied and how they affected student performance in various contexts. The majority of research have found that using visual organizers helps students recall course content and improved their reading and speaking skills. For instance, Robinson et al. (2006) looked at how learners' performance in a course on educational psychology was impacted by graphic organizers. The findings showed that students who completed just partial activities performed better on their exams and took more notes under all experimental conditions.

Most studies have tended to concentrate on the graphic organizers effect on language learning in a particular skill, like reading, for example. Wang and Cao (2009) empirically supported the hypothesis that after reading, the quantity and quality of information recalled were positively affected by structure awareness. Similar to this, Chung (2000) examined the relationship between raising learners' awareness of the cohesion and coherence signalling processes in discourse organization and their reading skills and discovered supporting evidence for it. In the same vein, Tavakoli and Skehan (2005) have studied the impact of graphic organizers on reading comprehension. Martinez (2002) found that as learners were made aware of the text structure and scaffolded their recall by this awareness, their comprehension and recall of text information were positively affected by the structure awareness.

However, to the best knowledge of the researcher, by existence of some general researches at the field of Graphic organizer's effects on writing performance, few empirical researches have been carried out in more detailed area. In other words, it is far from clear whether giving graphic organizers to intermediate EFL learners can extend their word choosing ability while writing a passage or thrive their narrative writing quality, repertoire and result in more complex and accurate language performance or not. In addition, more studies should be done to increase our knowledge about the discourse structure-oriented graphic organizers function in teaching writing. So, the aim of the present study was to investigate the impact of using graphic organizers as a strategy or technique on improving EFL students' complexity of writing performance. Hence, the following research question was stated to achieve the goals of the present study:

Does using graphic organizers have any significant effect on improving Iranian intermediate EFL learners' writing complexity?

Method

Participants

Fifty-nine Iranian EFL students made the initial sample of population who were within the age range of 15 – 22 studying at Novin English institute in Tabriz, East Azerbaijan, Iran. Due to the accessibility and practicality of the research work, only female EFL students were considered as the participants. All of them were native speakers of Azerbaijani Turkish with intermediate level of English. They were studying English language as a foreign language at Novin English institute. Their book was American English File. They were selected based on convenience sampling procedure and the results of PET test. Those students who got 1SD over and below the mean score were chosen for this study. These participants were randomly assigned to two groups: one control group (20 students) and one experimental group (20 students).

Instruments and Materials

The following instruments and materials were employed in order to collect the required data:

Preliminary English Test (PET)

The PET exam, which stands for Preliminary English Test, is designed for intermediate students. The PET Exam, like all of the Cambridge English exams, is a pass/fail test and it delivers a certificate that does not expire for those who pass. It can be either a computer-based test or a paper-based test. It tests all four skills such as writing, listening, speaking, and reading. In this study, because of the practicality and purpose of the research,

the speaking and listening parts were excluded from this proficiency test and only the reading and writing sections of the PET test were administered.

The writing part of PET exam consisting of 25 items with a ceiling score of 25 was employed in this study. It was used to make ascertain that the two groups' writing proficiency was similar. It took 40 minutes. On the reading section of the PET test, including 30 items, all items were given one point for each correct choice. It lasted around 45 minutes and was employed to know that the two groups' reading comprehension was not different. It was administered at the start of the treatment to homogenize the two groups. Those students who got 1SD over and below over the mean score were chosen for the study.

Pre-test

Another instrument used in this study before beginning the treatment was a pre-test. It was used to: (1) collect data about the participants' initial knowledge of the writing complexity; and (2) be compared with the posttest. In this phase, both groups were asked to write about 'Technology and Communication'.

Post-test

Post-test was the last instrument utilized in this research to test the participants' improvement after the treatment stage. It was also prepared based on the graphic organizer strategies for gathering the data to answer the research question to see whether there was any significant difference between the two groups. In the post-test, the participants were requested to write about 'Business and Technology'. The final products were reviewed by two raters. The raters assessed the students' writing product in terms of writing complexity. The writing rubric based on The Georgia Department of Education Scale was selected and modified by the researcher to assess the various traits of students' writing (see appendix A).

Procedure

The American English File was taught for a period of 14 sessions. The teaching process in both groups was similar; both groups followed the same syllabus. The classes were held two times a week and continued for 7 weeks. The book consisted of eight units. Each unit included listening, speaking, reading and writing parts. The major focus of the study was on the writing parts. One week before the experiment, a proficiency test named PET Test was administrated in order to select a homogeneous sample out of 59 EFL students at Novin English institute in Tabriz in the autumn term of 2022. Immediately after the PET test, the researcher scored the test results and chose

the learners whose score were one standard deviation below and above the mean score. So 40 students were selected. Writing about a topic was used as a pre-test to ensure their homogeneity and to assess their writing complexity. The researcher assigned the learners randomly to in experimental group (those whom the researcher gave treatment via teaching about different graphic organizers) and a control group (those who continued their ordinary classroom activities).

Students in the experimental class during 20 sessions (two sessions per week, each session lasted 90 minutes) got familiar with various kinds of graphic organizers as (see appendix B) as:

Story Maps

The story mapping is one kind of GOs used in narrative passages. Story maps using a specific structure are used to get students' attention to the major parts of the stories, including setting, time, characters, plot (problem, actions, outcomes) and represent main pieces of information in stories in visual formats (Boulineau, Force, Hagan-Burke, & Burke, 2004).

Matrix

Matrix is another kind of GOs used in expository passages. Schwartz and his colleagues (Schwartz & Fattaleh, 1972) firstly investigated matrix. It is a type of input table, that puts the total of the main information in its square (Manoli & Papadopoulou, 2012). Matrix is used to depict important relationships or categories and delineate differences and similarities between two or more things, people, events or places. Learners must identify what kinds of relationships they want to focus on and which major dimensions they want to highlight to design a matrix.

Semantics Maps

Semantic maps resemble web organizers. They are referred by some terms like spider maps, sunbursts or mind maps. They seem like a star from which rays emanate since they include a circle from which lines radiate (Graney, 1992).

Concept Maps

Cognitive/concept map is one type of GO which has impacts on students' processing of expository passages. Novak (1990) firstly used the concept maps. They contain concepts, usually confined in boxes or circles, and a linking line connecting two concepts that indicates relationships between concepts but the relationship between the two concepts are specified by linking phrases or words on the line. Showing hierarchical representation of concepts in which the most inclusive and the most general idea are organized at the top of the map while less inclusive and less general concepts are

organized in suitable subordinate places is another feature of concept maps. They show the various relationships among concepts that learners find in passages, including explanatory, causative, comparative, and sequential making reading comprehension easy.

Knowledge Maps

Another kind of GO is knowledge map. Dansereau's work (Chmielewski & Dansereau, 1998) introduced knowledge mapping. Since it is a two-dimensional graphical map, it displays the information in node-link-node assemblies format that includes main ideas and establishes the relations between nodes. Moreover, conceptual information in simple verbal proposition formats is presented by knowledge map nodes and in order to show directionality, each link at the same time has an arrowhead.

Venn Diagrams

One of linear organizers is the Venn diagram. It consists of two or more overlapping circles used like a framework to compare two or more concepts (Kang, 2004).

Tree Diagrams

One of hierarchical organizers is called tree structures /tree diagrams/network trees. They visually show the key ideas of a passage and specify the multiple relationships among the various parts of a text, including specific to general or general to specific through hierarchically depicting the relations of the various parts of the passage (Graney, 1992).

Two different methods were used to teach the two groups after the pretest. The experimental group, who attended 90 minutes English classes two days a week, had 30 minutes each session to read the reading parts in the book and summarize them via using a kind of graphic organizers. Then, they could write their summaries. During this part in the class, they could consult with teacher and their partners about using graphic organizers. This method was connecting reading –writing skills to each other. So, at home, they could use these graphic organizers for writing about writing tasks in the book. The next session they had to hand in their papers to the teacher and got feedback.

However, the control group, who attended 90 minutes English classes two days a week, did not receive any instruction about graphic organizers for their writing. They just wrote about the writing tasks at home and handed in their papers to the instructor the next session and got feedback.

The same writing task in the pre-test was used for the post-test. It was required for the students in both groups to write about that topic. Complexity was assessed through calculating the content words number (adverbs,

adjectives, verbs, and nouns) per total number of T-units (Hunt,1965). At the end, the students' final writing scores from the two reviewers were computed statistically. Then, the data were analysed quantitatively.

Design

A quasi-experimental method was used as the design of the present study. It contained an experimental group and a control group, a pre-test, and a post test. The independent variable was graphic organizer. The dependent variable was complexity of written performance which was examined to see whether the independent variable had any impact. Taking a PET test and choosing two homogeneous intermediate female EFL learners were employed to control the students' gender and language proficiency.

Results

SPSS version 22 was used to analyse the collected data. The independent samples t-test was conducted to compare the mean scores between two groups' complexity scores in written performance in the pre-test and post-test.

Results of PET Test

Both groups were initially compared to ensure their homogeneity in their reading comprehension and writing performance through Placement English Test (PET). Table 1 shows the results.

Table1

Mean, Standard Deviation, and Standard Error of Mean for the PET Scores of both Groups

Test Group		N	Mean	Std. Deviation	Std. Error Mean
PET (writing) out of 25	Experimental group	20	11.42	3.746	.859
	Control group	20	12.43	4.187	.873
PET (reading) out of 30	Experimental group	20	18.53	3.935	.903
	Control group	20	16.57	5.212	1.087
PET out of 55	Experimental group	20	29.95	6.720	1.542
	Control group	20	29.00	8.367	1.745

According to Table 1, the results of the PET test, including 55 English knowledge-based items, revealed the mean scores of the writing part of PET test in the experimental group (M= 11.42, SD= 3.746) and control group (M= 12.43, SD= 4.187), out of 25, respectively. In the reading part of the PET test, the results showed the mean scores of the experimental (M=18.53, SD= 3.935) and the control (M= 16.57, SD= 5.212) groups, out of 30.

Results of Writing Pre-test and Post-test

To analyse the data collected through tests, both inferential and descriptive statistics were applied. Table 2 shows the descriptive statistics for the pre-test writing.

Table 2
Mean, Standard Deviation, and Standard Error of Mean for the both Groups' Pre-test Scores

Pre-test Of Writing	Experimental group	20	73.375	1.0114	.2262
	Control group	20	72.425	1.0915	.2441

As indicated in Table 2, there were not any significant differences between the mean of control (*M*=72.425) and experimental groups (*M*=73.375). The *SD* for each experimental and control group was 1.0114 and 1.0915 respectively.

The Pearson correlation was applied to calculate inter-ratter reliability for the two ratters. Table 3 illustrates the measures of inter-ratter reliability of two ratters for the pre-test scores in the control group.

Table 3
Inter-Ratter Correlation for the Pre-test Scores of the Control Group

Pre-test	Control group	Pearson Correlation		.950
		Sig.	(2-tailed)	.000
			N	20

Correlation is significant at the 0.01 level (2-tailed).

The correlation in Table 3 (0.950) has a significant value. The scores of the two ratters showed a correlation within acceptable limits. Table 4 shows the measure of inter-ratter reliability of two ratters for the pre-test scores in the experimental group.

Table 4
Inter-Ratter Correlation for the Pre-test Scores of the Experimental Group

		Correlation		
Pre-test	Experimental group	Pearson Correlation		.956
		Sig.	(2-tailed)	.000
			N	20

Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table 4, the correlation (0.956) was significant, which shows an acceptable correlation between the two ratters' scores. The experimental group's mean score (M = 14.250) is higher than that of the control group as illustrated in Table 4.

Table 5 shows that the scores of the writing complexity of the students who were taught graphic organizer strategies were higher than those who were not taught graphic organizer strategies.

Table 5
Mean, Standard Deviation, and Standard Error of Mean for the both Groups' Post-test Scores

Post-test of Writing	Experimental group	20	81.250	1.1976	.2678
	Control group	20	74.525	1.1177	.2499

In order to get the inter-ratter reliability of the participants' post-test writing, the Pearson correlation was also used. Table 6 illustrates the measure of inter-ratter reliability of two ratters for the post-test scores in the control group.

Table 6
Inter-Ratter Correlation for the Post-test Scores of the Control Group

		Correlation		
Post-test	Control group	Pearson	Correlation	.920
		Sig.	(2-tailed)	.000
			N	20

Correlation is significant at the 0.01 level (2-tailed).

The correlation (0.920) in Table 6 also was found to be significant, which showed that the two ratters' scores were in an acceptable range of correlation. Table 7 gives two ratters' inter-ratter reliability estimate for the post-test scores of the experimental group.

Table 7
Inter-Ratter Correlation for the Post-test Scores of the Experimental Group

		Correlation		
Post-test	Experimental group	Pearson	Correlation	.931
		Sig.	(2-tailed)	.000
			N	20

Correlation is significant at the 0.01 level (2-tailed).

The correlation in Table 7 (.931) reveals that the two ratters' scores were within acceptable correlational limits.

The research question of the present study was whether using graphic organizers can improve the complexity of the Iranian Intermediate EFL learners' written performance. Tables 8 and 9 give a summary of the inferential analyses of the control and experimental groups' pre-test scores.

Table 8 illustrates an independent samples t-test results of writing test score between the control and experimental groups' pre-tests, at a 95% confidence.

Table 8
Result of Independent-Samples t-test between Pre-test of Control and Experimental Groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-test	Equal variances assumed	.334	.568	-.259	28	.798	-.133	.515	-1.189	-.922
	Equal variances not assumed			-.259	22.471	.798	-.133	.515	-1.190	-.923

In Table 8, it is revealed that the difference was not statistically significant, t (28) = -.259, at p < .05, 2-tailed. In other words, the average difference of -.133 between the control group's and experimental group's pre-test writing score was not statistically significant. It means that in the pre-test, the complexity of the participants' written performances in both groups was comparable.

Table 9 shows an independent-samples t- test results of the writing test scores of the control and experimental groups, at a 95% confidence.

Table 9
Results of Independent-Samples t-test between Post-test of Control and Experimental Groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Post-test	Equal variances assumed	5.323	.029	-6.209	28	.000	-3.333	.537	-4.433	-2.234
	Equal variances not assumed			-6.209	22.281	.000	-3.333	.537	-4.446	-2.221

As illustrated in Table 9, the difference was found to be statistically significant, t (28) = -6.209, at p < .05, 2-tailed. It means that the average

difference of -3.333 of the control group' s and experimental group's post-test writing score was statistically significant. This means that he writing of the experimental group was improved significantly compared with that of the control group.

The most noticeable finding was that the experimental group's difference from the pre-test to post-tests was found to be statistically significant, t (14) = -5.303, at $p < .05$, 2-tailed.

The results of a Paired Samples t-test of the writing test scores of the experimental group at a 95% confidence are illustrated in Table 10.

Table 10
Results of Paired-Samples t-test (Experimental Groups)

		Paired differences							
		Std. Mean Deviation	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Pair 2	Pre. Experimental	-3.467	-5.303	14	.000	5.16	.654	-4.869	2.065
	Post. Experimental	2.532							

The results in Table 10 show that -3.467 difference between the writing test scores in the pre-test and post-test was found to be statistically significant. The difference is meaningful as well since it is large. This shows that the learners improved their complexity of written performance to a statistically significant degree.

Discussion

The challenging aspect of EFL instruction, that is, complexity of written performance was the main focus of the present study. The present research tried to examine the effect of graphic organizer strategies on complexity of written performance of Iranian intermediate EFL learners. A research question was posed regarding this study which addressed the impacts of graphic organizers strategies on developing complexity of Iranian Intermediate EFL learners' written performance. The findings showed that graphic organizers had a significantly positive impact on developing complexity of Iranian Intermediate EFL learners' written performance. Therefore, the null-hypothesis that the use of Graphic Organizers has no statistically significant effect on intermediate EFL learners' complexity of written performance was rejected. Thus, writing quality

of students in the graphic organizers group was better than that of control group in terms of vocabulary, content, and mechanics.

It can be concluded that graphic organizers can effectively enhance and facilitate learning. They assist students to concentrate on those parts which are very important for learning, and they are also helpful for students to identify connections, and to understand texts (Helfgott, 2015). Graphic organizers function as influential educational instruments. Providing alternative learning environments and activities can enhance and improve understanding and retention (Delgado et al, 2012). Graphic organizers are visual communication devices that by using visual symbols contribute to clarifying concepts and ideas and conveying meaning. They assist learners and teachers in mapping out their ideas and thoughts by forming visual illustrations of information (Chiang, 2005).

As mentioned earlier, to the best of researcher knowledge, no more studies have been conducted exactly on the impact of Graphic Organizer Strategy on improving Iranian intermediate EFL learners' complexity of written performance. Therefore, it might not be appropriate to compare the findings of this study with the studies which focused on the students' other skills because the processes which are involved in written and other language production are different. But interestingly, concerning research question the findings of this research with regard to the role of graphic organizers are compatible with those of Hassan Seif Eldin, Mohamed and Ali (2020), Juniarti and Sofyan (2017), Odewumi (2019), Miller (2011), Kılıçkaya (2020), Sturm and Rankin-Erickson (2002), Evmenova et al. (2016), Lusk (2014), Khoii and Sharififar (2013). Graphic organizers as main parts of learning English, contribute to student learning by creating a supportive learning enviornment, that provides more conditions for explanation, logical inferencing, and discussions to explain student's understanding of texts, and makes ideas concrete (Casteleyn, Mottart, & Valcke, 2013).

The learners' writing was positively affected by the graphic organizer strategies. Thus, the findings of this research were in line with Sharrock (2008) who did action research to examine the graphic organizers effects, especially the concept map, on learners' writing. One third grade class participated in a study lasted for 6 weeks, and they were given two personal narrative writing tasks. A rubric developed by the Georgia Department of Education was used for grading the assignments. The results revealed that the learners' creative writing was significantly improved because of using graphic organizers. It became clear that graphic organizers helped the students organize their ideas clearly and as a result write exactly about the topic. They also helped them to present ideas and events in the correct sequential order.

The findings of the current research are also in consistent with those of Lorber (2004). He carried out the research on expository writing using computer graphic organizers with 67 eighth grade students. It was found that graphic organizers increased the learners' ability to organize their ideas and to effectively write. Furthermore, in line with the present study, Noviansari (2014) conducted research to investigate the effect of graphic organizer on narrative passages with the senior high school students. The results showed that using graphic organizers strategy has some benefits to teach narrative writing. They are (1) the learners can be motivated by the instructor and the learning process can be made enjoyable for the learners, (2) the students can learn lexicogrammatical characteristics of the narrative passage including adverb of time and place, simple past tense, action verbs, etc. easily and generic structures of narrative passage, and (3) graphic organizers make the learning and teaching process clearer and more communicative.

Moreover, the findings of the present research are consistent with those of Ching and Chee (2010) who examined the impacts of graphic organizer to make the learning of highly complex syntactic and discourse structure in sentence and story formation easy. After seven weeks of treatment, the effect of graphic organizers was evaluated by comparing sentence combining skills as well as comparing spontaneously written stories to scaffold stories from pre- to post- test. It was found that students' ability in sentence and story formation was significantly improved.

However, the results of this research do not support those of Blair et al., (2008) who conducted a study on narrative writing through computer graphic organizers with 24 students who had mild disabilities. The results showed that students writing quality was improved a little, but the quantity of their writing was improvement considerably.

On the other hand, in the case of research question which dealt with complexity, we came to the conclusion that focus on graphic organizer strategies may have effects on the complexity of students written performance. This outcome may confirm the results obtained by Foster and Skehan (1996). As stated before, their study was in oral mode and we started the present research with the expectation that in written mode, the students may have more opportunity to monitor their language production and at the same time produce more complex sentences. Furthermore, according to the results of paired-sample t-test given, there was a statically significant difference between the experimental group's performance on the pre-test and post-test respectively with and without graphic organizer strategies. However, it might be too soon to jump to these hasty conclusions without further research on other students in other language proficiency levels in different contexts.

The value of graphic organizers both theoretically and pedagogically and of background knowledge in writing comprehension class was supported by the findings of the present study. Theoretically, two foreign language writing techniques in line with second language learning theories which emphasize the functions of consciousness and attention in language learning were used in the current study. In this framework, the graphic organizers were used to attract the attention of students to specific visuals within meaningful and interactive context. Background knowledge activation and the interactive nature of the visuals create a balance in language learning and it was found to be effective in improving writing ability. These instructional techniques are effective for vocabulary learning for EFL learners because they are contextualized, provide deep senses of language useand learner-based classroom as the writing performance is the result of learner's efforts.

From a pedagogical viewpoint, it can be recommended for language instructors to consider the role of background knowledge and graphic organizers and various learning conditions because they can certainly have significance for teaching aims. Teachers can apply these in teaching writing process and assist the students make significant improvement.

In classroom situation, the students' anxiety and stress can be lowered by providing a friendlier and less authoritative classrooms and choosing the graphic organizers. Students' risk-taking and participation in class activities can be improved more than before.

This research contributes teachers and students to have a positive view toward Graphic Organizer Charts as a helpful instrument for improving writing ability. Also, it helps teachers to design various reading teaching tasks and activities to assist students comprehend the reading materials better and faster.

Moreover, the finding of this study can be effective in using of cooperative learning in the teaching program in practice: teachers can implement cooperative learning in their classroom to stimulate the learners' motivation and creativity, resulting in their interaction in the classroom. Since teachers' main concern is better teaching, they can apply cooperative learning in their classes to make full use of the learners' involvement in the classroom which may help the learners to be creative and motivated.

In brief, ELT material developers could apply the results of the current research to present Graphic Organizer Charts and Diagrams and tasks in which students'comprehension toward writing materials is enhanced.

Declaration of interest: None

References

Aliakbari, M., & Monfared, M. (2014). Iranian students' beliefs and motivations towards English. *Procedia-Social and Behavioral Sciences*, *98*(23), 200-206.

Alber-Morgan, S. R., Hessler, T., & Konrad, M. (2007). Teaching writing for keeps. *Education and treatment of children*, *30* (3), 107-128.

Amin, A. (2004). *Reading economic geography*. Blackwell Press.

Anderson, J. R. (1978). Arguments concerning representations for mental imagery. *Psychological review*, *85*(4), 249-277.

Baxendell, B. W. (2003). Consistent, coherent, creative: The 3 C's of graphic organizers. *Teaching Exceptional Children*, *35*(3), 46-55.

Blair, T. R., Dee Nichols, W., Rupley, W. H., & Wood, K. D. (2008). Vocabulary strategies for linguistically diverse learners. *Middle School Journal*, 39(3), 65-69.

Bloomfield, L. (2004). The importance of writing. *Originally published on the Commentary Page of the Philadelphia Inquirer on Sunday/Ed J. Timpane. April*, *4*.

Boulineau, T., Fore III, C., Hagan-Burke, S., & Burke, M. D. (2004). Use of story-mapping to increase the story-grammar text comprehension of elementary students with learning disabilities. *Learning Disability Quarterly*, *27*(2), 105-121.

Casteleyn, J., Mottart, A., & Valcke, M. (2013). The impact of graphic organizers on learning from presentations. *Technology, Pedagogy and Education*, *22*(3), 283-301.

Chiang, C. (2005). The effects of graphic organizers on Taiwnese tertiary students' EFL reading comprehension and attitudes towards reading in English. (Unpublished doctoral dissertation). Australian Catholic University, Urban, Australia.

Ching, L. & Chee, T. (2010). Scaffolding writing using feedback in students' graphic organizers: Novice writers' relevance of idea and cognitive load. *Educational Media International*, *47*(2)135-152.

Chmielewski, T. C., & Dansereau, D. F. (1998). Enhancing the recall of text: Knowledge training promotes implicit transfer. *Journal of Educational Psychology*, *90*(3), 407-454.

Chung, J. S. (2000). Signals and reading comprehension—theory and practice. *System*, *28*(2), 247-259.

Cromley, J. G., & Azevedo, R. (2007). Testing and refining the direct and inferential mediation model of reading comprehension. *Journal of educational psychology*, *99*(2), 3-11.

Darch, C. & Eves, C.R. (1986). Visual Displays to Increase Comprehension of High School Learning-Disabled Students. *Journal of Special Education, 20* (3). 309-318.

Egan, J. (1999). *Authorizing Experience: Refigurations of the Body Politic in Seventeenth-Century New England Writing*. Princeton University Press.

Ellis, R., & Yuan, F. (2004). The effects of planning on fluency, complexity, and accuracy in second language narrative writing. *Studies in second Language acquisition*, *26*(1), 59-84.

Evmenova, A. S., Regan, K., Boykin, A., Good, K., Hughes, M., MacVittie, N., ... & Chirinos, D. (2016). Emphasizing planning for essay writing with a computer-based graphic organizer. *Exceptional Children*, *82*(2), 170-191. Foster, P., & Skehan, P. (1996). The Influence of Planning and Task Type on Second Language Performance. *Studies in Second Language Acquisition, 18*, 299-324.

Graney, J. M. (1992). A framework for using text graphing. *System*, *20*(2), 161-167.

Grice, H. P. (1975). Logic and conversation. In *Speech acts* (pp. 41-58). Brill.

Griffin, C. C., & Tulber, R. (1995). Contingent valuation and actual behavior: predicting connections to new water systems in the state of Kerala, India. *The World Bank Economic Review*, *9*(3), 373-395.

Hassan Seif Eldin, D., Mohamed, M., & Ali, A. F. M. (2020). The Effect of Digital Graphic Organizers on Teaching EFL Vocabulary for Primary Stage Pupils and Their Motivation. Arabian Journal of Kolliatol Tarbieh,17, 428-499.

Helfgott, A. E. R. (2015). *Operationalizing resilience: conceptual, mathematical and participatory frameworks for understanding, measuring and managing resilience.* (Unpublished PhD dissertation). School Of Mathematical Sciences, The University Of Adelaide.

Hunt, K. W. (1965). A synopsis of clause-to-sentence length factors. *The English Journal*, *54*(4), 300-309.

Jiang, X., & Grabe, W. (2007). *Graphic organizers in reading instruction: research findings and issues. Reading in a Foreign* Language, 19 (1), 34-55.

Jonassen, D. H., & Rohrer-Murphy, L. (1999). Activity theory as a framework for designing constructivist learning environments. *Educational technology research and development, 47*(1), 61-79.

Juniarti, K., & Sofyan, D. (2017). The Effect of Using Graphic Organizer to Students' Writing Ability. *Journal of English Education and Teaching, 1*(1), 48-57.

Kang, S. (2004). Using visual organizers to enhance EFL instruction. *ELT journal*, *58*(1), 58-67.

Khoii, R., & Sharififar, S. (2013). Memorization versus semantic mapping in L2 vocabulary acquisition. *ELT journal*, *67*(2), 199-209.

Kılıçkaya, F. (2020). Learners' perceptions of collaborative digital graphic writing based on semantic mapping. *Computer Assisted Language Learning*, *33*(1-2), 58-84.

Kim, A. H., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of learning disabilities*, *37*(2), 105-118.

Kondrat, A. Importance of Good Writing, from http://www.suite101. com/reference/good_writing, last visited 17 April 2010.

Lorber, M. (2004). *Instructional computer technology and student learning: An investigation into using inspiration™ software to improve eighth grade students' ability to write*. Ann Arbor, MI: ProQuest Information and Learning Company. UMI 3158289.

Lusk, K. (2014). Teaching high school students scientific concepts using graphic organizers. Theses, Dissertations and Capstones. Paper 895. Retrieved from https://mds.marshall.edu/etd/895.

Manoli, P., & Papadopoulou, M. (2012). Graphic organizers as a reading strategy: Research findings and issues. *Creative education*, *3*(3), 3-48.

Marten, R. L. (2005). The surplus value of an authentic learning environment. *Computers in Human Behavior*, *21*(3), 509-521.

Martinez, A. (2002). *An introduction to semiclassical and microlocal analysis*. New York: Springer.

McCagg, E. C., & Dansereau, D. F. (1991). A convergent paradigm for examining knowledge mapping as a learning strategy. *The Journal of Educational Research*, *84*(6), 317-324.

Miller, S. A. (2011). *Using graphic organizers to increase writing performance* .(unpublished PhD dissertation). Fredonia, New York.

Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. Cambridge University press.

Noviansari, D. (2014). *The Use of Graphic Organizer Method to Teach Narrative Text in Senior High School.* Purworejo: Muhammadiyah University.

Odewumi, M. O., Gambari, A. I., & Bada, T. A. (2019). Efficacy of Graphic Organizer on Primary School Students Performance in Cognitive Writing Skills. *International Journal of New Trends in Arts, Sports & Science Education (IJTASE)*, *8*(1), 34-41.

Plotnick, E. (1997. *Concept mapping: A graphical system for understanding the relationships between concepts.* ERIC Clearinghouse on Information and Technology Syracuse NY.

Robinson, D. H., Maoraf, L. D., & Shaw, S. M. (2006). Computer-based graphic organizer games. *Technology and teaching: A casebook for educators, 2(43)*, 51-63.

Schwartz, S. M., & Fattaleh, D. L. (1972). Representation in deductive problem-solving: The matrix. *Journal of experimental psychology*, *95*(2), 343.

Sharrock, T. (2008). *The Effect of Graphic organizer on Students' Writing. Graphic organizer and Students' Writing*. Action Research. Kennesaw State University.

Sturm, J. M., & Rankin-Erickson, J. L. (2002). Effects of hand-drawn and computer-generated concept mapping on the expository writing of middle school students with learning disabilities. *Learning Disabilities Research & Practice*, *17*(2), 124-139.

Tavakoli, P., & Skehan, P. (2005). Strategic planning, task structure, and performance testing. In R. Ellis (Ed.), Planning and task performance in a second language (pp. 239 – 277). Amsterdam: Benjamins.

Wang, C. F., & Cao, F. S., (2009). Grayscale photomask fabricated by laser direct writing in metallic nano-films. *Optics Express*, *17*(22), 19981-19987.

Biodata

Maryam Hassanpour is an MA student of EFL at Tabriz Branch, Islamic Azad University.

Fatemeh Mirzapour is an assistant professor of English Language and Literature at Sofiyan Branch, Islamic Azad University. She is holding Ph.D. in English Language Teaching. Her main interests are, primarily, language teaching and discourse analysis.