

The Effect of Using Graphic Organizers on Jordanian EFL Tenth Grade Students' Reading Comprehension and their Attitudes towards Using them

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Abstract

This study investigated the effect of using graphic organizers (semantic maps, concept maps and story maps) on Jordanian EFL tenth grade students' reading comprehension and their attitudes towards using them. The participants of the study were 83 females tenth grade students from two intact sections from Zainab Bent Al Rasoul Basic School for Girls. One was assigned as a control group which was taught by the guidelines of the Teacher's Book, and the other as an experimental group, which was taught the graphic organizer based-instructional program. Teaching the instructional program lasted for twelve weeks during the second semester of the academic year 2016-2017. The instruments used to collect data were a pre-/post- reading comprehension test and an attitudinal scale.

The findings of the study showed that there were statistically significant differences (at $\alpha \leq 0.05$) between the students' performance on the reading comprehension test in favor of the students in the experimental group. The improvement in the students' reading comprehension could have been a result of using graphic organizers in teaching reading texts. The students showed positive attitudes towards using graphic organizers in learning reading comprehension. Several recommendations were put forth for EFL researchers and the Ministry of Education.

Key words: graphic organizers; reading comprehension; students' attitudes.

Introduction and Background

Reading comprehension is crucial for EFL tenth grade students in Jordan. According to Johnson (2013), students at the end of tenth grade should achieve several skills while reading. They should be able to confirm word meanings and connecting between words. They should be able to identify the main and supporting ideas. They should also be able to paraphrase and extract information in reading texts. Moreover, they should be able to identify elements of a story and order its events chronologically while reading literary texts.

Snow (2002) defined reading comprehension as an interactive process in which the reader interacts efficiently through his/her involvement with the reading text in order to build the meaning of the text. Tashtoush (2008) also defined reading comprehension as the students' use of their experience and knowledge while reading in order to understand and recall the information contained in a text. However, Sabbah

(2009) defined reading comprehension as the students' ability to realize the relationship between main ideas and the details.

Teachers' notion of reading process is very essential to use the appropriate strategies that can help students be engaged in reading process and achieve better comprehension of reading texts (Debat, 2002). Davin (cited in Tashtoush, 2008, P.5) mentioned several generalizations that help teachers develop the appropriate strategies. These generalizations include realizing that students need some prior knowledge of material in addition to the ability to connect what they already know with the new material. Teachers should also realize that students should deal with unfamiliar words and associate these words to related concepts. They should help students know about the structure of the text and have positive skills to comprehend various kinds of texts.

In addition to using appropriate teaching strategies, teachers also should take into considerations their students' attitudes when designing their reading instruction to help them achieve reading comprehension. Brown (2000) stated that all students have positive and negative attitudes and the negative ones can be changed if they are provided with appropriate and useful instructional materials. Omaggio (2001) emphasized in her fourth hypothesis the importance of responding to students' preferences and interests to foster the development of language proficiency. Hedgcock and Ferris (2009) stated that learning strategies, learning styles and motivation should be taken into account because they are important factors that influence and shape readers' attitude they bring to the interaction with a text.

Indisputably, having useful strategies and positive attitudes towards them promotes students' motivation. Oroujlou and Vahedi (2011) believed that positive attitudes lead to motivation and lack of positive attitudes and motivation creates obstacles in learning a language. Therefore, they emphasized the necessity of changing negative attitudes into positive ones to provide students with motivation. Al Othman and Shuqair (2013) stated that motivation can greatly support and promote the students' participation in the process of learning. As a result, having positive attitudes towards a certain strategy motivates students and encourages them to engage effectively in the comprehension process. Students' engagement in the learning process makes them responsible for their own learning and achievement.

However, over the past decade, a number of claims have been raised about the effective role of graphic organizers as visual reading tools in improving reading comprehension (Alagözlü, 2011; Hedgcock & Ferris, 2009; Jiang & Grabe, 2007; Manoli & Papadopoulou, 2012). Jiang and Grabe (2007) suggested using graphic organizers as instructional tools to represent the discourse structures of texts in order to improve students' reading comprehension as organizing information visually helps readers comprehend it better. The authors proposed a number of generic forms of graphic representations such as definitions, descriptions, for and against, compare and contrast, cause and effect, process and sequence that apply to regularly recurring text structures. Briefly, they defined these tools as "visual representation of information in the text" (page 34). Alagözlü (2011) also claimed that using graphic organizers in instruction of any reading texts helps students enhance their comprehension as well as their cognitive development. She suggested that graphic organizers are appropriate tools for teaching literary texts. She also recommended using graphic organizers as a post reading activity to help learners recall the information in the reading texts. In teaching reading comprehension, they are frequently referred to as semantic maps, concept maps and story maps (Manoli & Papadopoulou, 2012).

Semantic maps are some of the various forms of graphic organizers. They can be referred to as mind maps, spider maps or sunbursts (Manoli & Papadopoulou, 2012). Brown (2001) offers using semantic mapping as a reading strategy that depends on grouping ideas into meaningful clusters to promote reading comprehension. According to Nation (2001), semantic mapping aids in presenting the key words of a certain topic in order to help learners expand them. It is defined as "a graphic representation that encourages the learner to search for meaning by displaying words in categories to show how they are related to each other" (Amoush, 2012, p.723).

In general, semantic maps are used by teachers as a pre-assignment strategy, a during-reading strategy and a post-reading strategy. As a pre-reading assignment strategy, they can present two functions: activating readers' prior knowledge and assessing readers' readiness to do the assignment. As a during-assignment strategy, they help readers in recording what they are learning during the assignment. As a post-assignment strategy, they help readers in integrating what they have studied (Zaid, 1995). According to Bleckley (2006), semantic mapping involves connecting new words with the other words that are already familiar to the learners.

Concept maps can be particularly used in teaching the main ideas in a reading text. They help students to classify these ideas into main and supporting ones. These maps can also provide students with opportunities to connect between learned knowledge and new information (Dye, 2000; Salehi, Jahandar & Khodabandehlou, 2013). As a result, students can reflect on their own understanding while they are relating ideas. Moreover, graphic organizers can help students to be strategic ones who learn independently (Ellis, 2004; Chiou, 2008) by designing and creating their own concept maps that help them in identifying the key ideas and linking them with each other in order to realize the relationships between them and then to reach the correct meaning that these ideas convey.

Story maps are mainly used in narrative texts to guide the readers and draw their attention to components of any story such as characters, plot, conflict, climax and events. (Alagözlü, 2011; Manoli & Papadopoulou, 2012). They can be used before and during reading a text. They are used before reading a text to activate readers' prior knowledge, whereas they are used during the reading to help readers connect between the events. Additionally, they can also serve as a review after reading (Boulineau; Fore III; Hagan-Burke & Burke, 2004). They are thus good tools which may facilitate comprehension of narrative texts because they provide readers with a framework or a layout that allows them to identify the important elements of any story.

Graphic organizers may be beneficial for both teachers and students. For teachers, they may decrease the teacher's workload (Chang, Sung & Chen, 2002) since they are considered as organizational tools that organize necessary information and knowledge to be visually focused on in the classroom (Egan, 1999). For students, these tools might be beneficial and advantageous particularly for low proficient readers. Omaggio (2001) emphasizes that using visual organizers in advance of a reading task can enhance proficiency-low level learners' comprehension since according to Ellis (2004) these organizers help students separate essential information from those which are not important and as a result reduce the demands on the students.

According to Dye (2000), teachers can build their own graphic organizers following several steps: selecting the intended information in a certain text, deciding the necessary components such as the key vocabulary items, main concepts, ideas and events, transforming these components into graphic organizers and finally helping the students to discover and understand the relationships between the components of the graphic organizer.

In conclusion, graphic organizers may be effective organizational tools that should be used in teaching reading. Teachers can use them to help students learn vocabulary items by clarifying key words and expanding them. They can also use them to help students extract the main ideas. Moreover, they can use them to help students identify the elements of literary texts.

Empirical Studies

In this part, the researchers present some empirical studies that examined the effects of using graphic organizers on improving the readers' performance in reading comprehension as well as their effects on learners' attitudes.

DiCecco and Gleason (2002) examined the effects of using the graphic organizers as a comprehension tool to extract information from expository texts. The participants were 26 students with learning disabilities enrolled in two middle schools. The findings of the study did not reveal the effectiveness of graphic organizers on improving students' comprehension since there were no significant differences found between treatment and control groups when factual knowledge was assessed.

Similarly, to the kind of participants, Boulineau, Fore III, Hagan-Burke and Burke (2004) examined the effect of using story mapping on students with specific learning disabilities reading comprehension. They also examined the maintenance of the effects after discontinuing the story mapping. However, the findings of the study showed positive results about using story mapping as an effective tool to increase narrative text comprehension for students with specific learning disabilities and the maintenance of the effects after the treatment was withdrawn.

Thuy (2006) explored the effects of semantic mapping on the eleventh-grade students' memorizing and attitudes towards this method at Tran Quoc Toan High School. Three instruments were used to collect both quantitative and qualitative data: the tests on vocabulary knowledge, the questionnaire on the students' perceptions towards semantic mapping, and the interview on the students' attitude towards semantic mapping. The findings revealed that the students in the experimental group outperformed those in the control group in retaining word meanings. The findings also proved that the students had positive attitudes towards semantic mapping.

Chiou (2008) investigated the effect of using concept maps on students' learning achievement and their attitudes towards them as learning tools. The participants were 124 students from two classes in advanced accounting courses at the School of Management of a university in Taiwan. A pre- post achievement test and a questionnaire were used as measuring instruments. The findings coming from pre-post achievement test revealed that using concept mapping strategy improved participants' achievement compared to using a traditional teaching method. The findings coming from the questionnaire revealed that the participants were content with using concept maps since this strategy significantly improved their interests in learning and helped them in analyzing and integrating information and clarifying concepts.

Ernis (2008) examined the effect of using graphic organizers on second-, fourth-, and fifth-grade students' comprehension when reading informational texts. The findings of the study indicated positive results in favour of the experimental group of all three grade levels attributed to the use of graphic organizers since the post-test scores of the students who received the traditional read-and-discuss comprehension instruction were statistically lower than the posttest scores of the students who received reading comprehension instruction which included the use of graphic organizers.

Oliver (2009) investigated the effectiveness of concept mapping on students' comprehension of science text structure as well as the students' and teacher's reaction to the concept mapping task. It was found that the participants were good at classifying pre-selected terms under given superordinate categories. It was also found that the participants enjoyed concept mapping and preferred to read and map rather than read without mapping although there were no significant differences in the mapping performance of students. They also expressed a strong preference for mapping in pairs or small groups compared to mapping alone. The participating teacher had positive reactions to using concept mapping strategy in improving students' attention.

Banisalameh (2010) explored the effects of a program based on semantic mapping and questioning reading strategies on Hashemite University students' reading comprehension. The findings of the study indicated that the students who studied the redesigned reading comprehension texts based on the two strategies, semantic mapping, and questioning reading, performed better than the students who studied the material following the instruction in the New Head Way Plus textbook. The study also showed that the two reading strategies had an equal significant effect in developing students' abilities in understanding and the quality of schema whereas they did not have equal significant effect in critical thinking in favor of the questioning strategy.

Mede (2010) investigated the possible effects of instruction based on graphic organizers on students' application of those visual displays in text and examined their attitudes towards reading in an EFL classroom. The instruments used in the study were pre- and post-questionnaires, focus group interviews and think aloud. The findings revealed that using graphic organizers improved the participants' attitudes towards reading in an EFL classroom.

Jiang (2012) investigated the effects of graphic organizers on the development of English reading comprehension. The findings showed that the discourse structure graphic organizers instruction effectively improved discourse comprehension as measured by the discourse structure graphic organizers completion task, and the effect was retained seven weeks after the instructional treatment. There was also a significant improvement in the general reading ability as measured by TOFEL reading comprehension in the immediate posttest, but the effect did not persist in the delayed posttest.

Sam and Rajan (2013) examined the effectiveness of using graphic organizers on reading comprehension. The findings indicated that experimental group students improved in different types of comprehension questions compared to control group students. The comprehension questions included identifying the main ideas, finding the supporting details, dealing with vocabulary, fact and opinion, and making inferences.

Moreover, the findings of the study indicated that the use of graphic organizers by learners during reading comprehension sessions indirectly promoted strategic reading competence which improved learner's creativity.

In general, the literature on using graphic organizers has been very encouraging in improving readers' comprehension and their attitudes. However, although most of the literature has shown similar findings about the effectiveness of using graphic organizers as a strategy in teaching reading comprehension through clarifying and organizing information into categories, identifying the meaning of new or difficult words, recalling information, and understanding the context, DiCecco and Gleason (2002) have produced different findings. They found that there were no differences between experimental and control groups when factual knowledge was assessed which indicated that graphic organizers did not seem to aid the students in recalling and extracting

information. Some of the literature has raised questions about the graphic organizers effectiveness in improving the reading comprehension of students with learning disabilities (DiCecco and Gleason, 2002 and Boulineau; Fore III; Hagan-Burke and Burke, 2004).

The review has shown that little research has examined the effect of graphic organizers on students' attitude. It has also shown that there is little Jordanian research has studied the role of graphic organizers on reading comprehension. Additionally, and according to the best of the researchers' knowledge, there is no Jordanian research examines the students' attitudes towards using graphic organizers. Therefore, what distinguishes this study from the literature reviewed previously may be its tendency to shed light on the Jordanian students' attitudes or perspectives towards using graphic organizers in teaching and learning reading comprehension.

Problem and Purpose of the Study

Jordanian students are reported to face difficulties in comprehending reading texts. They seem incapable of interacting with the reading text they read. Al-Jamal, Al-Hawamleh and Al-Jamal (2013) revealed that most EFL Jordanian tenth grade students' level of reading comprehension proficiency is moderate. The problem may be due to the lack of the appropriate strategies and their interests in using these strategies. Jordanian researchers such as Amoush (2012), Smadi and Alshra'ah (2015) indicated that the problem of poor reading comprehension among Jordanian students may be because of insufficient use of appropriate reading strategies. Migdadi and Baniabdelrahman (2016) indicated that Jordanian EFL students are not taught according to their interests, so that they lack motivation. Thus, the study seeks an answer for two questions:

1. To what extent do graphic organizers (semantic maps, concept maps and story maps) improve Jordanian EFL tenth grade students' reading comprehension?
2. To what extent do graphic organizers (semantic maps, concept maps and story maps) affect students' attitudes towards using them in teaching/ leaning reading comprehension?

Significance of the Study

This study is significant for it attempts to investigate the effects of graphic organizers on reading comprehension and students' attitudes towards using them. This study also is significant because it may encourage teachers to create their own graphic organizers to support the textbooks developed by the Jordanian Ministry of Education. It may encourage students to use graphic organizers to facilitate their own learning. In addition to students and teachers, textbook writers may integrate graphic organizers into the instructional materials into such textbooks.

Sampling, Instrumentation, Data Collection and Data Analysis

To achieve the purpose of the research, a sample of two intact tenth-grade classes was purposefully drawn from Zainab Bent Al -Rasoul basic school for girls, Irbid, Jordan. One 41-student section was randomly assigned to the control group and another 43-student section to the experimental group. The control group was taught by the conventional method as outlined in the Ministry-prescribed Teacher Book whereas the experimental group was taught through the instructional program. The two groups were pre- and post-tested on reading comprehension. Between the pre- and post-test, the instructional program, which comprises ten reading comprehension expository texts and two literary stories, was implemented over a twelve-week interim, with two 40-minute sessions a week.

To answer the research first question, which addressed the potential effect of using graphic organizers on reading comprehension, means, standard deviations, adjusted means, and MANCOVA were used to determine any potentially significant differences in the participants' reading comprehension, which can be attributed to the treatment. To answer the research second question, which concerned about the students' attitudes towards using graphic organizers in learning reading comprehension, the researchers designed a twelve- item attitudinal scale. Means and standard deviations were calculated.

Validity and Reliability of the Instruments

To establish the validity of the instructional program, the pre-post-reading comprehension test and the attitudinal scale, they were checked by a jury of five university professors and three English supervisors. They made a number of suggestions (e.g., maximizing the role of students in the instructional program, deleting True/False question from the pre-post-reading comprehension test), which were all taken into account in the final versions of the instruments.

To establish the reliability of the pre-post- reading comprehension test, it was administered twice to a sample of 25 students, who were excluded from the main sample of the study, with a two-week time lapse. Pearson correlation coefficient between the first and the second administration amounted to 0.81 which was deemed suitable for purposes of the current research.

Findings of the Study

To answer the research first question, means and standard deviations of the students' pre- and post-test scores were calculated, as shown in Table (1) below.

Table (1): Means and Standard Deviations of the Students' Pre-/Post-Reading Comprehension Test Scores

Reading Comprehension Domains	Group	n	Pre		Post		Adj. mean	Std. error
			Mean	Std. dev	Mean	Std. dev		
Classifying words and making connections	Control	41	9.68	4.72	11.87	4.39	11.91	0.36
	Experimental	43	9.81	4.47	13.34	3.64	13.31	0.36
Extracting information from text	Control	41	6.63	4.21	8.12	3.76	8.13	0.40
	Experimental	43	6.60	4.87	8.37	4.36	8.35	0.40
Connecting between ideas	Control	41	2.60	3.23	3.31	3.17	3.35	0.27
	Experimental	43	2.83	2.78	4.48	2.51	4.45	0.27
Identifying elements of a story	Control	41	3.36	3.47	4.73	3.45	4.71	0.27
	Experimental	43	3.34	3.48	6.41	3.56	6.43	0.26
Putting the events in chronological order	Control	41	0.97	1.62	1.46	1.79	1.29	0.33
	Experimental	43	0.41	1.19	2.00	3.02	2.15	0.32
Overall Mean	Control	41	23.26	12.64	29.51	12.12	29.42	0.70
	Experimental	43	23.02	12.55	34.62	12.78	34.71	0.69

Table 1 shows observed differences between the participants' mean scores in reading comprehension on the post-test, in favor of the students in the experimental group. To determine the potential statistical significance of these differences (at $\alpha \leq 0.05$), MANCOVA was used to

compare the participants' performance on the reading comprehension post-test, as shown in Table (2).

Table (2): MANCOVA Results of the Students' Scores on Post- Test Reading Comprehension

So	Reading comprehension domains	SS	df	MS	F	Sig	Eta
Way	Classifying words and making connections	39.06	1	39.06	7.13	0.009*	0.08
	Extracting information from text	0.95	1	0.95	0.14	0.70	0.002
	Connecting between ideas	24.09	1	24.09	7.83	0.006*	0.09
	Identifying elements of a story	59.68	1	59.68	19.74	0.000*	0.20
	Putting the events in chronological order	14.99	1	14.99	3.29	0.07	0.04
	Overall	563.21	1	563.21	28.12	0.000*	0.26
Error	Classifying words and making connections	421.67	77	5.47			
	Extracting information from text	517.83	77	6.72			
	Connecting between ideas	236.74	77	3.07			
	Identifying elements of a story	232.75	77	3.02			
	Putting the events in chronological order	350.19	77	4.54			
	Overall	1542.17	77	20.02			
Corrected total	Classifying words and making connections	1375.56	83				
	Extracting information from text	1369.75	83				
	Connecting between ideas	69.41	83				
	Identifying elements of a story	1070.23	83				
	Putting the events in chronological order	518.23	83				
	Overall	13295.56	83				

Table 2 shows a statistically significant effect (at $\alpha \leq 0.05$) in the students' mean scores on the reading comprehension post-test, as a result of the instructional program. Note also that the practical significance of the treatment is 0.26 (from Table 2 above), which indicates a high effect for the implementation of the instructional program.

To answer the research second question, the researchers used the statistical model of proportional scaling to classify the means of the attitudinal scale as shown in Table (3).

Table (3): The Statistical Model of Proportional Scaling

Means	Degree
1.00 - 2.33	Low
2.34 - 3.67	Moderate
3.68 – 5.00	High

However, means and standard deviations of the experimental group students' attitudes were calculated, as shown in Table (4) below.

Table (4): Means and Standard Deviations of Students' Attitudes towards Using Graphic Organizations (Semantic Maps, Concept Maps and Story Maps) in Learning Reading Comprehension

No.	Graphic Organizers	Mean	Std. dev	Rank	Extent
1	semantic maps	3.73	0.78	3	High
2	concept maps	3.74	0.74	2	High
3	story maps	3.84	0.93	1	High
	Overall	3.77	0.82		High

Table 4 shows that story maps came in the first rank and concept maps in the second rank, whereas semantic maps came in the last rank. However, the overall mean of the attitudinal scale is 3.77 with a standard deviation of 0.82 which means that the participants' attitudes are high and positive towards the use of the three types of graphic organizers.

Discussion of the Findings

The findings revealed statistically significant differences (at $\alpha \leq 0.05$) between the reading comprehension of the participants who have received the graphic organizers-focused instruction and those who have not, which may signal the effectiveness of using graphic organizers in teaching reading comprehension.

It seems that using graphic organizers (semantic maps) improved students' ability in classifying words and making connection between them and thus their reading comprehension. Semantic maps may help students construct and expand their vocabulary. This result supports the findings of Bani Salameh's (2010), who claimed that using semantic maps increases students' vocabulary and thus is regarded as an appropriate strategy for teaching vocabulary.

The researchers think that using semantic maps may facilitate learning vocabulary because they allow students integrate their own words that they have learned into the new words. Moreover, asking students to complete the semantic map while presenting it by the teacher engages students positively in learning process. This engagement helps students activate their prior knowledge and expand their vocabulary items. As a result, they become more able to classify words and connect between them.

The findings also revealed that using graphic organizers (concept maps) succeeded in improving students' ability in connecting ideas together. The researchers think that this may be a result of the way in which the researchers constructed the concept map. They transferred the main ideas in the texts into maps and asked students to complete these maps through adding the supporting ideas. Moreover, organizing the content of the text into maps draws the students' attention to specific ideas and that makes them reach the information easily. Tashtoush (2008) recommends for using visual features to help students locate the information needed for answering the comprehension questions instead of spending much time on rereading the whole text.

Although the graphic organizers (concept maps) succeeded in connecting ideas together, they did not succeed in improving the students' ability in extracting exact information from reading texts. This result supports the findings of DiCecco's and Gleason's (2002) who found that there was no significant difference between experimental and control students' comprehension when factual knowledge was assessed via comprehension tests. This may be due to the students' weakness in identifying the ideas related to the comprehension questions. Besides, students do the

activities in group work or pair work while learning, whereas they answer the comprehension test individually .

Regarding the story maps, the findings revealed that using story maps succeeded in improving the participants' ability in identifying the components of literary texts but did not succeed in improving their ability in ordering the events of literary texts chronologically. The researchers think that students did not exceed beyond identifying the elements of the story to order the events chronologically because the students may lack the sense of tenses functions. This lack decreases the students' ability to order the events in their correct order.

However, the analysis of the participants' responses showed that they had high positive attitudes towards using graphic organizers in learning reading comprehension. The participants strongly agreed that using graphic organizers facilitate their reading comprehension learning. Therefore, they were interested in constructing their own graphic organizers (semantic maps, concept maps and story maps). The researchers think that the students prefer using graphic organizers because these organizers guide them to specific demanded information. This result agrees with Mede (2010) who found that the participants' attitudes were positive towards graphic organizers since they enjoyed using graphic organizers in organizing the texts by focusing on the key points and declining the trivial information.

Regarding their attitudes towards using the semantic maps, the participants agreed that they are interested in and prefer using them in order to facilitate learning new words. The researchers think that these positive attitudes are formed as semantic maps may help students expand their vocabulary items by activating their prior knowledge. The way of introducing the key words visually by using semantic maps may help students remember these words. This result is consistent with Thuy (2006) who found that the students had positive attitudes towards semantic maps which helped them retain words meanings. The findings also showed that the students were interested in constructing their own semantic maps. The researchers think that this result may be due to the fact that learners feel motivated when they are engaged in the learning process.

Regarding concept maps, the findings showed that the participants had positive attitudes towards using them. They strongly preferred to use concept maps to extract information from reading texts as well as to summarize reading texts. They are also strongly interested in using concept maps to help them understand the relationship between ideas. This result is consistent with Oliver's (2009) who found that the participants had positive reactions to the concept mapping activities.

Regarding the attitudes towards story maps, the results showed that the participants had high positive attitudes towards them. They strongly preferred to use story maps to save their time. The researchers think that this attitude is formed because a story map summarizes the content of a literary text by introducing the key information. It also guides readers directly to the literary text components such as the setting, the characters and the events.

Conclusions, Pedagogical Implications, and Recommendations

The findings of the study warrant the following conclusions:

1. There is a relationship between the students' reading comprehension and their attitudes. Improving students' reading comprehension leads to the improvement of their attitudes towards learning / teaching strategies.

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2. Using graphic organizers improved the participants' reading comprehension.
 3. The participants had high positive attitudes towards using graphic organizers.
 4. It is worth mentioning that engaging students in constructing graphic organizers motivates them to participate actively in the learning process.
 5. It is worth mentioning that providing students with graphic organizers instructions helped them become strategic readers.

Based on the findings of the study, the researcher presented the following pedagogical implications:

1. Taking students' engagement in learning process into consideration when designing any instructional program. This engagement can be achieved by providing students with opportunities to construct various graphic organizers.
2. Taking students' attitudes into consideration and designing proper reading activities that respond to their interests and preferences.
3. However, the following recommendations are put forth:
4. EFL researchers are advised to conduct a content analysis on Action Pack series for Jordanian students in order to examine the inclusion of graphic organizers in reading comprehension activities.
5. EFL researchers are advised to investigate the effect of training Jordanian EFL teachers on using graphic organizers in teaching reading comprehension.
6. EFL researchers are advised to explore Jordanian EFL teachers' attitudes towards using graphic organizers in teaching reading comprehension.
7. EFL researchers are advised to explore Jordanian EFL teachers' use of graphic organizers in teaching writing, speaking and listening skills. This type of research is needed to gain additional insight into implementing graphic organizers by teachers on other language skills.
8. The Ministry of Education is suggested to enrich the textbooks with proper graphic organizers and suggest procedures for implementing them in different activities in the classroom.
9. The Ministry of Education is suggested to train teachers on using graphic organizers while teaching reading comprehension.
10. EFL teachers are advised to use graphic organizers in teaching reading comprehension.
11. Textbook writers, course designers, and teachers are encouraged to implement graphic organizers in reading instruction.

Conflicts of interest statements

All authors declare that they have no conflicts of interest.

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