THE EFFECT OF THE GRAPHIC ORGANIZERS STRATEGY ON THE DEVELOPMENT OF INTERMEDIATE EFL LEARNERS' VOCABULARY

Fatemeh Moradiyan Zardak, Seyyed Ali Kazemi and *Arezoo Omidvari
Department of ELT, Yasuj Branch, Islamic Azad University, Yasuj, Iran
*Author for Correspondence

ABSTRACT
The present study aimed at determining the effect of the Graphic Organizers strategy on the intermediate EFL learners' vocabulary development. For this purpose, Oxford Placement Test (OPT) was used to assure that the students are at the same level of English proficiency and also to homogenize the participants. Then, 40 out of 78 students were chosen and divided into two groups namely control and experimental group. A pretest was administered on the learners' vocabulary knowledge. After that the control group was exposed to use traditional way and the experimental group was taught eight specific features of vocabulary items using the Graphic Organizers strategy. The eight features were the word’s spelling, pronunciation, part of speech, meaning in the first language, meaning in the foreign language, synonym, and antonym and using it in an example sentence. At the end of the study, a posttest was administered to all the students. Data were analyzed using SPSS. Results showed that the experimental group students performed better than the control group students, concerning their vocabulary development and also revealed that this strategy improved the students' vocabulary development. Finally the null hypothesis was rejected.

Keywords: Graphic Organizer, Vocabulary, Strategy and Knowledge

INTRODUCTION
As the world becomes increasingly globalized, more and more people need to speak a common language in order to communicate with each other. This language is often English, thought of as the international language, however French, Spanish, and Chinese, as well as many other languages, are also widely learned as second languages. Vocabulary learning has always been a major concern for those who want to learn a second language. In learning a foreign language, vocabulary plays an important role. It is one element that connects the four skills of speaking, listening, reading and writing all together (Thanh and Thi, 2003). According to Ghada Sari students most of the time tend to forget or misuse new words when they are learning a foreign language. This forgetting and misusing is because of many factors that the most important factors are: First, Words are not properly stored in student's minds. Second, they are not practiced enough. Third, they are not related to students own experiences and interests.

Willingham (2008) classifies learners into three different types: Those who learn by looking, those who learn by listening, and those who learn by manipulating things or visual, auditory, or kinesthetic learners. Teachers can optimize and present material appropriate to his or her learning by understanding what sort of a learner a child is. Use of graphic organizers as visual tools will make learning vocabulary easy and fun for visual learners of vocabulary students.

Statement of the Problem
Teachers are constantly encountered with introducing new vocabulary to students in all subject areas (NorFleet, 2002). Words that seem common to teachers can be a puzzle to students. Thus, the teacher is faced with the dilemma of how to make new subject matter and vocabulary meaningful to his/her students. Because vocabulary acquisition is crucial to academic development, the teaching situation becomes more difficult when the subject matter is English and many native or non-native English speakers will want to improve and enlarge their English vocabulary whether at the school, college or the university level (Grieser, 2009). Lane and Allen (2010) state that, “Vocabulary knowledge is one of the best predictors of comprehension, reading performance and school achievement”. What makes the situation even more difficult is teaching new vocabulary of English as a foreign language (here after
EFL). A Graphic Organizer which is known as (GO) is a graphical representation of text concepts. It can help students as an instructional tool, to organize the information and concepts to relate with the other concepts. In addition, according to (Ellis, 2004) by using the spatial arrangement of GOs the students can identify the missing information or absent connections in one’s strategic thinking. GOs have lots of names like visual maps, mind mapping and visual organizers. GOs as an instructional tool, used to illustrate students’ prior knowledge about a topic which have been highly recommended to be used in classrooms. GOs are visual representations, models, or illustrations that show the relationships between the key concepts in a lesson, unit, or learning task (Braselton & De Backer, 2004) while Meyen et al., (1996) stated that GOs are “visual displays teachers use to organize information in a manner that makes the information easier to understand and learn”. The idea of GO is based on Ausebel’s assimilation theory of cognitive learning (Ausebel et al., 1978). According to them, the information is organized by mind in a hierarchical top-down fashion. The cognitive approach to learning seeks to understand how incoming information is processed and structured into memory (Weinstein & Mayer, 1986). Cognitive learning theory is that the memory system, with its short- term and long- term sorting and encoding components, guide the learning process. Learning is the best achieved when the information is presented systematically and stored in the student’s brain in an organized, meaningful and useable manner (McElroy & Coughlin, 2009). Studies have shown that meaningful learning can be assisted through the use of GOs. Students who used GOs as a learning strategy performed better rather than the students who used underlining (Amer, 1994), note-taking (Reader & Hammond, 1994), discussing with co-students (Chularut & De Backer, 2004) or outlining (Robinson & Kiewra, 1995). McElroy and Coughlin (2009) state that there were several examples of GOs for how law professors can apply cognitive learning theory to their classroom teaching of counter- analysis using GOs. GOs also can be used in all phases of learning from brainstorming ideas to present findings. They can be used individually or in large groups. For example, some teachers like to create a class concept map as a large group to review at the end of a unit or develop a character map while reading a book aloud to the class. In activities that require critical thinking skills these tools are particularly useful. According to Clark (2007), GOs not only enable students to record and categorize information, but also help students to understand difficult concepts, generate thoughts, and identify connections between ideas. When used effectively, these visual tools can have a positive impact on student achievement. Students who work with GOs often show improved writing and critical thinking skills. While working with colleagues across the curriculum, teacher-librarians are in an ideal position to include GOs in their instructional practice as they guide students through the inquiry process. Teacher-librarians who are familiar with GOs can model an effective literacy strategy and develop new partnerships with classroom teachers.

**Significance of the Study**

This study is significant in the following areas: The findings of the study will be directly appropriate to language learners, language teachers, and curriculum developers concern with this context. The significance of this study is that graphic organizers are believed to promote higher order thinking because students are required to classify information, establish relationships, and draw inferences as they read and discuss the text (Armbruster et al., 1987).

Graphic organizers may help the teacher transform what may be poorly organized prose into symbolic relationships that more closely match the way knowledge is stored in memory (Armbruster & Anderson, 1984). Graphic organizers are visual learning tools which facilitate the students’ ability to learn and understand better. However, the effectiveness of these graphic organizers depends on the involvement of the teachers and their responsibilities in explaining to students how to use such tools. Graphic organizers are suitable for students in all age groups; it helps them organize complex information into concise visual maps. They have a great potential for fostering learning in a variety of different areas in education, particularly comprehension, reading and vocabulary skills. According to Vanides et al., (2005) concept maps give students the opportunity to think about connections between science terms being learned, and to organize the thoughts and visualize the relationships between key concepts in a systematic way, and also to reflect on their understanding. Concept mapping may assist in integrating Literacy concepts with

---

© Copyright 2014 | Centre for Info Bio Technology (CIBTech)
Research Article

science content by providing a starting point for writing about science (Vanides et al., 2005). This type of approach may be particularly advantageous to second language learners (Jiang & Grabe, 2007) by allowing students to think deeply about science while storing and retrieving information effectively (Vanides et al., 2005).

Objective of the Study

This study aimed at investigating the effect of the graphic organizer strategy on the intermediate EFL students' vocabulary building.

Research Question

The research question formulated for the purpose of this study is:
RQ: Does the use of Graphic Organizers have any effect on the development of the intermediate EFL learners' vocabulary?

Research Hypothesis

The Null Hypothesis of this Study is
H0: Using graphic organizers has no effect on the development of intermediate EFL learners' vocabulary.

Definition of Key Terms

Graphic organizer: Graphic organizers are instrument of representation, illustration and modeling of information in visuals or graphics form that use to achieve a meaningful learning.

Vocabulary: A person's vocabulary is the set of words within a language that are familiar to that person. A vocabulary usually develops with age, and serves as a useful and fundamental tool for communication and acquiring knowledge. Acquiring an extensive vocabulary is one of the largest challenges in learning a second language. Vocabulary is commonly defined as "all the words known and used by a particular person". Knowing a word, however, is not as simple as simply being able to recognize or use it. There are several aspects of word knowledge which are used to measure word knowledge.

Strategy: procedures used in learning, thinking, etc. which serves as a way of reaching a goal.

Knowledge: information, understanding, or skill that you get from experience or education.

Summary

What was mentioned so far served as Chapter One and Introduction. In follows, Chapter Two focuses on the review of the literate, in which some authentic remarks related to the subject matter of this study as well as some of the recent studies on Graphic Organizers Strategies have been summarized; chapter three discusses the methodology, the variables in question, the applied tests, sampling, and tools of data analysis; chapter four gives the results of the study and relates the findings to similar studies to see whether they agree or disagree; and finally chapter five provides the conclusion and summary of the findings of this study. In this chapter the implications of the findings will be discussed as well.

Review of Literature

Research by scholars found that graphic organizers are especially effective for teaching technical vocabulary. Monroe and Pendergrass (1997) stated that use of GOs is effective in increasing the use of mathematical vocabulary in students’ writing. Through the study, they compared the effects of Integrated Malaysian Journal of Educational Technology Volume 10, Number 1, June 2010 20 GO model (combination Concept of Definition GO with Frayer model) and definition only model (traditional teaching) on the mathematical vocabulary used by students. Study by Oliver (2009) about the effectiveness of concept mapping on students’ comprehension of science text structure found that students enjoyed concept and would prefer to read and map rather than just read without mapping. It is due to the concept map is particularly useful graphic that requires students to express in writing how to linked related concept, understand text structure and improve reading comprehension. Research on GO, highlight the use of that material emerged as an instructional tool to facilitate the comprehension of content area. Research presented by DiCecco and Gleason (2002) propose that, by using Graphic Organizers which is to attain relational knowledge from expository text. They had investigated the effects of explicit instruction GOs on students’ ability to gain and apply relational knowledge to their comprehension reading. The learner disability (LD) uses GO as recall their relational knowledge and benefitted from a longer treatment. This study demonstrates the efficacy of GOs for student with LD.
Research Article

within the context of intensive instruction. Supported by previous findings on the effectiveness of explicit instruction at the primary-grade level. Williams et al., (2007) have evaluated the effectiveness of comprehension cause-effect instructional program for second graders at risk for academic failure on their study. That program represented the type of listening and reading instruction suit to grade level for all students, including those at risk for academic failure. The type of instruction has the potential for improving comprehension on both oral and written task. From findings, the content area of social studies and strengthens the conclusion that explicit comprehension instruction can be effective at the primary school level and necessary for difficult effect concept. In general, previous research studies had examining the effects of graphic organizers on reading comprehension for students with learning disabilities. An extensive research from Kim et al., (2004) stated that, by using graphic organizers (i.e., semantic organizers, framed outlines, cognitive maps with and without a mnemonic) was associated with improved reading comprehension overall for students with LD. The effectiveness of using graphic organizers across grade levels, analysis demonstrated effective outcomes at the elementary and secondary levels for the use of graphic organizers. The graphic organizers contribute value of specific design to comprehension of a health education brochure.

From that, a research by Kools et al., (2006) had examined the effect of GO on the comprehension of a health education brochure text and compared subjective with objective comprehension measures. In this experiment, they propose four kinds of comprehension questions. There are text base macro, text base micro, situation model macro, and situation model micro questions. At the end of this experiment, the graphic organizers reflected information on the macro level of the text. It is concluded that health education texts could benefit from relatively simple techniques to increase comprehension. Studied by Robinson and Molina (2002) stated that, there relative involvement of visual and auditory working memory when studying adjunct displays by using seven outlines or graphic organizers. In that experiment research, there are students who studied graphic organizers performed worse on the visual task, or second experiment, students who studied outlines performed worse on the auditory task. The results provide evidence that GOs are encoded in a more visual format than outlines, whereas outlines are encoded in a more auditory format than GOs. By using the models of text learning and help to explain GOs are more effective than outlines in helping students learn concept relations in text. Malaysian Journal of Educational Technology Volume 10, Number 1, June 2010

Graphic organizers are associated with increased learning and retention of subject matter (Stone, 1983), improved reading comprehension (Kirkland, 1981), and meaningful learning of intellectual skills such as mathematics.

A study by Githua and Nyabwa (2007), indicated that the use of analogies increased students’ success in solving mathematical problems in enhance learning. They proposed six steps for creating and using GO for teachers which were state objectives, oral presentation, integrative reconciliation, promotion of active reception learning, encouragement to adopt critical approach, application to solution of problems. Zollman (2009) designed a classroom action research to investigate a problem solving instructional approach by using GOs.

The designed GO is use to teach how to write essay writing in 5 steps. The five steps included the questions about what the students need to find, what they already know, brainstorm the possible ways to solve the problem, show the calculations, and the students’ conclusion or opinion about the problem solving given. They found that GO helped students to construct content and strategic knowledge; improved their mathematical communication skills. Besides, GO also helps students with all ability levels to produce more complete answer. Using diagram has been identified as the effective strategies to improve efficiency in mathematical problem solving (Uesaka et al., 2007). Through the study by Pantziara et al., (2009) who investigated the effect of three types of diagrams; network, hierarchy and matrix in non-routine mathematical problem solving for all abilities of students. They have administered two different tests to the same students which were Test A (without diagram) and Test B (with diagram). Findings indicated that presented diagrams in non-routine problem helped students who previously encountered difficulty in solving problems without diagrams and non-routine problems could be given
without diagram at first and useful diagrams for their solution could be provided next while matrix diagrams were found to make the problem easier than network and hierarchy diagrams. Literature supports the use of organizers to facilitate and improve learning outcomes for a wide range of learners. Mentoring Minds offer graphic organizers in a variety of areas: Language Arts, Math, Reading, Science, Social Studies, and Vocabulary. Each independent set for the subject area includes 25 copies of 20 different organizers. Lovitt (1994) attests to the use of graphic organizers to organize and highlight essential content information and/or vocabulary. Fountas and Pinnell (2001) cite that when content is illustrated with diagrams, the information can be maintained by students over a period of time. Organizers portray knowledge in a meaningful way which helps bring clarity to ideas as connections are made. Over the past several years, the No Child Left behind Act (NCLB, 2001) emphasizes the concern for the educational accountability of schools in the achievement of student success. This act leads to increased performance from teachers and administrators related to the learning strategies used in classrooms (U.S. Department of Education, 1987). Research shows that graphic organizers are an example of a proven strategy. Organizers offer an entry point into complex material for visual learners, increase comprehension and retention, and can be used with all students, ranging from gifted and talented to those with mild cognitive disabilities.

Research supports the utilization of graphic organizers as a contributing factor in improving performance in classroom and achievement test scores if they are used effectively and become a fundamental part of classroom instruction. The focus centers on the relationship of information as opposed to memorization of isolated facts. Ausubel (1963) believed that the manner in which knowledge is represented can influence learning. The appropriate organizer can help students form relationships between previously acquired knowledge and new concepts. Learning takes place when the cognitive structure expands with the new knowledge. Ellis (2001) noted that information is more easily learned and understood with visual organizers. Once students acquire the basic, yet solid foundation of a concept, then future content can be addressed at higher cognitive levels leading students to become more strategic learners.

Research shows that graphic organizers are keys to assisting students to improve academic performance. In creating an organizer, pertinent aspects of a concept or topic are arranged into a pattern using labels. Learning to think is an essential skill needed in education today. Often educators use teaching methods where students are passive learners. Difficulty arises when students must make meaning out of information taken from a book, video, or a lecture. When students interact with content, it is important that they actively construct meaning. To do this, students must be active thinkers during the learning process. Researchers have shown that graphic organizers can enhance content comprehension (Alvermann and Boothby, 1986; Darch et al., 1986; Horton et al., 1990). Marzano, Pickering, and Pollock (2001) state that graphic organizers combine the use of both the linguistic and non-linguistic modes of learning. As a result, educators can employ graphic organizers to demonstrate to students the relationships between different content and between new and prior knowledge. Meyen et al., (1996) share that graphic organizers depict a visual, organized display that makes “information easier to understand and learn”. Vocabulary is essential to understanding concepts; thus content vocabulary needs to be addressed. Teachers need to include meaningful vocabulary instruction as it must not be only incidental. The Mentoring Minds’ Product Development team, in an effort to determine effective means of teaching vocabulary, found evidence that graphic organizers help students’ learn vocabulary in informational text. All age levels of students benefit from the use of graphic organizers and these visual representations have application in many different content areas (Dye, 2000).

Students with learning difficulties need strategies to help them achieve success in academics. Learning disabled students require extra support to guide them to focus on the important information and learn how to organize information (Gagnon & Maccini, 2000). Students must have information presented in a clear, concise, and organized form if they are to make progress in content area classrooms. Graphic organizers have great potential for students with learning disabilities (Gagnon & Maccini, 2000). Graphic organizers offer support when new information is presented and previously learned information is reviewed (Dye, 2000). Difficult concepts can be simplified and arranged so that the representation of content is organized.
and meaningful. Using a graphic organizer to link newly learned information to an existing knowledge base is a viable strategy for teachers and students. This linkage process seems to be precisely what the student’s need for learning to result (U.S. Department of Education, 1987). This process helps them store and retrieve the knowledge in their long-term memory.

Horton et al., (1990) report the value of graphic organizers to both middle school and high school students with or without disabilities as an organizational tool to promote the memory of content-related information. Other research by Jitendra (2002), indicates that organizers assist this same group of students in how to represent problem situations, such as searching for solutions to word problems. Robinson et al., (2006) tried to find out if GOs help students perform better on tests of text comprehension. The participants of their study were the students enrolled in an educational psychology course at the University of Texas.

The results of their experimental study showed that students who used GOs in text comprehension scored higher in examinations and quizzes that covered course content. They also concluded that “the GO may help teach students not only course content but also important metacognitive skills, such as identifying text structure” (Robinson et al., 2006).

Frequently, learning disabled students have difficulties recalling key information, making connections between broad concepts and details, and solving mathematical word problems. According to Maccini and Ruhl (2000), students with learning disabilities might experience fluency difficulties with mathematical facts and with basic mathematical procedures. Teachers must be made aware that the use of graphic organizers is not only a validated instructional practice but a viable strategy that might lessen the difficulties learning disabled students experience in mathematics (Gagnon and Maccini, 2000). Both teacher-directed and student-directed approaches are considered to be best practices when working with graphic organizers in the classroom (Lovitt, 1994). Teachers select the appropriate approach based upon the purpose of the lessons and individual needs of the students.

Addressing the Gaps in the Present Study
Despite a growing body of research into teaching and learning vocabulary, scant research attention has been somewhat focused on the effects of teachers’ methodology such as Graphic Organizers (GOs) on teaching vocabulary. In addition, more attention was on learning rather than teaching. According to the previous studies in the field of language teaching and to compensate the insufficiency of the objective data, the present researcher found that GO studies on teachers’ methodology in different areas were confined. Compared with those studies on the GOs and Iranian educational context in mind, this study was designed to examine the GO effects on intermediate level on teaching vocabulary in Yasouj.

MATERIALS AND METHODS
Methodology
This chapter describes how the experiment was done, including the research design, participants, instrumentation, data collection and data analysis.

Research Design
This study used the experimental method of research. The data obtained was quantitative (scores from lexical tests). The materials in both experimental and control groups were all the vocabulary items of the units for passing their course.

The independent variable in this study was the GO strategy and graphic organizer as a process of English language classroom. The dependent variables were development in EFL vocabulary building.

Participants
Seventy eight students were randomly chosen from Kimiya-e Danesh Institute in Yasouj city. They were chosen based on their proficiency level. Oxford Placement Test was implemented to homogenize the learners. After the placement test forty students were chosen and participated in the study which was lasted for one institute semester of three months. All were studying English as a foreign language. The classes were similar in every important respect. All the participants were native speakers of Persian. Each student enrolled in one of two intact and equally-sized classes of a general English Language course.

© Copyright 2014 | Centre for Info Bio Technology (CIBTech)
Research Article

Instrumentation
Before starting the program, an OPT proficiency test was administered to 78 participants in order to assure their proficiency levels, forty students were chosen. After random sampling, the participants were randomly divided into an experimental and control group. After that a pretest on students’ vocabulary knowledge was conducted to the two groups of experimental and control for comparability. Then the researchers started the program. The words from learners’ source book were selected. For the experimental group, graphic organizers in the form of pictures and clusters for teaching the new words were used. To perform this instruction, several sessions were spending on training the learners EFL vocabulary items through GOs. Related words (cluster of words) through their pictures were taught. Spelling, pronunciation, part of speech, meaning in the first language, meaning in the foreign language were taught for each new item. For example, a house with its different parts was drew and taught the name of those parts by means of pictures. At the end of the program, one posttest was conducted to both groups of experimental and control group.

Procedures of the Study
In the first part a population of 40 students, from Kimiya-e Danesh Institute in Yasouj, were divided into two experimental and control groups. One of the classes was assigned to an experimental group, whose students were taught eight specific features of vocabulary items using the GO strategy. The eight features were the word’s spelling, pronunciation, part of speech, meaning in the first language, meaning in the foreign language, synonym, and antonym and using it in an example sentence. The other class was assigned to a control group, whose students were taught the same vocabulary items using traditional instruction. Approximately 250 vocabularies, which were in their textbook, were available for each student to review, study and use during the experiment. Students of both groups were required studying vocabularies on daily basis, with ten specified items each day. The specified items were the same for both groups. The study was lasted for one full institutional semester with two sessions per week.

Vocabulary Instruction through using the GO strategy to implement this instruction, the experimental group students were given the first several sessions to orient and train them on EFL vocabulary building through the use of the GO strategy following four steps; namely, preparation, presentation, practice and evaluation. In the preparation step, students were instructed on how to learn each of the vocabulary items as they appear in the different units and the wordlist in terms of eight of its features; This step involves training students on learning and recognizing each feature on its own first. Thus, in order to train students on how to write the phonetic transcription of each item, for example, they will teach the different symbols of the International Phonetic Alphabet. The different parts of speech in English will also discuss to enable students to identify the part of speech of each item, and so on and so forth. In addition, they were trained on using English-English dictionaries and English-Persian dictionaries for identifying any features they might doubt.

In the presentation step, GOs were introduce to students like a normal classroom lesson plan, with the researcher showing them the different kinds of GOs and their features, the advantages of GOs, creating a GO, modeling how to utilize a GO, and guiding students through a GO assignment with their participation. The GO that employs for the study is the semantic word map that places the vocabulary item to be learned in a circle at the center of the GO with all the eight word features written in larger circles around that item.

In the practice step, the researcher guided the students to apply what they learn inside and outside the classroom to cover all the vocabulary items in the whole study material. To implement this step, the researcher involved in checking and correcting, when need, students’ individual work on GO assignments.

This guide practice needed the researcher’s close supervision which gradually fades out as the training go on and the students begin to practice independently. Evaluation step were covered having and marking students’ daily-filled out GOs concerning all the vocabulary items to be learn. Marked GOs will give back to students in order to study them for further evaluation as the experiment go on. Students were told that they will be test on any vocabulary items they learn to measure their vocabulary building.
Research Article

Traditional Vocabulary Instruction
To implement the traditional instruction, the students of the control group were taught all the vocabulary items and their meanings in the first language as they appear in the different units and in the wordlist. Students were also asked to study those items outside the class. In addition, they were encouraged to use English-Persian dictionaries but without any kind of training. They were allowed asking and consulting the researcher about the meaning of any item anytime they wish.

Data Analysis
The issues to discuss were whether the use of Graphic Organizers has any effect on the development of intermediate EFL learners. The comparison between the experimental and control group was carried out using descriptive statistics. For analyzing the data of the study, the researcher used the Statistical Package for the Social Sciences (SPSS). Since there were two groups, the researchers used t-test. They used paired t-test for comparing the results within groups and independent t-test for comparing the results between groups.

RESULTS AND DISCUSSION

Results
Prior to answering to the research question, some assumptions were checked. They were as follows:
1. Normality of both tests (pre and posttest)
2. Reliability of the tests
3. Homogeneity of the test

However, before doing any analysis, we should know whether we are able to use a parametric test or not. Therefore, we should check whether the data have been normally distributed or not. If the level of significance is more than 0.05, it indicates the normality of data distribution. Therefore, we can use parametric test for further data analysis. Table 1 indicates the result of Kolmogorov- Smirnov Test.

Firstly I present the results of the normality of the tests. The normality of the test assumes that the distribution of scores on the dependent variable is normal. Normal is used to describe a symmetrical, bell-shaped curve, which has the greatest frequency of scores in the middle with smaller frequencies towards the extremes.

Table 1 shows the results of the normality of pretest. You are given the results of the Kolmogorove-Smirnov statistic. This assesses the normality of the distribution of scores. A non-significant result (sig. value more than .05) indicates normality. In this case, the sig. value is .200, suggesting that the assumption of the normality is met.

Table 2 indicates the results of the normality of the post test. Again we need a non-significant result (sig. value more than .05) in order to show normality. As shown in this table the result of the Kolmogorov-Smirnov is .200, suggesting that this assumption is met.

Table 1: Tests of Normality (pre-test)

<table>
<thead>
<tr>
<th>Kolmogorov-Smirnov*</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>pre-test</td>
<td>.100</td>
</tr>
</tbody>
</table>

Checking the Reliability of the Tests
There are a number of different aspects to reliability. One of the main issues concerns the scale's internal consistency. This refers to the degree to which the items that makes up the scale hang together. Are they
all measuring the same underlying construct? The most commonly used statistic is Cronbach's coefficient alpha. This statistic provides an indication of the average correlation among all of the items that make up the scale. Values range from 0 to 1, with higher values indicating greater reliability. The reliability of both tests is presented in the following tables.

Table 3 shows the result of the Cronbach's alpha for the pre-test. The value is .74, suggesting a good internal consistency. This means that the reliability of the test showed that the responses of the participants were consistent and the consistency of the result was the basic concept of the reliability of the test. Therefore, we can assume that the items of the questionnaires have measured the same construct.

Table 3: The Reliability Statistics for the Pre-test

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.777</td>
<td>.741</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 4 presents the results of the reliability of the post test. The reliability of the post test is estimated based on the Cronbach's alpha. As is seen this value is .71, indicating an acceptable index.

Table 4: The Reliability Statistics for the Post-test

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.736</td>
<td>.719</td>
<td>28</td>
</tr>
</tbody>
</table>

Homogeneity of the Variance

The first section of the Independent Sample Test output box gives you the results of Levene's test for equality of variances. Presupposition of homogenization of variances seeks to evaluate the issue of whether samples have been selected from population with equal variances or not. To test the homogeneity of research variables’ variance the Levin's test for equality of variances has been used. The homogeneity of heterogeneity of variances can be reviewed based on the significant level obtained in this test. If the significant level obtained is more than P=0.05, the variances are equal and vice versa. Evaluation of homogenization hypothesis of variances for two sample groups has been presented in table 7. This tests whether the variance of scores for the two groups is the same. The outcome of this test determines which of the t-values that SPSS provides the correct one for you to use is.

If your Sig. value for Levene's test is larger than .05 (e.g. .07, .010) you should use the first line in the table, which refers to Equal variances assumed. S p=.05 or less (e.g. .01, .001), this means that the variances for the two groups are not the same. You should use the information in the second line of the t-test table, which refers to Equal variances not assumed. In this table, the significance level for Levene's test in pre-test is .34. This is larger than the cut-off .05. This means that the assumption of equal variances has not been violated. For posttest the significance value is .86. So this assumption is met. Although the participants selected for this study were studying English at the same level determined by the institute, their level of proficiency was determined by the Oxford Placement Test (OPT) which was first administered to the whole subjects. Then, based on the normal probability curve, those subjects who were placed between one standard deviation above the mean and one standard deviation below the mean were selected as the main participants. The results are illustrated in Table 5.

Table 5: The Results of the Oxford Placement Test

<table>
<thead>
<tr>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>30.68</td>
<td>9.26</td>
<td>21.43-39.94</td>
</tr>
</tbody>
</table>

To answer the research question of the study, relating to whether the GO has an effect on the Iranian intermediate EFL students’ vocabulary development, the adjusted means and standard errors of the students’ scores on the vocabulary development test for both experimental and control groups were computed, and they are shown in Table 5.
Descriptive statistics is a set of brief descriptive coefficients that summarizes a given data set, which can either be a representation of the entire population or a sample. The measures used to describe the data set are measures of central tendency and measures of variability or dispersion. Descriptive statistics are useful and serviceable if you do not need to extend your results to any larger group. Descriptive statistics of the present study done by the SPSS software will be presented below:

As shown in Table 6, the data in pre-test indicate for the experimental group (M = 19.70, SD = 3.34), while the mean scores of the control group students is (M = 10.00, SD = .64). The results show that there is a difference of 9.7 between the adjusted means of the students’ vocabulary building scores in favor of the experimental group. Analyzing the data of the post-test showed that for the experimental group (M = 21.20, SD = 3.34), and for the control group (M = 10.40, SD = 3.74). The difference between the mean scores of the two groups shows that there has been a kind of difference between the performances of the two groups in learning vocabulary. In order to see whether this difference is statistically significant the researcher used the independent sample t test to determine the significance of the difference in the adjusted mean scores between the experimental and control groups on the vocabulary learning test. The results are shown in Table 7.

### Table 6: Pre- and Post-test Statistics

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>experimental</td>
<td>20</td>
<td>19.70</td>
<td>3.342</td>
<td>.747</td>
</tr>
<tr>
<td>control</td>
<td>20</td>
<td>10.00</td>
<td>2.865</td>
<td>.641</td>
</tr>
<tr>
<td>post-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>experimental</td>
<td>20</td>
<td>21.20</td>
<td>4.086</td>
<td>.914</td>
</tr>
<tr>
<td>control</td>
<td>20</td>
<td>10.40</td>
<td>3.747</td>
<td>.838</td>
</tr>
</tbody>
</table>

### Table 7: An Independent Sample T test

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>df</td>
<td>Sig (2-tailed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>.600</td>
<td>.349</td>
<td>96</td>
<td>.600</td>
<td>9.700</td>
<td>.904</td>
<td>7.707 - 11.693</td>
</tr>
<tr>
<td>assumed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td>.605</td>
<td>.000</td>
<td>16</td>
<td>.000</td>
<td>9.700</td>
<td>.904</td>
<td>7.708 - 11.694</td>
</tr>
<tr>
<td>post-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>.030</td>
<td>.864</td>
<td>86</td>
<td>.000</td>
<td>10.800</td>
<td>1.240</td>
<td>8.290 - 13.310</td>
</tr>
<tr>
<td>assumed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td>.031</td>
<td>.866</td>
<td>86</td>
<td>.000</td>
<td>10.800</td>
<td>1.240</td>
<td>8.290 - 13.310</td>
</tr>
</tbody>
</table>

**Summary**

The data were analyzed in this chapter. Firstly, the normality and homogeneity of the variances as two assumptions of the data were discussed. The Sig. values of these assumptions were above the critical value of .05 so this indicated that the assumptions were not violated. Secondly, the reliability and validity of the pre-test and post-test were estimated. The reliability of both tests, i.e., pre-test and post-test were calculated based on the Cronbach alpha. Thus, the values were acceptable and this showed that we could continue the analysis of the data. Thirdly, a t-test was run in order to see whether the effects of the Graphic Organizers on developing and learning vocabulary were significant or not. The results showed
Research Article

that the GO had a statistically significant effect on learning vocabulary. Finally, based on the evidences obtained in this study, we could reject the null hypothesis.

Discussion and Conclusion

Before data analysis, we should know that, for all statistical analyses in this study, .05 was used as the alpha level at which findings were considered to be significant. Several statistical tests were employed to address the different research questions. The data were analyzed using the Statistical Package for the Social Sciences (SPSS 14) software package to identify statistically significant relationships on targeted vocabulary quizzes and between vocabulary pretest and posttest within the groups who received the three types of vocabulary instruction. In order to test the null hypotheses that stated that the Graphic Organizer (GO) does not have any statistically significant effect on the development of the intermediate EFL learners’ vocabulary, an independent sample t test was conducted to compare the mean scores two groups, t (40)=9.85, p<.0005. So the null hypothesis was rejected. This means that the sig. value was less than the critical value .0005. One can conclude that the GO has a statistically significant effect on the development of intermediate EFL learners' vocabulary. Therefore the result of this study is in accordance with the results of the study that was conducted by Zahedi & Abdi (2012), who studied the effect of vocabulary knowledge on second or foreign language learning. They found that there was a close relationship between English word knowledge and achievement in life. In addition, the result of this study is in harmony with those results found by Horton et al., (1990) that GOs were most effective with nondisabled college students when they were used to present vocabulary. Moreover, the result of the study is consistent with those found by Fisher, Frey and Williams (2002) that both strategies of the GO and vocabulary instruction proved to be effective in improving their 2200 school students’ achievement during the period of the study. The researchers found a significant difference between the performance of intermediate students who used semantic mapping as a pre-reading activity for vocabulary learning and the performance of those who did not use this technique. The results indicated that the semantic mapping technique can be used as an effective method for teaching vocabulary in language classes. The results of this study support previous findings that report a strong relationship between semantic mapping and vocabulary learning (e.g., Pittelman & Johnson, 1985; Schelinger, 2000; Zaid, 1995). It seems that students in the experimental group get more involved in the story than the students in the control group. Learners in the control group can find the answers in the text without any deep understanding of the story. There are fewer opportunities for negotiation of meaning among them. On the other hand, in the experimental group learners need to understand the story more deeply in order to be able to fill in the organizer. Therefore, as the results of this study showed, greater amount of incidental learning of vocabulary occurred in the learners in the experimental group. It can be said the GO strategy had a significant and meaningful effect on learners’ vocabulary learning. It is evident in comparing the results of pretest and posttest of experimental group. The researcher recorded all the sessions. It was evident that learners improved step by step during implementing the treatment. When learners found the connections between words, they learned them successfully. The comparison of two groups of experimental and control showed that control group could not find the connection among words because of rote learning and as a result failed to learn meaningfully and could not remember words when needed. Making use of pictures helped learners in the experimental group to have an imagination of words, and using pictures in form of cluster of words helped them to learn words in a form that when they could not remember one word, with recalling the cluster related to that word, after a while they remembered the forgotten word through a meaningful connection. The results of the study suggested that the GO strategy was more successful than the traditional instruction in improving Iranian EFL learners’ vocabulary learning.

Implications of the Study

Three major pedagogical implications can be drawn on the basis of the findings of this study. Firstly, learning vocabulary through Graphic Organizers (GOs) would be more enjoyable and meaningful for the learners, since it moves away from the boring and tedious process of looking up words in a dictionary. Secondly, the teachers who still believe in teacher-centeredness in language teaching to change their viewpoints in favor of more learner-centeredness. Teachers could use Graphic organizers to help students
become independent learners who have a so effective way for discovering, consolidating, and remembering new words. Teachers can use GOs for brainstorming of learners to aid them in remembering related items of new words. By including GOs in their everyday lessons, teachers can help learners to write coherently. Finally, syllabus designers and textbook writers can include sections related to graphic organizers into materials they develop. In this way, they can introduce a lot of new words and improve memory and comprehension of those words.

Limitations of the Present Study
A few limitations of this study need to be mentioned: Firstly, the small sample size in this study limits the generalizability of the finding of the present study, and thus our results need to be interpreted with caution. Therefore, it would be useful to have a larger sample size, especially of English teachers. Secondly, due to practical constraints, using stratified random sampling was not adopted in this study. As a consequence, the representativeness of the sample of the EFL participants could not be warranted. And finally, the items of the questionnaire were not piloted. It was helpful to pilot the questionnaire in order to remove the items that were irrelevant and lead to unexpected results.

Conclusion
The present study aimed at determination of effect of Graphic Organizers on learning vocabulary. It used a pretest and also a posttest to measure the effect of GO that may have on vocabulary knowledge of subjects. After analyzing the obtained data, it was concluded that the training program significantly boosted vocabulary knowledge of the subject, even more than twice. However, a significant difference was found between two groups. The findings revealed that experimental group made progress over time, that is, the students from this group attained an increase in scores from pretest to posttest. Using story maps as graphic organizers for understanding short stories was found to be of great importance to enhance the learners' incidental vocabulary learning. By asking suitable questions the teacher helped students to fill the boxes in the organizer. So, the students have to infer answers to these questions from the short story. It seems that students in the experimental group get more involved in the story than the students in the control group. Learners in the control group can find the answers in the text without any deep understanding of the GO. There are fewer opportunities for negotiation of meaning among them. On the other hand, in the experimental group learners need to understand the vocabulary more deeply in order to be able to fill in the organizer. Therefore, as the results of this study showed, greater amount of incidental learning of vocabulary occurred in the learners in the experimental group.

Suggestions for the Future Study
The following areas are needed to investigate in the future researches. There is a need to investigate the effects of the graphic organizers on the learning of the beginners. Since this makes learning of the beginners attractive and meaningful. The researchers need to explore the effects of the semantic mapping as one of the different aspects of the graphic organizers on learning vocabulary on different academic levels. The findings of the present study recommend the researchers to investigate the roles of the graphic organizers as efficient way in development new words and improving memory. It is recommended to study the impacts of the different aspects of the graphic organizers on learning reading comprehension and different kinds of parts of speech.

REFERENCES
Alvermann DE and Boothby PR (1986). Children's transfer of graphic organizer instruction. Reading Psychology: An International Quarterly 7(2) 87-100.
Research Article


Research Article


Maccini P and Gagnon JC (2000). Best practices for teaching mathematics to secondary students with special needs: Implications from teacher perceptions and a review of the literature.


Nilforoushan S (2012). The effect of teaching vocabulary through semantic mapping on EFL learners” awareness of the affective dimensions of deep vocabulary knowledge. English Language Teaching 5(10) 164-172.


Research Article


Zollman A (2009). Students Use Graphic Organizers to Improve Mathematical Problem-Solving Communications. *Middle School Journal (J1)* 41(2) 4-12.