

Using Graphic Organizers (GOs) for Developing EFL Critical Reading Skills among First Year Secondary Stage Students

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Abstract:

The present study was carried out to develop EFL critical reading skills among first year secondary stage students through using graphic organizers. A quasi-experimental design was adopted, using an experimental group and a control one. Forty-eight students from AL-Shaheed Muhammad Ibrahim Al-Baqash Secondary School, Diarb-Negm Directorate, Sharkia, Egypt, were selected and divided into two groups; an experimental group (n=24) and a control one (n=24). A critical reading questionnaire and a pre-post critical reading test were used as instruments of the study. The researcher implemented the Graphic organizers on the experimental group while the control group was taught using the regular method. The current study was conducted through the second term of the academic year 2019-2020. Finally, the results of the study proved that Graphic organizers was effective in developing the EFL critical reading skills of first year secondary stage students.

Key words: Graphic Organizers, Critical Reading Skills, EFL students.

الملخص:

أجريت الدراسة الحالية لتنمية مهارات القراءة الناقدة كلغة أجنبية لدى طلبة الصف الأول الثانوى من خلال استخدام المنظمات البيانية ، تم استخدام التصميم شبه التجريبي باستخدام مجموعة التجريبية ومجموعة الضابطة ، حيث إختارت الباحثة ثمانى وأربعون طالب وطالبة من طلاب الصف الأول الثانوى بمدرسة الشهيد محمد إبراهيم البقاش ، إدارة ديرب نجم، محافظة الشرقية، حيث إشمئت المجموعة التجريبية على أربعة وعشرون طالب وطالبة والتي درست باستخدام المنظمات البيانية ، وأربعة وعشرون طالب وطالبة للمجموعة الضابطة و التى درست بالطريقة التقليدية ، وقد قامت الباحثة بإعداد استبيان مهارات القراءة الناقدة وإختبار لقياس مهارات القراءة الناقدة كلغة أجنبية وتطبيقه قبلها وبعديا ، هذا وقد طبقت الدراسة الحالية في الفصل الدراسى الثانى للعام الدراسى ٢٠١٩ - ٢٠٢٠ ، وبعد إجراء التحليل الإحصائى توصلت النتائج الى أن المنظمات البيانية لها أثرا إيجابيا فى تنمية مهارات القراءة الناقدة كلغة أجنبية لطلاب الصف الأول الثانوى.

Introduction:

In the scope of teaching English as a foreign language (TEFL), the ultimate aim is to enable learners to use it for authentic communication. More recently, the increasing growth of knowledge and communication technologies have made critical reading more essential. Logging onto the varied digital resources and keeping into contact with others via e-mail and other social communication sites have increasingly become an important activity of everyday life. Hence, more emphasis should be given to teaching those skills that enable learners to become more experienced and critical when interacting with any media.

According to Richards and Schmidt (2010), critical reading is viewed as the critical reaction of the reader to what is being read. It is also the personal values, standards, attitudes or beliefs, going beyond what is said in the text that are related to the reading material's content. Par (2018: 79) defined critical reading as "an active process of constructing meaning from the texts by involving interpretation, making inference, analysis, giving judgment, and evaluation". In Wallace's view (2003), reading is a social, critical and interpretative process rather than a skill or a set of skills. He also claimed that a critical reader carries out a mental action on the word form and makes correlations between the context and his personal experience to infer the meaning of the word.

In this area, Shihab (2011) added that critical readers are encouraged to evaluate, predict and organize ideas as they are supported with value judgment, making inferences, and drawing a conclusion based on evidences. Moreover, McDaniel (2004) assured that developing critical viewpoints towards texts help student-readers transfer these skills to a larger society. Thereby, critical reading leads to an authorization. Critical reading skills are necessary if learners are to make intelligent decisions based upon the material which they read. It involves judging the

quality, accuracy and truth of what is read. It does not end with just reading the lines and getting their implied meanings but involves in itself an intelligent judgment of the stated facts.

There has lately been an urgent demand to adopt critical thinking and integrate this approach into the language classes and the instructional practices. Critical reading can't be separated from critical thinking. According to Kincheloe and Weil (2004), reading critically includes thinking critically. They mentioned that reading critically is an action where a silent discussion is actively engaged by the reader with the author as an alert questioning participant in the interpretation's process. Therefore, practicing higher- order thinking skills while reading is a basic standard. Thus, the necessity to search for recent strategies to develop these skills is to be highlighted. One of the most useful reading strategies is using graphic organizers

Graphic organizers are considered as a visual representation of knowledge that structure information by arranging important aspect of a topic into a pattern using labels (Bromley, Irwin-Devitis & Modlo, 1999). Graphic organizers (GOs) are visual frameworks assisting in seeing structures of a text and thus help its comprehension (Öztürk, 2012: 38). Hence, using graphic

organizers in reading skill as a tool helps visual learners to enhance the learning process (Praveen & Premalatha, 2013:157).

Additionally, graphic organizers are effective tools for thinking and learning as they help students represent abstract ideas in more concrete forms. According to Almahi (2015:24), there are various functions of graphic organizers. They assist learners to:

- organize ideas and depict the relationships among facts and concepts.
- store and recall information.
- relieve learners' boredom, provide motivation and promote a better understanding of the materials presented.
- can be used in all phases of learning from brainstorming ideas to presenting findings.
- can be used individually or in large groups.

Besides, Praveen & Rajan (2013: 156-157) affirmed that the importance of graphic organizers helps learners:

- Clarify and organise knowledge into categories (identify the text's main idea, provide specific details, distinguish facts from opinions, distinguish causes and effects, etc.)

- arrange the details in a paragraph to make it easy to grasp.
- construct the meaning of complicated words and sentences.
- understand the context by associating with prior knowledge.
- identify conceptual and perceptual errors that may occur in the course of reading a passage.

Graphic organizers are also classified according to their forms and representations whether hierarchical or cyclical structures; for example, semantic map, structure overview, web concept map, semantic organizer; story map, graphic organizer etc. Graphic organizers are organized into eight types based on their purposes of learning; What I Know, What I Want to Know, and What I Learned chart (KWL chart), history frames, word map, zooming in and zooming out-concepts, zooming in and zooming out – people, inquiry, Venn diagram and column notes (Ciascai, 2009).

As a conclusion, Toha (2013:4) stated that good reading strategies using graphic organizers play an important role in understanding reading text comprehension and reading critically.

Critical Reading

Many interpretations of reading critically have been presented. They differ in distinguishing the cognitive mechanisms that illustrate how texts can be read critically. Therefore, they conduct several sets of conceptualizations which help to give some viewpoint simultaneously. Also, Paul & Elder, (2019) mentioned that critical reading is an art that helps readers analyze, evaluate the text and think with a point of view that helps the nature of thought be improved. There are different methods that help students critically read:

- When vital questions and problems from the text are raised,
- When relevant information is gathered and assessed and then reasonable explanations of that information are offered,
- When their interpretations are tested against prior knowledge and current experience,
- When their assumptions and its implications are examined, and

- When what is read is used to efficiently communicate with others or the probable solutions to complex problems are advanced.

In the same context, Mohammed (2020) developed EFL critical reading and writing skills for the secondary students through a connectivism-based program. Participants were eighty 1st year secondary students selected from Abu Bakr Al Sedeek Official Language School, Sheikh Zayed City, Giza. A quasi-experimental design was adopted. Instruments were (a critical reading test, a writing skills test). The results revealed that a Connectivism-based program had a positive effect on developing secondary students' critical reading and writing skills.

Related to the purpose of the previous study, Abdel-Khalek (2018) investigated the effectiveness of a Program Based on English Digital Storytelling in developing some critical reading skills for preparatory students. Participants were Seventy first year preparatory students from Kamshish Prep School, Tala Educational Directorate, Menoufia, Egypt. A quasi-experimental design was adopted. The instrument was a critical reading pre-post-test for assessing students' EFL critical reading skills. The results showed that a Program Based on English Digital

Storytelling had a positive effect on developing preparatory students' critical reading skills.

The importance of critical reading

Wallace (2003) viewed critical reading as an educational task that has a few purposes such as linguistic (semantic), conceptual/critical (reasonable), and/or cultural(social) aims.

- Linguistic aims: help student-readers identify the influence of language choice and understand the conceptual meanings involved in the texts as indicated how the language is used.
- Conceptual/Critical aims: go beyond a text so as to build up a strong discussion around it. If the consequences of what a text tells is understood by student-readers, then an intellectual and a critical connection would be made to their personal lives.
- Cultural aims: mean that many authors' cultural perspectives are shared to see what is common. Besides, to notice and to acknowledge readings taken from these several cultural viewpoints.

Critical Reading and Reading Comprehension:

Basaraba et al., (2013) emphasized three levels of Reading comprehension as follows:

- a) Literal comprehension: student-reader only understands the semantic meaning of the text. He doesn't go far beyond the lines of the text. Meaning is always mentioned in an explicit or direct way in the text such as facts, dates, and locations.
- b) Interpretative Comprehension: student-readers' literal understanding of the text is integrated with their own knowledge. In comparison, information from a variety of text elements is used by these student-readers. In addition, their comprehension has been reformulated.
- c) Critical comprehension: Critical evaluation is occurred only after the student-readers understand the ideas and information in the presented text by the writer/author. Tests are given to student-readers on the following skills: differentiating facts from opinions, identifying logical statements and judging the accuracy of the given information in the text.

A further study by AbdulAal (2016) investigated the effect of an integrated language instruction-based program on enhancing critical reading and communicative competence among EFL secondary school students. The study adopted the quasi-experimental design. Participants were seventy first-year experimental language secondary students, Zagazig city. Instruments were (a critical reading test, a communicative competence test). Results indicated that the integrated language instruction-based program had a positive effect on enhancing EFL secondary school students' critical reading and their communicative competence.

Critical Reading Strategies

According to Salisbury University (2009) and Sousa (2014), strategies for developing critical reading can be identified as follows:

1. **Previewing**: it is learning about a text before reading it and entails prediction based on the heading and subheadings, for example scanning and skimming.
2. **Contextualizing**: it requires placing a text in its historical, biographical, and cultural contexts and includes making inferences and synthesizing.

3. ***Questioning***: the readers should ask questions about content.
4. ***Reflecting***: the readers should examine their own responses and reflect upon the challenges to their personal beliefs and values and entails annotating, highlighting, and note taking.
5. ***Outlining and summarizing***: it requires the readers to identify the main ideas and to restate and paraphrase.
6. ***Evaluating an argument***: it is testing the logic of the text as well as its credibility and emotional impact. The readers are often asked to determine facts from opinions, find causes and effects relationships, determine claim and support, determine evidence and conclusion, and finally analyze, interpret, and argue about the text.
7. ***Comparing and contrasting*** the related readings involve exploring the likeness and differences among texts for a better understanding.

Hussien (2016) investigated the effectiveness of a brain-based teaching model on developing critical reading skills and self-efficacy among secondary stage students. Participants were

forty second- year secondary students from AL Abbassia secondary school for girls. Instruments were a critical reading test and a self-efficacy scale. The study adopted the quasi-experimental design. The results revealed large effectiveness of the suggested brain-based teaching model on developing the critical reading skills and self-efficacy level of the experimental group students.

Graphic Organizers (GOs)

Origin of Graphis organizers

GOs were first developed by Richard Barron (Barron, 1969), but have its origins in Ausubel's work. It was originally called advanced organizers and structured overviews. As assumed by Ausubel's cognitive theory (1960), learning can be meaningful when: a) the learner relates new information to his prior knowledge; b) when learning materials are relevant to the learner's prior knowledge. It is clear that prior experience plays a key role in Ausubel's meaningful learning.

Besides Ausubel's cognitive theory of meaningful learning, Anderson & Pearson (1984) claimed that human mind consists of cognitive structures of knowledge. This knowledge is known as a background knowledge (schema). This schemata theory entails that when learners encounter a new piece of information,

they try to accept and comprehend it in order to improve learning process and retention of information. They also asserted that the learner has to find a mental home for the new information in the written text, as the learner can modify an existing one to accommodate the new one.

As mentioned by Jiang and Grabe (2007: 34), there are different definitions of GOs but generally used by GOs educators as “visual representation of knowledge in the text that reflect the interaction between the ideas, text structure and/or core concepts of the text”.

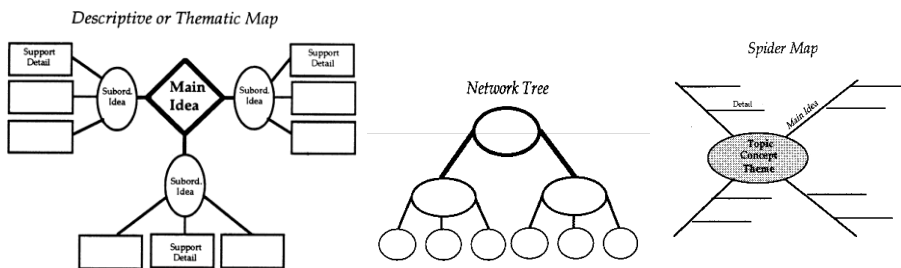
On that basis, Holley and Danesereau (2014) claimed that a graphic organizer is a graphical or schematic system that helps the students integrate prior knowledge, experience, and new information into a coherent and a full image.

Types of Graphic Organizers

To Strangman et al., (2003), the term graphic organizer is generalized to include several mapping strategies, such as semantic organizers, semantic maps, concept maps, networking, diagrams, flow charts, and other various schematic designs. Hall and Strangman (2002) highlighted different models related to graphic organizers, each one best suited to organizing a particular type of information. The

following examples are only a selection of the various styles and applications of the graphic organizers:

- Descriptive or Thematic Maps: function well to display common details/information. (Figure1)
- Network Trees: work for organizing a hierarchical set of information. (Figure 2)
- Spider Maps: work when the information relating to a



main idea or theme does not fit into a hierarchy. (Figure 3)

Figure (1)

Figure (2)

Figure (3)

- Fishbone Maps: useful when cause-effect relationships are complex. (Figure 4)
- Comparative and Contrastive Maps: along with the ideas' characteristics/features, students can make comparison and contrast. (Figure 5)

Figure (4)

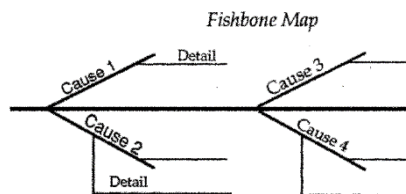
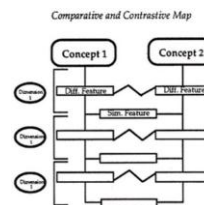


Figure (5)



Adopted from Hall & Strangman (2002: 2-3)

Implementation of Graphic organizers in Classroom

Manoli & Papadopoulou (2012: 353) mentioned that GOs can be used in education in different ways in all reading stages producing different effects on comprehension. The instructional procedures vary depending on the position of GOs in relation to reading (pre-reading, post reading stage) and the constructor of GOs (teacher-constructed, student-constructed, teacher/student constructed). Namely, GOs are used in the pre-reading stage usually as a brainstorming activity to generate ideas, activate learners' prior knowledge, connect what the students know with new information and provide a purpose for reading.

As for the post-reading stage, GOs are used in order to assess the degree of students' understanding and enhance recall, retention and summarization of main ideas, which can often function as a plan leading to writing tasks. In fact, research

demonstrates that GOs are more effective, when used in the post-reading than in the pre-reading stage. Additionally, the constructor of GOs exerts influence on comprehension (Jiang & Grabe, 2007), as GOs can be student, author or teacher created and teacher/student created with the goal of assisting students in learning from texts.

For teachers, the sequencing of activities with the use of graphic organizers was recommended to follow specific steps. For example, they could first have students work on the GO task individually, then let them work collaboratively in pairs or groups. Finally, they could discuss as a class some difficult points of the exercise, which could be followed by post GO activities such as answering questions and writing a summary. Suggestions regarding the design of the graphic organizers are as follows:

- Directions or instructions about the task should be added.
- Students should be told whether they should paraphrase or copy from the text.
- Students should be told whether to use complete sentences, phrases or just key Words.
- Teachers should provide cues such as paragraph numbers.

- Teachers should also explain the directions of arrows.
- Teachers should explain the text structure type and provide some examples.

Advantages of Graphic Organizers

Chiang (2005, p.34) asserted that constructing GOs help learners discover how knowledge is related to prior knowledge in content areas. It can be used at the introductory stage at the beginning of the learning task or during the instruction to monitor the students' understanding, or as a post- learning activity for summarizing, discussion or assessment. It can also be constructed by the teacher, the learners, or by teachers and learners. GOs are useful in organizing information to make information easier to understand and learn.

Other possible advantages mentioned by Praveen & Rajan (2013) are that graphic organizers are reflected in reader's ability to develop the following skills: identifying the main ideas, finding supporting details, dealing with vocabulary, differentiating facts from opinions and making inferences. Besides, Olszak (2014) identified a number of advantages for applying graphic organizers strategies inside the language classroom. Through the reading process, graphic organizers

enable readers to differentiate between fiction and nonfiction texts. It also provides readers with tools to examine and demonstrate relationships in the passage, as well as producing a well-organized summary paragraph. It is often used to assist readers to organize their ideas with graphic representations of what they read and to emphasize the learner's active engagement with the learning process.

Chularut and DeBacker (2004) revealed that GOs had facilitative effects on the students' text learning, self-regulation, self-efficacy and self-monitoring. Pehrsson & Denner (1989) (cited in Chiang, 2005, p.59) reported that GOs have been viewed as both cognitive tools and language tools. The graphic organizer organizes knowledge and concepts as cognitive aids. Although, as vocabulary tools, the graphic organizer not only stresses semantic relationships, but also provides opportunities for learners to use vocabulary. It involves an ongoing engagement (interaction) of the learner with the material and an explicit analysis of what he/she does and does not know. It can be constructed individually, in pairs and in group-work under various learning conditions.

Bromley et al. (1995) claimed that when GOs are used in group-work, they enhance cooperation and that in turn facilitates discussion and sharing of ideas and information.

However, GOs can foster the students' motivation as students are motivated to learn about the subject and are more actively engaged in their own learning. The students are also intrinsically motivated to focus on higher-level understanding and thinking skills of how information parts in the text are related and how the information relates to the relevant knowledge structures.

Ellozy and Mostafa (2010) conducted a case study to investigate the effect of using concept/mind mapping online strategy (E-mapping) on enhancing EFL university students' critical reading skills. The participants were 70 freshmen Egyptian students at the AUC. The instruments were (a pre- post survey, and a small group instructional diagnosis). The results revealed that the majority of students in this study recognized the benefits of E-mapping. while, many of them found it a time-consuming approach and believed it represented too much work.

Abdulrasoul (2014) examined the effect of using the reading circles (one type of graphic organizers) on developing preparatory students' critical reading skills and social skills. The participants were forty-four Experimental Preparatory School students in Sohag Governorate. A quasi experimental design was adopted. The instruments were (a critical reading test, a social

skill questionnaire, reading circles role sheets, and reflection sheets). The results showed that the reading circles strategy improved students' performance in critical reading skills.

Khodadady and Ghanizadeh (2011) investigated the effect of using concept mapping on EFL students' critical thinking skills. The participants were thirty-six upper intermediate and advanced EFL learners as divided into two groups: experimental and control. The instruments were a TOEFL test divided into three sections: listening comprehension, structure and written expression, and reading comprehension. The findings indicated that using concept mapping strategy contributed significantly on developing EFL learners' critical thinking skills.

Graphic organizers and critical reading

To Praveen & Rajan (2013), the benefits of utilizing the graphic organizers are reflected in reader's ability to answer the following reading questions: identifying the main ideas, finding supporting ideas, dealing with vocabulary, differentiating facts and opinions, and making inferences. Olszak (2014) further, identified a number of advantages for applying graphic organizers strategies inside the language classroom. Through the reading process, graphic organizers enable readers to differentiate between fiction and nonfiction texts. They,

likewise, provide readers with tools to examine and demonstrate relationships in the passage. Finally, graphic organizers help readers to produce a well- organized summary paragraph.

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In 1969, Barron was the first one to propose the idea of student-generated graphic organizers. As a consequence, Bromley et al. (1995, p. 26) claimed that students who learn how to create a graphic organiser have a new and useful opportunity to prepare, learn, recall and assess information. In conclusion, reading comprehension, retention and recall can be enhanced, learning performance can be promoted, learning, thinking skills and learning attitudes can be increased by the use of GOs. It can also help improve cognitive skills such as

brainstorming, critical and creative thinking, classifying, ordering content and reflection, etc.

Context of the problem

Based on the researcher's experience as an EFL teacher, the researcher found that students lack the ability to read critically. In addition, it is clear from the previous Egyptian studies that tackled students' critical reading skills (Mohammed, 2020; Abdel-Khalek, 2018; Hussien, 2016; AbdulAal, 2016; Abdelrasoul, 2014) that critical reading is an important area of research.

Critical reading skills are neglected in the EFL curriculum in Egypt. There is no time allotted for teaching critical reading. Many students usually tend to memorize information rather than filter it through their prior knowledge and reasoning. The weakness of these skills lies in the inadequate knowledge of critical reading skills and the rare practice in the reading classes to command the important skills.

A pilot study was conducted to check the performance of the 1st year secondary school students' critical reading skills. The researcher administered a critical reading test to a sample of 20 students at Al-Shaheed Muhammad Ibrahim Al-Baqash

Secondary School, Diarb-Negm Directorate, Sharkia. The results were as shown in table (1).

Table (1): The results of the pilot study

Critical Reading Skills	Percentage
Identifying the main idea of the text	40 %
Making predictions	30%
Identifying causes and effects	30%
Distinguishing facts from opinions	20%
Making comparisons and contrasts	20%
Making a good summary`	30%

The results revealed that the students are poor critical readers. They lack the ability to apply critical reading skills before, during, and after reading. As a result, the researcher tried to find out if this problem could be reduced through using graphic organizers (GOs).

Statement of the problem

Based on the aforementioned discussion and the results of the pilot study, it could be concluded that a great number of 1st year secondary school students lack some EFL critical reading skills. Thus, the present study investigated the effect of graphic

organizers on developing first year secondary stage students' EFL critical reading skills.

Questions of the Research

The current study attempted to answer the following main question:

What is the effectiveness of using graphic organizers in developing EFL critical reading skills among first year secondary stage students?

The following sub-questions were emerged from the above main one:

- 1- What are the necessary critical reading skills for 1st year secondary stage students?
- 2- To what extent do the 1st year secondary students possess critical reading skills?
- 3- What are the features of graphic organizers that may be used to develop the critical reading skills of first year secondary stage students?
- 4- What is the effect of using graphic organizers on developing EFL first year secondary school students' critical reading skills?

Purpose of the Research

The current research aimed at:

1. Developing the first-year secondary school students' EFL critical reading skills through using graphic organizers.
2. Identifying some EFL critical reading skills required for first-year Al-Azhar secondary school students.

Research significance

The present research was hopefully to be useful to the following categories:

1. EFL students

- It would improve their critical reading skills. They would be motivated to read critically.
- It would change students' roles from passive recipients to active learners through the different activities and tasks they will be asked to do.
- It would provide them with an understanding of the graphic organizers nature of comprehension and criticizing that would lead to useful instructional

applications and produce sizable gains in learning in classrooms.

2. EFL Teachers

- This study would supply teachers of this stage with graphic organizers activities that could improve their performance in EFL classrooms and critical reading skills.
- It might promote their instruction.
- It might motivate them to use the proper organizer when attending to any critical reading task.
- It would provide them with guidelines for using graphic organizers.

3. The Curriculum Designers

- It might provide them with curriculum supported by graphic organizers' activities that could enrich the curriculum content.
- It can be used for any subject matter and are easily integrated into course curriculum.

- It might highlight their attention to the effect of graphic organizers on improving the first-year secondary students' critical reading skills.
- It is not only used in reading session but can be implemented in other subjects in school such as Science and Mathematics.

4. EFL Researchers

It might open a new horizon for EFL researchers to do more studies in this field and to investigate the relation of other graphic organizers strategies to enhance other language skills.

Instruments of the Research

The researcher designed the following instruments:

- a. A critical reading questionnaire.
- b. A pre-post critical reading test.
- c. A rubric for correcting the critical reading test.

Delimitations of the Research:

The current research was delimited to:

- Forty-eight students from 1st year governmental secondary stage students at the Martyr Muhammad Ibrahim Al-

Baqash Secondary School, Diarb-Negm Directorate, Sharkia, Egypt.

- EFL Textbook of second term of first year secondary stage (New Hello! English for Secondary Schools).
- Some EFL critical reading skills which were specified by the questionnaire's results, (identifying the main idea of the text, identifying causes and effects, distinguishing facts from opinions, making comparisons and contrasts, making predictions and making a good summary).
- Academic year 2019-2020.

Design of the Research

The quasi-experimental design was adopted, using two groups: experimental and control. The experimental and control groups were administered a pre-post critical reading test designed by the researcher. The experimental group received training through using Graphic Organizers (GOs), at the same time, the control group continued to study the content in the regular way. Figure (1) illustrates the quasi-experimental design of the research.

Procedures of the Research:

To answer the research questions, the following procedures were conducted:

1. Reviewing the relevant literature and previous studies related to critical reading skills and graphic organizers.
2. Designing a list of the most important critical reading skills for 1st year secondary school students and submitting it to the jury members to validate it.
3. Designing the pre-post critical reading test and submitting it to the jury members to validate it.
4. Designing graphic organizers strategies in light the of purpose, activities, methods, procedures, and learner's and teacher's role and submitting it to the jury members for validation.
5. Selecting the study participants of EFL 1st year secondary school students and dividing them into two groups: the control group and the experimental one.
6. Pre-administering the critical reading test to both groups.

7. Teaching the experimental group only using graphic organizers; while the control one receives the regular instruction.
8. Post-administering the critical reading test to both groups to measure the effect of graphic organizers on enhancing the identified critical reading skills.
9. Comparing the pre to the post results of both groups statistically.
10. Discussing and interpreting the results.
11. Drawing conclusion, providing recommendations and suggestions for further research.

Data Analysis

To determine whether the participants' critical reading skills improved after implementing the experimental treatment using Graphic Organizers (GOs), the hypotheses of the study were tested by using the Statistical Package for Social Sciences (SPSS version 26) Program. T-test was used in order to check whether there is any difference between the mean scores of the treatment group on pre and post- administration.

Verifying the research Hypotheses

- The First Hypothesis

It was hypothesized that “*there is a statistically significant difference between the mean scores of the experimental and control groups in the post administration of the EFL critical reading test, favouring the experimental group*”.

To verify this hypothesis, the Independent sample t-test was used to compare the mean scores of the experimental group participants who used graphic organizers to those of the control group participants who used the regular instruction, in the post-test. The results as presented in table (2).

Table (2) Both groups post Overall critical reading test results.

Skill	Group	N	M	S.D	df	t-value	Sig
Overall critical reading skills	Control	٢٤	6.25	2.64	٤٦	16.85	0.00*
	Experimental	٢٤	16.46	1.35			

*significant

Table (2) indicates that the experimental group was higher than the control group in EFL overall critical reading skills,

where t-value was, (16.85) for overall critical reading skills, which was significant at 0, 01 level of significance. Therefore, this hypothesis was accepted.

Figure (1) shows the differences between both groups in the post test results of overall EFL critical reading skills.

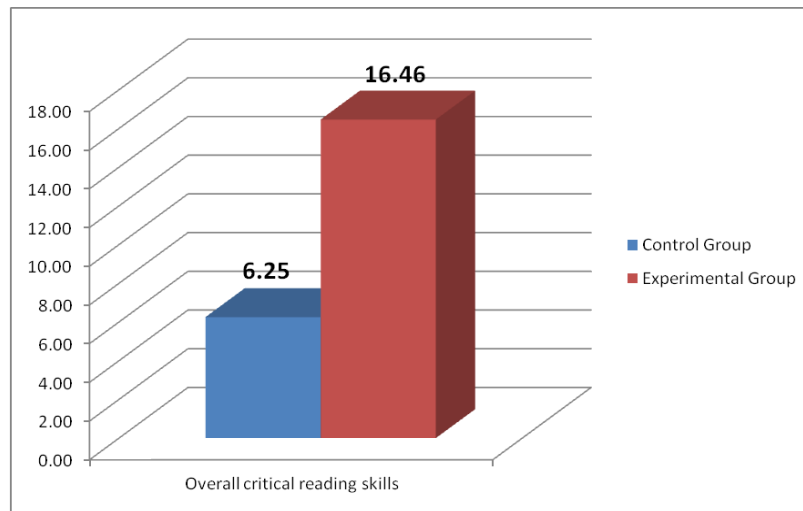


Figure (2): Comparing both groups post results in the overall EFL critical reading test.

Figure (2) shows that the mean scores of the experimental group is higher than that of the control one in the post administrations in the EFL critical reading skills.

The Second Hypothesis

It was hypothesized that "*there is a statistically significant difference between the mean scores of the experimental group in*

the pre and post administrations of the EFL critical reading test, in favour of the post administration "

To verify this hypothesis, paired sample t-test was used to compare the mean scores of the experimental group who used graphic organizers in the pre and post-test administrations. The results as shown in table (٣).

Table (٣) Comparing the experimental group pre to post critical reading test results

Skill	Group	N	M	S.D	df	t-value	Sig
Overall critical reading skills	Pre	٢٤	٥,٥٠	٢,٠٢	23	21.68	0.00*
	Post	٢٤	16.46	1.35			

*significant

Table (٣) indicates that the means of scores of the experimental group were higher in the post test than that in the pre-scores in the overall EFL critical reading skills, where t-value was, (21.68) for overall EFL critical reading skills, which was significant at 0, 01 level of significance. Therefore, this hypothesis was accepted.

Figure (3) shows the differences between the experimental pre and posttest results of overall EFL critical reading skills.

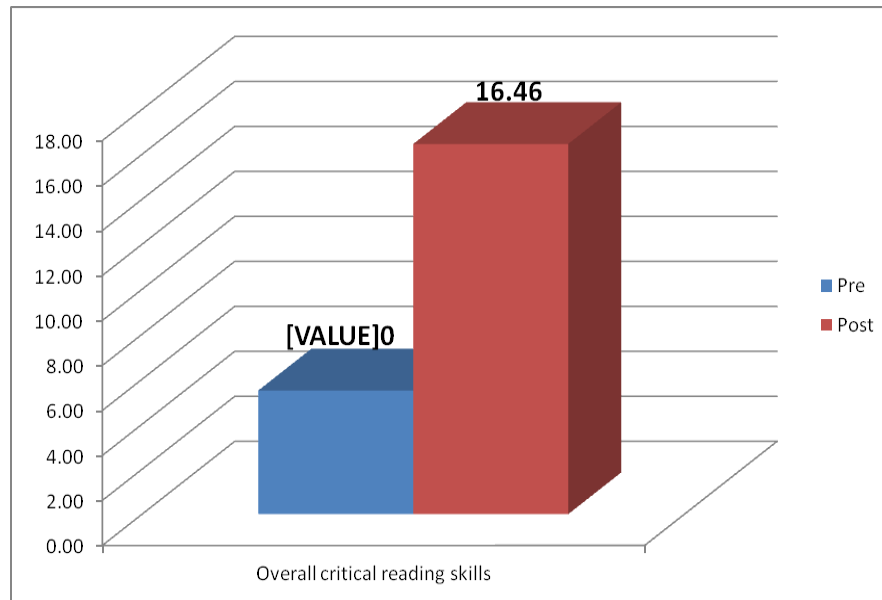


Figure (3): Comparing experimental group pre-post results in the overall EFL critical reading test.

Figure (3) shows that the mean scores of the experimental group in post administrations is higher than that in the pre administrations of the EFL critical reading skills.

The third Hypothesis

It was hypothesized that "*Graphic Organizers have a positive effect on developing EFL critical reading skills*".

Table (٤) The referential framework for identifying the effect size for T- test value.

Effect size	Interpretations
From 0.2 till less than 0.5	Small
From 0.5 till less than 0.8	Medium
From 0.8 till less than 1.10	Large
From 1.10 till less than 1.50	Very large
1.50 or more	Huge

Table (٥) The experimental group critical reading development effect size

Skill	Group	N	M	S.D	t-value	Eta square	Effect size
Overall critical reading skills	Pre	٢٤	٥,٥٠	٢,٠٢	21.68	.91	3.2
	Post	٢٤	16.46	1.35			<i>Huge</i>

Significant at (0, 01)

Table (18) indicates that the effect size of the experimental group in the post test was higher than that of the pre-scores in

overall EFL critical reading skills, where the effect size was (3.2) for overall EFL critical reading skills, which was significant at 0, 01 level. Therefore, this hypothesis was accepted.

According to the findings of Cohen's formula and the interpretations of the effect size, the percentage 3.2 indicated that Graphic organizers had a positive effect on improving the participants' EFL critical reading skills.

Results of the Research

Ultimately, the general results of the current study confirm that:

- a) There is a statistically significant difference between the mean scores of the experimental and the control groups in the post administration of the EFL oral critical reading test, in favour of the experimental group.
- b) There is a statistically significant difference between the mean scores of the experimental group in the pre and post administrations of the EFL critical reading test in favour of the post-administration.
- c) Graphic organizers (GOs) have a positive effect on improving EFL critical reading skills.

Discussion and interpretation of the results

Based on the statistical analysis of the results and their discussions, it could be concluded that there was an evidence of an overall improvement in the performance of the experimental participants of the study. The experimental group surpassed and outperformed the control group as they achieved higher scores on the EFL critical reading skills test. This significant improvement and increase in the participants' scores were attributed to using graphic organizers on teaching and training the experimental group as it created living experiences that helped the participants learn and use their critical reading skills and become self-autonomous learners in real life-like situations, taking the responsibility of their own learning: setting learning objectives, managing, monitoring, evaluating their learning and cooperating with each other.

Moreover, statistical results indicated that the experimental participants typically enjoyed and gained a deep understanding of different skills. This was evidently clear from the significant differences in t-value presented in the findings of the study. It seemed that the effect that graphic organizers had on the experimental participants successfully increased their achievement on their critical reading skills post t-test scores. One

possible contributor to the superiority of the experimental group was that graphic organizers of the current study were purposefully designed and applied cautiously in the classroom setting for the purpose of further developing one of the four main skills in the field of EFL: i.e. the critical reading skills.

Among the key factors that helped yield these results was the adoption of the group work and discussion as major techniques. These techniques offered a collaborative, an encouraging and a positive environment which made the participants so excited and eager to work. Such an environment is so crucial for effective learning as confirmed by Paul (1993) (cited in Surjosuseno and Watts, 1999). It increased the active participation and involvement of all the participants in creating meaning and constructing knowledge. It also helped the participants have a deeper understanding of the ideas in the given reading texts and more reflective and critical views on topics and made more apparent connections to their prior knowledge.

Recommendations

In light of the results of the present study, the following can be recommended:

- There is a need for training EFL secondary teachers to use or design proper activities and techniques while teaching critical reading.
- More time in English language teaching should be devoted to develop the students' critical reading skills.
- Graphic Organizers (GOs) should be used in EFL textbooks and language learning materials in the form of reading practices and exercises.
- EFL educational experts and MOE should familiarize their secondary teachers and instructors with the importance of knowing and practicing some EFL Graphic organizers strategies such as (KWL Chart, Fishbone diagram, Concept mapping and Venn diagram).
- Supervisors should encourage EFL secondary teachers to pay attention to the students' EFL critical reading skills.
- Teacher's Guide should contain checklists of the necessary EFL critical reading skills and guidelines for hands on activities to foster them.

- Ministry of Education should enrich the EFL textbooks with proper graphic organizers and suggest procedures for implementing them in the classroom.
- A teacher's roles should be changed from being the only source of information to be a facilitator, guide, monitor and consultant.
- In classroom setting, students should be grouped in different ways based on individuals, pairs, small groups or whole class mode.
- EFL secondary teachers should be trained to vary assessment methods such as self-assessment, presentations, speech, group-activities and participation.

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