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The Effectiveness of (Compare, Diagnose & Operate) Strategy in Developing First Year Secondary Stage Students' English Critical Reading Skills

A Research in Curriculum & EFL Instruction.
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ABSTRACT

The study aimed to investigate the effectiveness of using (Compare, Diagnose & Operate) Strategy in developing critical Reading skills for the 1st grade secondary school students. Participants of the study were chosen randomly and divided into an experimental group (n=34) and a control group (n=36). A critical reading skills checklist was prepared. A pre/post critical reading skills test and an analytic scoring rubric were employed before and after the experiment. The experiment lasted for twelve weeks. Students of the experimental group received training through the proposed treatment based on (Compare, Diagnose & Operate) Strategy while those of the control group received regular instruction. By the end of the experiment, the critical reading skills test was administered to both the experimental and the control groups. The analytic scoring rubric was used to find out the effectiveness of the proposed treatment on developing the experimental group students' critical reading skills. The study results showed evidence that there was a statistically significant difference at 0.01 level between the mean scores of the control and the experimental groups on the post administration of the test, in favor of the experimental group in overall critical reading skills as well as in each critical reading skill separately. It was concluded that using (Compare, Diagnose & Operate) Strategy was effective in developing the required critical reading skills among the experimental group students. Consequently, it was

recommended that (Compare, Diagnose & Operate) Strategy be employed in teaching critical reading for developing critical reading skills of the secondary school students.

Key words: (Compare, Diagnose & Operate) Strategy, Critical Reading Skills.

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الملخص

تستهدف الدراسة الحالية دراسة فاعلية استراتيجية (المقارنة، والتشخيص، والإجراء) في تنمية مهارات القراءة الناقدة باللغة الانجليزية كلغة أجنبية، حيث شارك في الدراسة 70 طالبا من الصف الاول الثانوي من مدرسة حكومية في محافظة القاهرة، تم اختيارهم عشوائيا و تقسيمهم الى مجموعتين، مجموعة تجريبية (34 طالبا) و الاخرى ضابطة (36 طالبا) اعتمد البحث على التصميم القبلي- البعدي. تم تقديم أختبار مهارات القراءة النقدية في اللغة الانجليزية من اعداد الباحثة للمجموعتين التجريبية و الضابطة، تلاميذ المجموعة التجريبية تم تدريبهم من خلال استخدام استراتيجية (المقارنة، والتشخيص، والإجراء)، بينما تم استخدام الطريقة التقليدية مع المجموعة الضابطة، تم اعداد قائمة لمهارات القراءة النقدية و نموذج لتقييم التجربة يهدف الى كشف فاعلية استراتيجية (المقارنة، والتشخيص، والإجراء) في تنمية مهارات القراءة الناقدة باللغة الانجليزية كلغة أجنبية، و اوضحت نتائج تحليل البيانات الى تفوق المجموعة التجريبية على أقرانهم في المجموعة الضابطة في التطبيق البعدي لمهارات القراءة النقدية عند مستوى دلالة (0.5)، و قد تم الاستنتاج في هذه الدراسة الى اثر استخدام استراتيجية (المقارنة، والتشخيص، والإجراء) بين طلاب المجموعة التجريبية و الضابطة . في ضوء هذه النتائج الايجابية يوصي الباحث باستخدام استراتيجية (المقارنة، والتشخيص، والإجراء) في تنمية مهارات القراءة الناقدة باللغة الانجليزية كلغة أجنبية ، بالاضافة الى تطبيق استراتيجية (المقارنة، والتشخيص، والإجراء) في تنمية مهارات التحدث و التفكير النقدي.

1.1 Introduction

Being aware of a foreign language is extremely essential because it helps in finding various opportunities and this is considered completely true about English language especially as it is a global language (Crystal, 2012).Furthermore, foreign Language is the main means of communication that enables students exchange and generate ideas, feelings and opinions. In addition, it plays a very important role for making the human being the top of all creatures. English is considered the language of international communication, media, education, culture and advancement (Abdelwahed, 2021). Moreover, all over the world people consider learning English a fundamental necessity nowadays, so learners should attempt new approaches of learning English language (Boser, 2020)

El-Azab (2019), Mugableh & Khreisat (2018), Ferdousi (2017) and the Egyptian Ministry of Education (2012, p.5) indicate that English language consists of four main skills: listening, speaking, reading, and writing. Naturally, teaching reading, listening and speaking skills are provided before the students have learned how to write. Reading is considered a source of obtaining knowledge, information and acquiring other language skills (Robert, 2003). Students don't just need to read, they need to know how to criticize during reading.

1.2 Critical Reading Skills

Foreign language skills consist of four major skills classified into two main categories; Productive skills (writing, speaking) and receptive skills; reading and

listening. Reading is considered one of the four major skills because of its role in expressing thoughts and responding to what someone read. It is also well-known that the information received through listening and reading channels is reproduced through writing (Robert, 2003). Thorndike (1917) explored and studied readers' errors. He stated that readers should connect with everyday tasks that necessitate their constructing judgements about their responses. He also stated that people should think critically about "the reading of the text-book or reference as a mechanical, passive, undiscriminating task".

A critical reading approach in pedagogy helps students understanding what they read logically to be an active in one's reading is to pose questions of and thinking about the text. Readers should adopt a critical attitude towards texts through an active process of asking question (Benoit, 2007).Everyone can read but not everyone can be critical in reading so learning to be critical in reading is very important for students. Critical reading is high level of comprehension skills, because a critical reader is able to go beyond the literal interpretation of what they read. Students must be able to evaluate critically what they read effectively and efficiently to do their homework. (Diman et al, 2020).

Rosdiana (2015) mentions that critical reading is important to be integrated to help students in understanding the text and develop decoding and vocabulary skills in order to read better for that reason, critical reading can develop the affective aspect which many class lack of it. (zhang, 2007). Critical reading helps to deepen a student's

comprehension of a text, resulting in a positive reading experience. During critical reading, students can determine the main idea and the overall structure of a text (Diman et al, 2020).

Hudson (2007) points that critical reading skills are skills that help students to analyze, synthesize and evaluate what is read. During critical reading skills, teacher makes students see the cause, effect or compare chelation ships the text, or adopting critical stance word the text. Critical reading skills enables students to understand a text and evaluate the arguments in the text. It makes them read between lines to understand effectively and efficiently. (Tasnimi, 2017). Nowadays, readers are not only observers but also participators and interpreters as they are in evolved in complex discussion of the meaning of social texts.

(Grabe&stoller, 2013), (Valley, 2011) and Walker (2007) propose the main steps or strategies of critical reading as follows:

1) The first step: previewing; means gathering much information about the text before reading it. This stage contains skimming and predicting. Skimming is to understand the main idea of a reading text by reading just specific parts of the text.

2) The second stage: Annotating and analyzing: By making notes as acritical reader can read with a pen on his hand to write down notes in the reading text. Also, by analyzing the main idea and supporting ideas in the reading text. The critical reader during analyzing stage should

analyze evidence, sources, author bias, assumptions and source evaluation.

3) The third stage: Reviewing: re-reading the text at least three times to make as much as you can the reader can account the notes and unfamiliar words.

4) The fourth stage: Responding: by summarizing or discussion with others. These activities presents the main ideas of the text briefly by retelling or writing it by readers own words. (Fadhillah, 2017).

Critical readers do not simply look at the words with the intention of filling their memories. They should analyze, interpret, synthesize and digest what they read. They question not only what they read but also what was implied and suggested. Critical readers accept what makes most sense rejecting what is distorted, and false. (Tasnimi, 2017).

The purpose of critical reading is to create judgments about how a text work. During critical reading, students are not only absorbing or understanding, but also interpreting, analyzing and evaluating any text. It should face on the pattern, assumptions, and meaning between words. (Diman et al, 2020). Critical reading skills are wanted to be developed by enhancing information literacy skills that makes students find, organize, use and communicate information in all its various format. So the most important model to develop information literacy and critical reading skills is the (Compare, Diagnose & Operate) Strategy.

1.3 (Compare, Diagnose & Operate) Strategy

R.khoii, (2011) stated that the students certainly have some problems with a text. The difficulties like in describing the ideas in writing, and they are not able to write efficiently because of poor vocabulary and wrong word choices. They are also still confused about dealing with complex English vocabulary. Chen, (2002) mentions four major problems that faced by EFL students in writing, as follows:

1. Students have difficulties with vocabulary because of their lack of vocabulary, so it is difficult for them to write their ideas correctly.

   2. Students find the challenges to produce and expand ideas become supporting details in writing paragraphs.

3. Students have difficulties in grammatical structure, including mistakes in word forms, parts of speech, and subject-verb agreement.

From the explanation above, it turns out that the students have problems in pouring and developing ideas. The reason why the students often get difficulties in writing is not only from them. But it can also be caused by the teacher who taught the students. The stereotypical pattern of teaching writing is that the teacher only provides topics, and students write according to the topic given (Lies Amin Lestari, 2008). Teaching writing is more than just a traditional activity in which the teacher asks the students to write according to a topic that the teacher requested. The

students need a strategy to help them to overcome their problems in writing.

Linda Allal, et al, (2012) mentioned that after writing, writers sometimes they reread their writing and say," this is not what I meant." The point is that the writers want to have better writing; they cannot stop in just one step. Revision is the strategy that must be done in this condition. When the writer was revising their text, they do not read what they have written, but they read what they think they wrote. The revision utility is composed of three recursive mental operations that work through self-regulated methods in phases. Each stage is named by Scardamalia and Bereiter as Compare, Diagnose, and Operate, and the general strategy is called CDO. They started to develop a CDO strategy in 1981.

Scardamalia and Bereiter (1985) expanded a framework that they called "Compare, Diagnose, Operate (CDO)" to assist students in organizing their writing revision process. CDO is a revision strategy for writing. The CDO beneficial as a right way is by complying its three main phases; comparing writing with a common concept, diagnosing the distinction concept writing, and operating the new one as revision.

 CDO strategy has some procedures to do; they are:

1. Compare

 In this stage, the teacher will ask the students to read an article or listen to an audio about a topic. Then, the teacher will brainstorm with the

students to help them compare their ideas to each other and to the article they read or the audio they listened to.

2. Diagnose

The teacher will ask the students to justify their reasons in terms of the evidences. The students will diagnose their ideas and present evidences to prove them.

3. Operate

The teacher will ask the students to write down their ideas, opinions and evidences in a form of an essay .The students **operate** on writing this essay.

Thus the procedures of CDO strategy are compare the ideas to each other, diagnose the ideas in terms of evidences, and operate or write the essay that contains ideas, opinions and evidences.

The progress of students' writing and their revising skills was based on several meaningful changes. The influences of teaching the revising strategy were assessed using a multiple probe at baseline (Harriet and Wolfgang, 2009).

Waters and Schneider (2009) noted that there are three advantages of the (CDO) strategy like:

1. Improving the number of time students do to writing.

   2. The number of substantive changes that were made to their writing compositions.

It illustrated that (CDO) strategy can make the students enjoy writing and engaging them to spend much time in writing. Students can make their pieces of writing and establish their opinions, ideas and evidences.

Sherman (2011) described some advantages for students to use CDO strategy, such as:

1. Students have to consider the relation of the overall purpose of the paper, repair their sentences, then decide on and execute any necessary changes.

2. CDO procedure has created a significant difference in the number and the quality of revisions in students' essay.

3. Students also indicated that the CDO strategy made revising easier for them.

According to Water and Schneider (2009), 10 of 12 participants (85%) Showed that the use of CDO is it made the process of revising easier and relieved their skills to improve their essays. Furthermore, there was an enhancement in the number of non-surface (i.e., a word and phrase changes) that generated in textual improvement.

Golley (2015) argues that CDO strategy will aid the students to see where they entail making revisions through their revision process. It focuses on revising the content of the piece and on editing the mechanics of the piece. With this strategy, the students switch their writing in pairs, and they revise each other's work.

1.4 The relationship between the CDO and EFL critical reading skills

Alexandre and Jetton (2003) mention that improving reading is a critical issue because academic achievement and learning are dependent on the s' ability to read and comprehend at high levels of using technological skills. Coiro (2002) adds that reading community have seen the Internet and other technological media as an important thing to learn and the CDO strategy has the ability to improve the Internet skills for the reading community by following CDO Strategy stages.

Henry (2006) approves that preparing students to read critically for information in the 21st century means developing new skills and strategies. Teacher should teach students how to integrate search skills with curriculum to develop literacy skills that reading requires.

Students must become proficient in the new literacies of ICT because new technologies are brought into the classroom (Berkowitz, 2002). Leu et al.(2004) define these literacies in the following fashion: The new literacies of the Internet and other Information Communication Technologies (ICTs) include the skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives. These new literacies allow us to use the Internet and other ICTs to identify important questions, locate information, critically evaluate the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others and these skills are the same skills of the CDO Strategy. International Reading Association, 2001) and Henry(2006) mention that critical reading specially on the Internet requires locating information, evaluating information critically, communicating answers and identifying the most important questions. These are the most important functions of critical reading.

From the above, there is a great connection between critical reading skills and the CDO Strategy. This is indicated in the study of Birader (2017), Mall (2011), and Eisenberg (2010) who show that location

and access is an important stage of the CDO strategy that students can recognize multiple sources and know how to manipulate the various traditional-automated indexes to find the locations of information. Also, students can evaluate their assignments by judging the effectiveness and the efficiency of the information.

If anyone does not have the ability to locate information in an effective and strategic manner, then all other reading activities are impeded, as the user cannot get beyond this point. Therefore, the ability to search and locate information can be described as a gatekeeper skill in online reading. Students who can quickly read and locate information are then able to use that information for learning and move on to other elements of reading on the Internet; students who cannot are unable to move beyond the search process. Because searching for and locating information are such critical parts of information use on the Internet, they demand our attention (Henry, 2006)

To develop critical reading skills, students should enhance their search skills on the Internet. Teachers can start the school year by helping their students learn about Internet searching, the skills and strategies they need to become efficient searchers. One way to start is to develop a common searching

metalanguage, knowledge of the searching process, and a basic understanding of the many search engines available to access information (Cummins, 2001).The researcher of the present research suggests using the CDO strategy to develop critical reading skills.

The researcher suggests using every stage of The CDO strategy to develop critical reading skills separately. The CDO strategy stages reflects EFL critical reading steps. The first step of critical reading skills is previewing which can be developed through the first stage of CDO Strategy. (Grabe and stoller, 2013) mention that previewing stage means gathering much information about the reading text before reading it and asking oneself some questions to answer it later in the other stages by using skimming and scanning strategies. That is the same role of the first stage of the CDO strategy "Compare" which means defining the task and identifying the information needed. It means that the students read different articles about a topic and then compare it with his own ideas.

The second step of critical reading is annotating and analyzing which depend on information seeking strategies and location and access stages. In the second step, students can seek the main ideas of the reading text, unfamiliar words, key words; determine the sources of the text and analyze evidence, assumptions, sources and author's bias and this step

can be developed by the second step of the CDO strategy (diagnose). In which the students will diagnose their ideas and present evidences to prove them by providing articles.

The third step of the critical reading skills is reviewing or re-reading the text which depends on the synthesis and use of information stages. Students read the text several times to the final meaning of the text and write down the meaning of unfamiliar words, purpose of the text and author's bias. And finally the fourth step of critical reading is responding that depends on the third stage of the CDO strategy (operate) by summarizing the reading text, judging the effectiveness and efficiency of the reading text information and discussing the text with others. At the fourth step students can present the main idea of the text briefly by retelling or writing it by readers' own words.

1.5 Research Problem

The problem of this study was concerned with the first year secondary stage students' weakness in the required critical reading skills. The existence of the problem of the present study was emphasized through a number of steps as follows:

First: Observation:

In the light of the researcher's experience as English Instructor, it is clearly shown that the majority of the high school students lacked the required EFL critical reading skills which lead them to successful communication in English. Despite the importance of the EFL critical reading skills in the secondary stage, students are not given due attention. So, students are not able to apply these skills and use it properly.

Second: Reviewing the Objectives of the Ministry of Education Directives:

According to ministry of education directives for the academic year 2022/2023, the following critical reading skills were considered to be necessary for the first year secondary stage students. They should:

1. Express opinions and ideas.
2. Ask for new sources of information.
3. Explain the advantages and disadvantages of a topic.
4. Rely on guessing skill.
5. Give explanations and develop the skill of interpretation and deduction.

Third: Unstructured Interview:

The researcher wanted to make sure of the weakness of the 1st grade secondary school students in the critical reading skills, so there was an unstructured interview conducted with 10 secondary school teachers of English. The researcher asked them the following questions:

1. What is the importance of developing the critical reading skills for the 1st grade secondary school students?
2. What are the teaching strategies that can be used to develop the critical reading skills for the secondary school students?
3. What are the problems that the students may face in their critical reading process?

The results of the interview showed that eight of the teachers want to develop their students' critical reading skills, but they don't know how, they are not aware with such strategies that can develop their students' critical reading skills.

Also, it was shown in the teachers' answers that the students are weak in the critical reading skills. Most of the secondary school students have problems in expressing their own ideas, present their evidences or even draw their conclusions.

Forth: Pilot Study:

In order to confirm the information derived from the interviews, the researcher conducted a pilot study by administering a critical reading skills test to a group of a 1st grade secondary school students (30 students) in the first term of the school year 2022-2023.The researcher chose 1st grade because they should have gained some critical reading skills such as using suitable vocabulary, punctuation and sentence construction. The test aimed at identifying the points of weakness in the students' critical reading.

Results revealed that 60% of the students got less than the average score and there was a remarkable weakness in the following skills:

- Expressing their ideas.
- Presenting their opinions.
- Clarifying their evidences.
- Justifying their reasons.
- Presenting their sentences in logical and orderly way.
- Drawing their conclusions.

Fifth: Previous Studies:

The existence of the problem of the study was further supported by reviewing previous related studies. Previous studies on critical reading in Egyptian schools such as the studies of Hendawi

(2020), Mouhammed (2020), Hashem & Khalil (2019), Ibrahim (2018), Aksu (2015) revealed the persistence of actual problem in teaching and learning critical reading for both teachers and students.

Based on the above mentioned points, the present study attempted to investigate the effectiveness of the CDO strategy on developing English critical reading skills for 1st grade secondary school students.

1.6 Statement of the Problem

The problem of this study was concerned with 1st grade secondary school students' weakness in the required critical reading skills. Thus, the present study attempted to develop the required critical reading skills for the 1st grade secondary school students throughout the use of the CDO strategy.

1.7 Aim of the Research

The present study aimed at developing English critical reading skills for the 1st grade secondary school students via the use of the CDO strategy.

1.8 Questions of the Research

To tackle this problem, the present study attempted to answer the following main question:

What is the effectiveness of the CDO strategy on developing the required English critical reading skills for 1st grade secondary school students?

From this question the following sub-questions emerged:

- What are the most necessary EFL critical reading skills for the 1st grade secondary school students?
- What is the proposed framework for using the CDO strategy to develop the necessary EFL critical reading skills for the 1st grade secondary school students?
- How far is the CDO strategy effective in developing the overall necessary EFL critical reading skills of the 1st grade secondary school students?
- How far is the CDO strategy effective in developing each of the necessary EFL critical reading skills of the 1st grade secondary school students?

1.9 Hypotheses of the Research

The following hypotheses were formulated:

1. There is a statistically significant difference between the mean scores of the experimental group students and those of the control group students on the post administration of the critical reading test as a whole in favor of the experimental group.

2. There is a statistically significant difference between the mean scores of the experimental group students on the pre- and post-administrations of the overall critical reading test in favor of the post administration.

3. The CDO strategy is effective in developing the critical reading skills of the 1st grade secondary school students.

4. The CDO strategy has a large effect size in developing each EFL critical reading skills for the 1st grade secondary school students.

1.10 Significance of the Research

Significance of the present study laid in the following:

1. Directing the 1st grade secondary school students' attention towards the importance of developing the required English critical reading skills, and expressing their opinion.

2. Directing the attention of the curriculum planners to use this strategy to improve the students' English critical reading skills.

3. Shedding the light on the importance of using the CDO strategy on developing English critical reading skills for 1st grade secondary school students.

4. Directing EFL teacher's attention towards the importance of developing the required critical reading skills and increasing students' role in the educational process and acquiring critical reading skills.

5. Paving the way for further research on how to use the CDO strategy to develop other EFL language skills in different educational stages.

1.11 Delimitations of the Research

The study was delimited to the following:
1) The required critical reading skills for the 1st grade secondary school students.
2) A group of 1st grade secondary school students was randomly chosen from 15 May Girls' Secondary Governmental School in Cairo. The sample was divided into two classes (34 students each) assigned as the experimental and the control group. The researcher chose 1st grade secondary school students as they need to develop some important critical reading skills.
3) Reformulating and organizing the content of three units from the academic book "New Hello" for the 1st grade secondary school students through using the compare, diagnose, and operate (CDO) strategy.
4) The first semester of the academic year 2022/2023 for the 1st grade secondary school students.

1.12 Definition of Terms

1.12.1 Compare, Diagnose, and Operate (CDO) Strategy:

Scardamalia and Bereiter (1985) expanded a framework that they called "Compare, Diagnose, Operate (CDO)" to assist students in organizing their writing revision process. CDO is a revision strategy for writing. The CDO beneficial as a right way is by complying its three main phases; comparing writing with a common concept, diagnosing the distinction concept writing, and operating the new one as revision.

CDO Strategy in the present study were defined operationally as a general academic plan that aims at developing critical writing skills for the 1st grade secondary school students. In this strategy students compare the ideas to each other, diagnose the ideas in terms of evidences, and operate or write the essay that contains ideas, opinions and evidences.

1.12.2 Critical Reading Skills

Tasnimi(2017) defines critical reading as an approach which persuades readers not simply to pass their eyes over the words, but to evaluate what they read in order to find the strengths and weaknesses of the argument. Such a perspective toward reading helps readers accept only what makes sense and reject what is distorted.

Abdel Kader et al (2014) indicates that Critical reading skills as skills that help students to analyze, synthesize, and evaluate what is read. However, in order for students to acquire these skills, they need to be exposed and taught how to be critical readers.

Critical reading in the present research was operationally defined as a highest level of reading behavior that learn students to analyze, evaluate, interpret and judge.

1.13 Method of the Research
1.13.1 Design of the Research

The research design that used in this research was the two-group (experimental and control) pre-posttest quasi-experimental design. The two groups were a sample of 70 (36 as control and 34 as experimental) 1st secondary school students which were randomly selected.

1.13.2 Variables of the Research

1) Independent variable: the CDO strategy.
2) Dependent Variable: this referred to the development in the experimental group students' critical reading skills.

1.13.3 Participants of the Research

The participants were randomly selected from the first grade of a governorate secondary school (15 May Girls' Secondary Governmental School in Cairo in the academic year 2022 _ 2023). Two intact classes were assigned at random to be an experimental group and a control group. All the participants were learning English as their first

foreign language for 9 years. They were exposed to the same content and regular instruction during the same time before the present study's experiment.

The reason for selecting this group was that it is considered as a turning point in EFL language learning, which is necessary for developing language skills in the secondary stage. It is the stage of awareness of how to use critical reading skills to develop their reading, as any fault in the critical reading skills causes reading and comprehension problems.

1.14 Instrumentation
1.14.1 The EFL critical reading skills checklist

Before designing the instruments of the study, the required critical reading skills should have been determined. So, the researchers of the study had set the English Critical reading skills checklist for the required skills for the 1st secondary school students. The items of the checklist were suggested by some related studies and literature previously mentioned, such as Rohmah(2018) and Tasnimi(2014), and Nazir(2007)

1.14.1.1 Aim of the EFL Critical Reading Checklist:

The EFL Critical reading skills checklist, prepared by the researcher of the present study, aimed at identifying English Critical reading skills required for 1st secondary school students.

1.14.1.2 Construction of the checklist:

The checklist consists of the following skills:
1-Distinguishing between facts and opinions.
2-Identifying author's purpose.
3-Making inferences about characters.
4-Making evaluation and judgement.
5-Analysing the reading text.

1.14.1.3 Validity of the checklist

The first version of the checklist was submitted to seven Jury members specialized in the field of curriculum and EFL instruction to determine to what extent these skills are appropriate and inquired for first year secondary schools students. The jury members approved the checklist and maintained that it is appropriate for first year secondary schools students after doing the following modifications:
1) Reducing the handled number of the skills to go well with the determined time of the experiment.
2) Integrating some skills.
3) Replacing some of the sub skills with others.
And the modifications of the checklist were taken into consideration.

1.14.2 EFL Critical Reading Skills Test

1.14.2.1 Test Purpose

The test aimed at measure secondary school students' Critical reading skills.

1.14.2.2 Test Description

The critical reading test included two reading text to answer critical questions about them.

1.14.2.3 Piloting the test

Thirty students were selected for the pilot administration. These students were randomly selected from first year secondary stage in Mazgona secondary school, Badrashin governorate, students of the piloting test didn't belong to the group of the study. They were excluded from the present experiment.

1.14.2.4 Test Timing

Timing of the EFL critical reading test was estimated by calculating the time taken by all the students (30) used for piloting the test, divided by the number of the same students. This formal shows the time allotted for the test that was counted as following:

Test time = summation of the time taken by all students / the number of the students

$$= 1200/30$$
$$= 40.minutes$$

So, it was estimated that (40) minutes would be suitable to complete the Critical reading tasks of the test.

1.14.2.5 Test Instruction

Teacher asked students to write their names. The test was administrated for the experimental and control groups simultaneously.

1.14.2.6 Test Reliability

The reliability of the test was calculated throughout the Cronbach's Alpha as the researcher used this method to calculate the reliability of the test by applying it to a sample of (30) student. The Cronbach's Alpha coefficients for the value of the Cronbach's Alpha for the overall test was (0.817) .This value indicates that the test has an appropriate degree of stability, and this means that the values are appropriate to be reliable and indicate the validity of the test for application.

1.14.2.7 Test Validity

In this research, the researcher relied on the validity of the jury members to emphasize the validity of the content, also the internal consistency. The jury member were asked to read the test and validate it according to these criteria;
1-The appropriateness of the test to the measured critical reading skills and students' level.
2-The suitability of its content to the students 'level.
3-The appropriateness of test items as a whole and as specified for each critical reading skill to the students' level. By following the jury members' recommendations, the test was modified into its final form.

1.14.2.8 Pre-Testing

The experimental and control groups were assessed by the same test before the administration of the suggested program based on the CDO strategy to determine students' level at EFL critical reading skills.

1.14.2.9 Post-Testing

The same test was administered to examine the effectiveness of the suggested program based on the CDO strategy in developing the students' EFL critical reading skills.

1.14.3 Sessions based on the CDO strategy
Sessions aims and description

- The aim of the suggested frame work is to develop the required Critical reading skills for the first year secondary school students by using CDO strategy.

- The suggested units were applied on the students of the experimental group in the first term of the scholastic year (2022/2023).

- The suggested framework includes: the students handouts: the booklet and the teacher's guide. The teacher's guide represents a resource for the researcher (as a teacher) and for other teachers about how to use CDO strategy to improve EFL critical reading skills. It contained detailed step – by – step notes on applying CDO strategy effectively while proceeding the tasks.

- The handouts contain the content material of the introductory and the instructional sessions. The handouts are distributed to the students to work on to develop their critical reading skills through CDO strategy. The students' handouts are divided into two parts: The Introductory session and the Instructional sessions.

1.15 Procedures of the Experiment

1) Choosing a random sample of 70 1st secondary school students and dividing it into two groups: a control group of 36 students and an experimental group of 34 students.

2) Pre-administering the writing skills test to both experimental and control groups to ensure their equivalence before the experiment so as any progress in the experimental groups' performance would be due to using the CDO strategy.

3) Using the CDO strategy with the experimental group and the regular instruction with the control group in teaching EFL critical reading skills.

4) Post-administering the critical reading skills test to both experimental and control groups.

5) Collecting and analyzing the obtained data.

6) Presenting and discussing the results of the study.

7) Introducing recommendations and suggestions for further research

1.16 Data analysis

Data analysis was conducted using the statistical package for social science (SPSS). Both descriptive statistics (means and standard deviations) and t-test were used in data analysis. The t-test was used to calculate the differences between the mean scores of the control group and the experimental group in the two main skills with their sub skills.

1.17 Results

The results are presented in terms of the research hypotheses as following:

1.18 Verifying the Hypothesis of the Research

First hypothesis of the research 1.18.1 Verifying

The first hypothesis stated that "There **is a statistically significant difference between the mean scores of the experimental and control groups on the post administration of the Critical Reading Skills test, in favor of the experimental group** ".

To test the validity of this hypothesis, the (t) test was employed to two independent groups the experimental students group and the control students group in post-test to each skill of the Critical reading Skills test, and Total score of skills. The results are shown in the following table (1):

Table (1)

Variables	Groups	N	Mean	Std. Deviation	df	T	Sig
Total score of Test	Experimental Group	34	30.65	3.757	68	18.645	0.000
	Control Group	36	15.81	2.867	68	18.645	0.000

This means accepting the first hypothesis of research, and this indicates that there is difference at the level of (0.05) between the experimental and control group in the post- test of the Critical reading Skills test in favor of experimental group.

1.18.2 Verifying the second hypothesis of the research

The second hypothesis stated that "**There is a statistically significant difference between the mean scores of the experimental group in the pre administration and post administration of the Critical Reading Skills test in favor of the post administration**".

To test the validity of this hypothesis, the (t) test was employed to two paired groups in pre and post-test of the Critical Reading Skills for the experimental students group. The results are shown in the following table (2):

Table (2)

Variable	Test	N	Mean	Mean paired differences	Std. Deviation	Std. Deviation paired differences	Df	t	Sig
Total score of Test	Pre administration	4	13.44	17.21	2.755	3.033	3	33.079	0.000
	Post administration	4	30.65		3.757				

The previous table (2) shows the following:

The value of Eta-square (η^2) for **Total score of Critical Writing Skills test** for experimental group was (0.889). This means that (88.9%) of variance in the level of **Total score of Critical Writing Skills test** is due to use (Compare, Diagnose & Operate) Strategy, The value of (d) equal (5.673) means the effect size of using (Compare, Diagnose & Operate) Strategy for **Total score of Critical Writing Skills test** for experimental group is large.

1.18.3 Verifying the third hypothesis of the research

The third hypothesis Stated that " **There is an effectiveness of (Compare, Diagnose & Operate) Strategy in Developing of English Critical reading skills for first year secondary students** ".

To test the validity of this hypothesis, the researcher used Blake's modified ratio and its significance was applied

for Total Skills of the English Critical reading skills test. The results were as shown in the following table (3):

Table (3)

Variable	final grade	pre average	post average	ratio of Blake	significance
Total score of Test	35	13.44	30.65	1.290	acceptable

:It is clear from the previous table (3) that
(Compare, Diagnose & Operate) Strategy is effectiveness in developing **Total score of the Critical reading skills test**, as the earning rate reached (1.290), which is considered an acceptable percentage; This indicates that the use of (Compare, Diagnose & Operate) Strategy is effective in developing **Total score of the Critical reading skills test** for first year secondary Students' (the research sample).

1.19 Discussion of the Results

The statistical analysis presented in this chapter resulted in the verification of the hypotheses of the study and answering its questions. It also accomplished the study's main aim, which was developing the required critical reading skills for the 1st grade secondary school students throughout the use of the (CDO) strategy.

The comparison between the experimental group and the control group showed the improvement achieved by the experimental group in the required critical reading skills over the control group in the post- critical reading skills test. The researcher attributed the experimental group students' improvement in the required critical reading skills to the following factors:

1. Using the (CDO) strategy was highly interesting and motivating for the students. It stimulated students' active participation. Students were highly motivated to carry out all of the activities and tasks.

2. Using the (CDO) strategy tended to generate a climate that was not threatening to students. Students also could overcome their fears of inaccurate pronunciation and engage in learning environment while reducing psychological barriers.

3. The use of formative assessment and summative assessment helped the students confront their own strengths and weaknesses in English language use. Therefore, the students with low ability in critical reading can learn from their classmates, who have higher critical reading ability .So, their critical writing can be improved.

4. Using the (CDO) strategy gave students opportunities for pair learning and group work.

5. Providing positive active and challenging environment while using the (CDO) strategy helped the students participate freely and reduce their anxiety.

6. Using the (CDO) strategy motivated the students to learn, read and assess themselves.

7. The role shifting of the teacher from an evaluator to a mentor and facilitator helped the teacher know the students more and understand their learning problems and needs. It also saved and created a warm atmosphere. It helped and motivated both the teacher and the student to achieve their aims of implementing the modified units.

8. **Using the (CDO) strategy promoted active and creative thinking skill as the students should use their own phrases, sentences or even their own words.**

1.20 Recommendations

In the light of the present study results, the following recommendations are suggested by the researcher as follow:

1) To the educators:

- Attention should be payed to teaching the critical reading skills in English as EFL by applying much time and effort to develop its skills.

- (Compare, diagnose, and operate) strategy should be used in training the teachers.

- The role of the teacher as a guide and facilitator of the learning process should be emphasized.

2) To the teachers:

- The teacher should use (Compare, diagnose, and operate) strategy to encourage the students to enhance their critical reading skills.
- Constructive positive feedback should be used during the learning process to increase the motivation of the learners.
- The teacher must be fully aware of the needed critical reading skills for the students, moreover the students should know that too.

3) To the researchers

- The suggested units in the present study can be used to develop the critical reading skills for students in different.

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