The Role of the Cognitive Research Trust (CORT) Program as a New Instructional Model For Developing Thinking Skills

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Abstract

The present research aims at investigating the role of the CoRT (Cognitive Research Trust) program for the development of thinking skills on the achievement of Iraqi English language learners (ELLs). The researcher adopted the experimental design and used a sample of(60) female students at Al-Maysaloon school/ in Salah Al-deen Governorate during the academic year(2019-2020).The sample is divided into a control group with(30)students and experimental group with(30)students. The two groups are equalized according to certain variables. The students in the experimental group are taught by using CoRT program , whereas, those in the control group are taught by using conventional method. The researcher uses CoRT program post-test which is conducted on the sample at the end of the experimental which is(12)weeks. The obtained results have shown that there are significant differences between experimental and control groups, in favor of the experimental group.

كنموذج تعليمي جديد لتطوير مهارات التفكير (CORT) برنامج البحث المعرفي

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كلية التربية للبنات – جامعة تكريت

الملخص: يهدف البحث الحالي إلى معرفة دور برنامج CoRT (صندوق البحث المعرفي) في تنمية مهارات التفكير في تحصيل متعلمي اللغة الإنجليزية العراقيين. (ELLs) اعتمدت الباحثة التصميم التجريبي واستخدمت عينة قوامها (60) طالبة في مدرسة

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الميسلون / بمحافظة صلاح الدين خلال العام الدراسي (2019-2020) وقسمت العينة إلى مجموعـة ضـابطة مكونـة مـن (30) طالبـة. ومجموعـة تجريبيـة مكونـة مـن (30) طالبـاً وطالبة. يتم معادلة المجموعتين وفقًا لمتغيرات معينة. يتم تدريس الطلاب في المجموعة التجريبيـة باستخدام برنـامج CoR ، بينمـا يتم تدريس الطـلاب فـي المجموعـة الضـابطة باستخدام الطريقة التقليدية. تستخدم الباحثة الاختبار البعدي لبرنامج CoRT والذي يتم إجراؤه علـى العينـة فـي نهايـة التجربـة التـي تبلـغ (12) أسبوعًـا. أظهرت النتائج المتحصل عليهـا وجـود فـروق ذات دلالـة إحصـائية بـين المجمـوعتين التجريبيـة والضـابطة لصـالح المجموعة التجريبية.

<u>**الكلمات الدالة:**</u> برنامج CoRT ، النموذج التعليمي ، التطوير ، مهارات التفكير

Statement of the Problem

This research seeks to investigate the role of the CoRT program as a new instructional model on the achievement of the Iraqi ELLs.

There is a dangerous and an important problem among students in secondary schools in Iraq. Most of the complaints raised in the local society pertain to the very low achievement of English language which is in need to be improved.

Al Khairy (2013:83) supposed that there is one main reason behind the low English language proficiency of Arabic speaking students which is poor teaching methods and insufficient exposure to the target language. The researcher proposed this suggested new instructional model (CoRT) for treating this weakness. Providing students instruction in thinking skills is important for several reasons: These skills are necessary for people to have in our rapidly changing, technologically oriented world. Students, in general, do not have well developed thinking skills. Although many people once believed that we are born either with or without creative and critical thinking abilities, research has shown that these skills are teachable and learnable. Instruction in thinking skills promotes intellectual growth and fosters academic achievement gains.

Aims of the Research

The present research aims at:
1. Finding out the role of the CoRT program on the achievement of Iraqi ELLs.
2. Assesses the effect of the second part of the CoRT program (organization) for teaching thinking.

Hypotheses of the Research

The following null hypotheses are put forward in order to be verified:
1. There are no statistically significant effect of the CoRT program between the mean scores of the experimental group and that of the control group in the pre-test.
2. There are no statistically significant differences in the mean scores of the experimental group and that of the control group in the post-test.
3. There are no statistically significant differences in the mean scores of students achievement of the experimental group in the pre and post-tests.

Limits of the Research

The present research is limited to:

1.The use of the second part of the CoRT program (organization) and its effect on thinking skills.

2.Iarqi EFL second intermediate school students at Al-Maysaloon School during the academic year(2019-2020).

Value of the Research

The value of the present research can be stated as following:

1-It helps EFL curricula designers and EFL methodologists develop teaching school subjects.

2- It helps teachers by facilitating their role as well as students by helping them absorb the structures and rules of English quite easily and smoothly.

3- Finally it motivates students to employ the four skills (writing, reading, speaking and listening) in their daily lessons.

Definition of the Basic Terms

-CoRT Program

It is an abbreviation for cognitive research trust .A program is designed to equip application of different thinking skills. It is designed to teach the thinking tools of De Bono, which consists of six parts in ten lessons. (McGregor,2007:66).

- Instructional Model

Models represent the broadest level of instructional practices and present a philosophical orientation to instruction. Models are used to select and to structure teaching strategies, methods, skills, and student activities for a particular instructional emphasis.

(webpages.uidaho.edu/cte492/Modules/M3/Methods-Strategies.htm)

-Developing

Growing or becoming more advanced, or can mean to cause something to grow, or to build improvements on land.

(yourdictionary.com/develop).

-Thinking Skills

Paul (1993) defines thinking skills as "the ability to think enables human beings to make sense of experiences, solve problems, make decisions, ask questions, make plans, and organize information. It is this ability that enables us to manage our thinking effectively to comprehend, reason and test hypothesis as scientific thinkers ".

Plan of the Research

The aims of this research are supposed to be achieved and its hypotheses are to be verified through the following steps:

1.Selecting a sample of EFL at second intermediate school .

2.Constructing a test about reading and writing skills for developing thinking.

3.Applying the test to the sample.

4.Presenting conclusions as well as recommendations are given in terms of the obtained results.

Theoretical Background and Related Previous Studies

De Bono's CoRT Programme

Teachers of English as a foreign language have always tried to find new approaches or strategies that introduce practical uses of EFL in the classroom to replace the conventional methods. Traditionally, teachers serve as the center of knowledge, directing the learning process and

controlling students' access to information

where the focus is almost exclusively on what is learnt. And students are viewed as 'empty' vessels and learning is viewed as an additive process. Lecturing suffers

from a major defect it means that a one-way communication in which students sit, listen and take notes.

But students learn best when they take an active role, when they discuss what they are reading, practice what they are learning, and apply concepts and ideas. (Davis, 2009:134).

The conventional "chalk and talk" method of

One of these new methods is teaching through CoRT Program.

CoRT program was derived from the Institution of publishing and developing Cognitive Research Trust by De Bono. It is one of the most important programs that implemented for teaching thinking in many countries. (Dingli,2001:44).

De Bono is well known for his work on lateral thinking , he designed this programme in the 1960s to teach thinking skills in schools. Believes that thinking is a skill that can be improved by training and practice and has devised the CoRT materials to do exactly that. (MCGregor.2007:33).

The aim of the CoRT programme is to introduce students to thinking " tools" and then improve the use of these skills through repeated practice. His aim through the CoRT and other lateral thinking approaches is to teach students how to develop their thinking skills through regular practice of different types of thinking.(ibid)

CoRT is the name given to a programme of 60 thinking tools designed by Dr Edward de Bono and a group of associates while a Rhodes scholar at Cambridge university in the late 1960s'. The research group was known as The Cognitive Research Trust, the derivation of CoRT programme continues to infuse curricula internationally forty years later.(graemeallan.wordpress.com/2010/04/21/what-is-cort)

The CoRT program was designed by Edward de Bono and was first published in 1973. The name CoRT stands for Cognitive Research Trust which de Bono established at Cambridge, England
(Hmeadat,2016:74).

De Bono (1998) described the six parts of CoRT program. Each part contains ten lessons. At the end of each part it should be achieved their purposes. Each part handles one aspects of thinking.

-CoRT (1) breadth
-CoRT (2)organization
-CoRT (3) interaction
-CoRT (4) creativity
-CoRT (5)information
-CoRT (6) action

Freely (2000) pointed out that " CoRT program is an educational activity that provides students with opportunities to

develop proficiency in writing, thinking, speaking, reading, and listening. The lessons of CoRT involves six sections or

CoRTs. These six CoRTs involved 10 lessons each. The purpose of these thinking lessons is to develop thinking as a skill that can be applied to any situation (De Bono, 1998: 71). This research is confined to only one CoRT which is the organization.

CoRT2:Organization

The role of this part is to help students organize their thoughts since the first five lessons help students to identify the problem landmarks, and the last five help them to learn how to develop strategies for solutions. At this level, the issues based on the following words used: learn, analyze, compare, select, find other ways, start, organize, focus, conclude. (Alshurman,2017:74).

The CoRT Tools

CoRT thinking programme is a package of 60 lessons for the teaching for the teaching of constructive thinking in schools. It is one of the most important tasks that help to produce individuals who can think for themselves. It represents the most comprehensive approach to the teaching of thinking. It is used by children and adults for different ability levels. The thinking skills has a positive effect in improving their academic records and give them real life skills.

(edwarddebono foundation.com/creative-Thinking-Techniques/ CoRT. Tool.html)

CoRT for Teachers & Students

CoRT that teaches students is consists of (60) lesson courses includes all the abilities that apply students intelligence to any academic, personal or social situation. We can train teachers on the CoRT tools, so that they can introduce creative thinking and critical thinking skills in the classroom.(ibid)

Table (1)The CoRT Tools

Breadth	Helps students broaden perception- as fundamental to thinking as vocabulary into reading.
Organization	Shows students how to organize their thinking.
Interaction	Helps students observe the thinking involved in arguments, how a point of view is presented or defended and the value and types of evidence.
Creativity	Students find out how to change concepts and patterns for great results in design thinking.
Information & Feeling	Include questions such as: -Ask what information do we have? -What do we need? -How can we get it? -What values and feelings can we apply to the information?
Action	Introduce visual symbols to direct CoRT6 uses a student instead of work-cards.

(ibid)

Lessons of Organization

There are ten lessons in CoRT2, the first five lessons deal with common thinking operations.The next five lessons deal with overall organization of thinking that make students use it in deliberate and productive manner.

The beginning of the five lessons focus on the subjects of deliberate attention to make students use them in an organized manner. Asking a question and looking for answer to the question.

(CoRT2:ORGANIZATION/CoRT cortthinking.com/cort/2).

Tools of Organization

1-Recognize

It is used to identify a situation and made it easier to understand.

2-Analyse

It is divided up a situation to think about it according to two types of analysis.

3-Compare

The use of similarity and difference in order to understand a situation.

4-Select

The effort is to find something that fulfill the requirements.

5-Find other ways

The looking at things by finding alternative ways.

6-Start

What is the first thing to do ? We think about what to start with .

7-Organise

The organization the way of a situation is to be tackled.

8-Focus

Looking at a situational aspects of a situation , especially what aspect that considered at this moment.

9-Consolidate

Knowing the final thing that has been achieved, and what has been left out and what has been done to be clear.

10-Conclude

We Know that there is no definite conclusion but we want to arrive at a definite conclusion.

(Ibid)

Benefits of the CoRT tools

1-People can learn to think and Judge for themselves.

2-Develop a greater understanding and appreciation of your own potential.

3-Become more proactive and constructive.

4-provides for border thinking and a more comprehensive view point or decision.

(edwarddebono foundation.com/creative-Thinking-Techniques/ CoRT. Tool.html)

Programme Design

The CoRT programme is designed to equip students with various tools or techniques that can support application of different thinking skills. Each tool is used in different way for a different purpose. The skilled teacher knows when to use them to achieve the desired outcome(s). The CoRT provides teachers with a guide that includes descriptions of the tools to be taught, a model lesson sequence , how to teach thinking , problems for the students to work on to practice the use of these techniques and test materials. (ibid)

Content

There are 60 lessons in the CoRT programme. The materials are grouped into six clusters: CoRT1,2,3,4,5 and 6;each of which contains ten lessons (each can last between 35 minutes to an hour, depending on timetable constraints). The themes of the thinking skills involved in the six CoRT programmes include breadth, organization, interaction, creativity, information and feelings and action.

The Nature of General Thinking Skills Programme

Table(2) The Themes for the CoRT Lesson

CoRT Lesson	Theme
Breadth	The broaden perception so that in any thinking situation the students see beyond the obvious, immediate and egocentric.
Organization	Basic thinking operations and their organization for use, ie: when to use recognize- analyze- compare- select- find other ways- start- organize- focus- consolidate and conclude.
Interaction	Intended to be interactive , constructive argument. Not about critically finding fault. Emphasis on winning an argument to bring about an aim . Includes: examining both sides(EBS); the type value and structure of evidence, agreement, disagreement, irrelevance (ADI);being right and being wrong; outcomes.
Creativity	To develop effective new ideas and engender fun.

	Commonly referred to as lateral thinking by de Bono.
Information	The lessons are concerned with practical information , eliciting it and assessing it includes information- questions- clues-contradiction- guessing- belief- ready-mades emotions-values-simplification and clarification.
Action	The purpose of thinking is to end up with some action .The thinking in this series of lessons deliberately contrasts with that of a contemplative nature.

(Ibid)

The Model Lesson Sequence

- Introduce and describe the thinking tool and explain simply what it does.
- The teacher models the use of the tool. He/ She openly explicates application of the tool for a specified task (given in teacher guide). Individual student responses should be sought.
- The student work in groups of four, five or six. They are given several specific practice items that reiterate how to use the tool in different problem situations. The teacher is given some example suggestions in the guide that the students are challenged to work out.
- Once the students have practiced using the tool and made suggestions and the teacher has guided them to the target points, the process involved in using the tool is explicated.
- The principles of using the tool are then described by the teacher.
- Students are then given projects to work on using the tool.
- Feedback is gathered from groups regarding their use of the thinking tool for their projects.

The lesson are designed to be used over a single period of about 35 minutes. The students are provided with notes that offer support to explain the tool and the projects they should think about.

Students feedback or outcomes can take several forms:

1-In turn group output
2-Designated group output
3-Individual within group
4-Individual output
5-Written output (Ibid).

Thinking Skills

Thinking is a mental process in which sorting and organizing of information takes place. It is a not a method that can be learned but is a process of the mind. It is an ability to consider various descriptions of problem and situations. Thinking includes different perspectives of others to frame ideas. Thinking aspect of the mind considers individual assumptions and past experiences to expand perspectives by continual questioning.

Alvino(1990 :50) in his "Glossary of Thinking-Skills Terms," offers a set of definitions which are widely— though not universally—accepted by theorists and program developers. For purposes of the present report, these definitions are applicable. They include:

1-Bloom's Taxonomy

Popular instructional model developed by the prominent educator Benjamin Bloom. It categorizes thinking skills from the concrete to the abstract, knowledge, comprehension, application, analysis, synthesis, evaluation. The last three are considered higher order skills.

- Cognition2
 The mental operations involved in thinking; the biological/neurological processes of the brain that facilitate thought.

3-Creative Thinking
A novel way of seeing or doing things that is characterized by four components—fluency (generating many ideas), flexibility (shifting perspective easily), originality (conceiving of something new), and elaboration (building on other ideas).

Critical Thinking 4-
The process of determining the authenticity, accuracy, or value of something; characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence. Also called "logical" thinking and "analytical" thinking.

5-Infusion
 Integrating thinking skills instruction into the regular curriculum; infused programs are commonly contrasted to separate programs, which teach thinking skills as a curriculum in itself.

6- Meta cognition
 The process of planning, assessing, and monitoring one's own thinking; the pinnacle of mental functioning.

Thinking Skills-7
 The set of basic and advanced skills and sub skills that govern a person's mental processes. These skills consist of knowledge, dispositions, and cognitive and meta cognitive operations.

8-Transfer
 The ability to apply thinking skills taught separately to any subject .

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Various Instructional Approaches Enhance Thinking Skills
   In addition to instruction in specific mental operations, research supports the use of several teaching practices as an effective in fostering the development of thinking skills, including:

 Redirection/Probing Reinforcement
Known to increase students' content knowledge, these techniques also enhance the development of critical and creative thinking skills (Cotton 1988)

 Asking Higher Order Questions
  As an example asking questions to the students related to the materials that the teacher taught them.(Freseman 1990).

Lengthening Wait-Time
the amount of time the teacher is willing to wait for a student to respond after posing a question . These practices are also associated with increases in student engaged time/level of participation (Cotton 1988).

Previous studies
1- Al-Edwan (2011)
   This study aims at exploring the effectiveness of a training program based on CoRT to develop critical thinking in History course for elementary seventh grade students.
   The aim was achieved through using the following Procedures:
 • Preparing the study tools (CoRT program and the test of critical thinking)
 • Referring the study tools to the referees to make sure of their viability and truth

• Applying and implementing the study tools on the piloting for the calculation of stability
• Conducting the pre-test of critical thinking on the subjects of the study • Conducting the study by the researcher. That is the experimental group were taught through CoRT program and the controlling one was taught through a usual method
• Conducting the post-test of critical thinking on the subjects of the study • Doing the statistical analysis and discussing the results.

The study sample consisted of 163 seventh grade male and female students in Amman Second directorate. The subjects were divided into two groups. The experimental group consisted of 80 male and female students, who were taught through the CoRT program and the control group which consisted of 83 students who were taught regularly

Results of this study indicated the following :

The results showed that there are statistical differences in seventh grade student's critical thinking for history course related to teaching methodology and for the way of the training program which is based on CoRT strategies.

2 -Alshurman (2017)

This study aimed to investigate the effects of the first part of the CoRT program for teaching thinking (BREADTH) on the development of communication skills among a sample of students from Al al-Bayt University in Jordan.

The study sample consisted of all the students enrolled in the training session for the first part of the CoRT program held by the Excellence and Innovation Center at Al al-Bayt University during the second semester of 2014/2015 academic year.   The aim was achieved through using the following Procedures:

1. At the beginning of the second semester of the academic year 2014-2015, consultations began between the Director of the Excellence and Innovation Center at the university and a number of specialists, including the researcher on the university students' needs of training sessions; after wards, the training session of the first part (BREADTH) of the CoRT program was announced, w here the targeted group of the training session consisted of all the students at Al al-Bayt University.

2. The researcher was commissioned by the Director of the Excellence and Innovation Center at Al al-Bayt University to hold the training session of the first part (BREADTH) of the CoRT program.

3. The registration was opened for students for two weeks from the date of the announcement of the session through the official website of the university w here the number of the registered participants w as 36 (20 females and 16 males) from different specializations and academic levels at the university.

4. The researcher prepared a training program in the form of sessions and workshops for four weeks (a short time span) by three hours of training every w eek. The reason is to control some variables that could threaten the external honesty of the search (dissemination of results) such as the students' grow the variable, students' experiences, and the number of participants in the training program.

5. The researcher prepared a communication skills scale and extracted the connotations of validity and reliability.

6.   The researcher conducted the pretest for the communication skills of the members of the experimental group a week before applying the experimental program.

7. The researcher implemented the training program on the targeted experimental group for a period of four weeks as planned for the training program.
8. The researcher conducted the post test for the communication skills scale for the members of the experimental group a w eek after applying the experimental program.
9. The arithmetic averages, standard deviations, T test and Wilcoxon W test were extracted through the SPSS to answer the questions of the study.

The results showed that there were statistically significant differences (α=0.05) between the pre and post measurements for members of the experimental group on the communication skills scale in favor of the post measurement.

Methodology

Research Design

In order to achieve the aims of the research, the posttest only control group is adopted as shown in table (1). This design include selecting two groups of students randomly and assigning them to experimental and control group. Administrating the independent variable (CoRT program) only to the experimental group, while the control group was teaching the same material (without using CoRT program)and post testing both groups of students. The type of experimental design, implemented in this research is called the "post-test" only control group design.

Table (1) The Post-test Control Group Design

Pre-test	Independent Variable	Post-test
Experimental Group	With CoRT program	Post-test
Control Group	Without CoRT Program	Post-test

In this design only experimental group, receive the independent variable.

Population and Sample of the Research

The population of the research includes Iraqi EFL second Intermediate school at Al-Maysaloon school, during the academic year 2019-2020. The students are grouped into two sections A and B . Section A and B have been randomly selected to be the experimental and control groups whos total number is (99).Section A consists of (50) students while section B consists of (49) students. (20)students are excluded from section A and (19) students are excluded from section B. Some of those students are repeaters and others are employed for the purpose of the pilot study. Thus, (30) students have been selected from section A as an experimental group and (30) students from section B as a control group. Therefore, the total number of the involved sample is (60) students. , as shown in table (2).

Table (2)The Population and Sample of the Research

Groups	N. of population	No.of Repeaters	No.of Pilot Students	No. of Sample Students
Experimental	50	1	20	30
Control	49	2	19	30
Total	99	3	39	60

The Experimental Design

Experimental design is "the blueprint of the procedures that enable the researcher to test hypotheses by reaching valid conclusions about the relationship between independent and dependent variables."(Best and Khan, 2006:77). The experimental design of this research is entitled "The Post-test-Only, Equivalent-Group Design" which includes the following points:

1-Selecting two groups of students randomly and assigning them to experimental and control groups,

2-Make equalization between the students of the experimental group, and the control group, in some variables.

3-Administrating the independent variable only to the experimental group.

4-Teaching the control group the same instructional material taught to the experimental group, but according to the traditional way.

5-Post-testing the two involved groups of students.

6-Utilize statistical tools in order to analyze the collected data and obtain the final results.

Equivalence of the Groups

After choosing the sample of the two groups and before implementing the experimental , an equivalence has been done depending upon certain information provided by the students or other resources. This includes the age of the involved students, and the educational attainment of their parents.

Construction of the Test

In teaching any language construction there should be a test which follows the teaching process in order to elicit some samples of language learners' oral and written performance as well as listening and reading ability to understand what learner can and cannot do in the language. (Erwin,1991:33).

The test scores were used to equate the experimental and control groups to describe relative skill at this task prior to the application of the teaching methods to measure what the students have gained from the application of the experimental and control teaching methods.(Best& Khan,2006:292). In order to achieve the aim of the test, the researchers have constructed an achievement test based on the subject matter, that is determined at the beginning of this research which is teaching the (Ex) group by CoRT program and the (Co) without using CoRT program. The specific aims of the study as in table of specification (2) is developed in which behavior and the content of the test are specified.

Table(2)

Table of Specification

Question	The content	Behaviors	Scores
Q1	Students are required to think and answer the questions then write a paragraph	Write a paragraph	20
Q2	A-Students are required to fill in the blanks with opposite words	Fill in the blanks with the suitable words	10
	B- Students are required to select the odd one out	Circle the word which its meaning is different	10
Q3	Students are required to write a paragraph	Think about most embarrassing moment	20
Q4	Students are required to number the sentence in the correct order	Rearrange the following sentences	20
Q5	Students are required to match the definitions with their suitable words	Read the definitions and match them with words	20
Total			100

The researcher has designed a written test of five questions, each question scores (20) marks, the total is 100 marks. The test is constructed to measure learners' participation and progress at the end of classroom work and to reflect the objectives of this research. A good test is one which serve a useful purpose in terms of the goals of learning (Namaral,2000:6).

Instructional Material

The reading and writing skill has been chosen to be taught by using CoRT program to develop students' thinking. The material is the book in title "English for Iraq", during 12 week period. The experiment of this research has been done in the first semester of the academic year 2019-2020.The instruction of both groups of students began on the seventeenth of October, continued for about twelve weeks, and ended on the eighteenth of January, 2020. The experimental group is taught by using CoRT program while the control group is taught by traditional way.

Validity and Reliability of the test

Validity refers to "the truth of the test when it measures the components that the examinee intended to measure". (Bynom, 2001:13). There are two important types of validity : face validity and content validity. The final form of the test is given to a jury of specialists in order to obtain its face validity. The jurors have approved the appropriateness of the items of the test and put forward some modifications which have been considered.

Reliability refers to the consistency of the results when the researchers give the same test to the same group of testees on two different occasions(Brown,2004:20). The test of the study is considered reliable because the calculated coefficient is 0.81 which is considered an acceptable according to the formula of Cronbah's Alpha test.

Plan of the Study

Teaching English, like teaching any subject, requires lesson plan. Many books and curricula provide advice on Teaching English learning materials. However, sometimes teachers are required to create their own lesson plan when teaching ESL or EFL. The plan of the current research is consists of goals, objectives, materials, development and practice according to **reading and writing skills** at CoRT program at 2nd grade.

Program) on the students' achievement. The resea10

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MLU Fluency Diversity

Telling Pre Telling Post Reading Pre Reading Post

Analysis of Data, Discussion of Results, Conclusions and Recommendations

After subjecting the involved sample of students to the achievement test, the data has been collected and statistically analyzed as follows:

4.1 Comparison between the achievement of the experimental group and that of the control group in the pre-test.

The obtained mean scores of the experimental group in the pretest is (18.70) and that of the control group is (18.37) . Then ,t-test formula for the two independent

samples is employed in order to point out whether there is any statistically significant difference between the obtained mean score. The computed t-value is found to be (0.85) and the tabulated t-value is (2.00) at (58) degree of freedom and (o.o5) level of significance, as shown in table (3).

This means that there is no significant difference between the two groups of the research in the pre-test. Thus, the first hypothesis which states that "there are no statistically significant differences in the mean scores of students' achievement in the pre-test between the two groups", is accepted. This result is considered a normal especially the two groups belong to the same social and cultural background, and get the same English language courses in their previous teaching periods.

Table (3)

The results of the two groups in the pre-test.

Group	No. of Students	Mean Scores	SD	DF	T-Value		Level of Significance
					Computed	Tabulated	
Experimental	30	18.70	1.62	58	0.85	2.00	0.05
Control	30	18.37	1.43				

4.2 Comparison between the achievement of the experimental group and that of the control group in the post-test.

The obtained mean scores of the experimental group in the post-test is (21.36) and that of the control group is (18.33). Then ,t-test formula for the two independent samples is employed in order to point out whether there is any statistically significant difference between the obtained mean score. The computed t-value is found to be (6.15) and the tabulated t-value is (2.00) at (58) degree of freedom and (o.o5) level of significance, as shown in table (4).

This means that there is a statistically significant difference between the two groups of the research in the post-test. Thus, the second hypothesis which states that "there are no statistically significant differences in the mean scores of students' achievement in the post-test between the two groups", is rejected. This means that students have developed their achievement in **reading and writing so that they developed their thinking** when they are taught by **CoRt program** .

Table (4)

The results of the two groups in the post-test.

Group	No. of Students	Mean Scores	SD	DF	T-Value		Level of Significance
					Computed	Tabulated	
Experimental	30	21.37	2.25	58	6.15	2.00	0.05
Control	30	18.33					

			1.49				

4.3 Comparison between the achievement of the experimental group in the pre and post-test.

The obtained mean scores of the experimental group in the pre-test is (18.70) and that of the post-test is (21.37).Then ,t-test formula for the two independent samples is employed in order to point out whether there is any statistically significant difference between the obtained mean score. The computed t-value is found to be (5.70) and the tabulated t-value is (2.00) at (58) degree of freedom and (o.o5) level of significance, as shown in table (5).

This means that there is a statistically significant difference between the pre and post-test scores of the experimental group which is taught by using CoRT program, and in favors of the post-test. Thus, the third hypothesis which states that "there are no statistically significant differences in the mean scores of the experimental group between the pre and post-test", is rejected.

Table (5)

 The achievement of the experimental group in the pre and post-test.

Test	No. of Students	Mean Scores	SD	DF	T-Value		Level of Significance
					Computed	Tabulated	
Pre	30	18.70	1.62	29	5.70	2.00	0.05
Post	30	21.37	2.25				

-Conclusions

In light of the results obtained, the following conclusions can be drawn:

1. The current research stressed the possibility of using the CoRT program to develop the students' thinking skills.

2. This research also enhanced the critical thinking and creativity skills for the students as this was clear in reading the text so as to get the main points or ideas of the text.

-Recommendations

-It is recommended to organize training courses for lectures on CoRT program by senior university teachers who are specialized and well equipped in this field.

-Conducting further training courses to include the other five parts of the CoRT program .

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Appendix
Pre-Post-Test
Q1: Write a paragraph about a visit to a restaurant think about these things: (20 marks)
-When did you go?

-What did you order?

-What was the food like?

-Who went with you?

-What did your friend order?

-Did you enjoy it?

Q2:A- Write the opposite of these words(choose **five** only)(10 marks)

Fit-------   never---------   usual---------

A little--------   healthy--------   boring--------

B- Select the odd one out. Circle the word. (10 marks)

1-burn   putout   teach

2-pilot   mechanic   bus driver

3-green   patient   kind

4-university   college   office

5-equipment   uniform   trousers

6-science   driving   history

Q3:Write a paragraph about your most embarrassing moment.(20 marks)

Q4: Organize these words in the correct order to make sentences. (20marks)

1- you him The doctor to tomorrow see wants

2-pain her has ear Nadia a in

3-are many sweets teeth Too for your bad

4-small climb shouldn't trees You children let

5-have should a toothache see if dentist you a you

dcvbs

Q5:Read the definitions and match them to the words below.

a-A person who brings food and drink on a plane.

b-A special document which lets you visit other countries.

c-Something to put your clothes in when you travel

1-passport---- 2-suitcase----- 3-flight attendant---.