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The effectiveness of a proposed course based on CoRT to develop thinking skills among the students of the English Department at the Islamic University of Gaza.

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Abstract:

This study aimed to investigate the effectiveness of the proposed course based on CoRT for developing thinking skills among the fourth-level female students in English Language Department at the Islamic University of Gaza (IUG). The researchers adopted the mixed experimental (quantitative and qualitative) approach. This study was applied on a representative sample of female students of the fourth-level in English Language Department at the IUG in the second semester of the academic year (2021-2022). To realize the purpose of the study, the researchers used two tools, a pre-post thinking test and a semi-structured interview. The findings of the study revealed that the proposed course has a significant effectiveness on the development of the thinking skills among the sample study, as the effect size was very high. For qualitative results it was found that there is a positive impression among the female students towards the proposed course and how it develops their thinking skills from their viewpoint. Based upon the findings, the study recommended that schools and universities in Palestine should implement the CoRT program for all their students, and curriculum planners should focus on thinking skills and give them their place in curricula and courses.

Keywords: CoRT program, proposed course, thinking skills, curricula and courses

فاعلية مقرر مقترح قائم على برنامج الكورت في تنمية مهارات التفكير لدى طالبات قسم اللغة الإنجليزية بالجامعة الإسلامية بغزة

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الملخص:

هدفت هذه الدراسة إلى التحقق من فاعلية المقرر المقترح القائم على برنامج الكورت في تنمية مهارات التفكير لدى طلبة المستوى الرابع في قسم اللغة الإنجليزية في الجامعة الإسلامية بغزة. اعتمد الباحثون المنهج المختلط (الكمي والنوعي). وتم تطبيق الدراسة على عينة تمثيلية من طالبات المستوى الرابع في قسم اللغة الإنجليزية بالجامعة الإسلامية بغزة، في الفصل الدراسي الثاني من العام الدراسي (2021-2022). لتحقيق أهداف الدراسة، استخدم الباحثون أداتين، اختبار التفكير قبلي- بعدي، والمقابلة شبه المنظمة. أوضحت نتائج الدراسة أن المقرر المقترح له فاعلية كبيرة في تنمية مهارات التفكير لدى عينة الدراسة، حيث كان حجم التأثير عالياً جداً. بالنسبة للنتائج النوعية فقد أظهرت أن هناك انطبعا إيجابيا لدى الطالبات تجاه المقرر الدراسي المقترح، وكيف ساعدهن على تنمية مهارات التفكير لديهن من وجهة نظرهن. بناءً على النتائج، أوصت الدراسة بضرورة قيام المدارس والجامعات في فلسطين بتدريس برنامج الكورت لجميع طالبها، ويجب على مخططي المناهج التركيز على مهارات التفكير وإشغالها مكاناً في المناهج والدورات.

كلمات مفتاحية: برنامج CoRT، المقرر المقترح، مهارات التفكير، المناهج والمقررات

Introduction

The educational curriculum is considered a major factor in unleashing and developing students' thinking energies. Afana and Obaid (2003) assert that the school and university curriculum, in all its stages, must be renewable in terms of its knowledge, and before and after that, the important element is that the curriculum (content, style and evaluation) works to develop higher thinking skills, so that the weight and importance of any course in the curriculum is governed by the ability it can offer to develop general, authentic mental skills. So, the teacher must be in a constant search for opportunities to apply certain reflection on appropriate materials in the curricula.

Hence, the researchers agree with Jarwan, (2009) who stated that there is almost a general agreement among educators that teaching thinking skills and creating thought-provoking opportunities are very important. And that teaching thinking skills should be a major goal of educational institutions.

In this study, the researchers adopted and supported the trend which confirms that thinking skills can be taught as an independent course, based on the students' needs, which is the closest approach to achieving the goals of developing thinking skills in addition to learning other courses.

The CoRT program is considered one of the modern international programs for teaching thinking, and it is one of the most used programs in direct education courses for thinking skills. This program includes many examples and situations emanating from practical life that achieve the condition of excitement and attention of students, and it can be applied independently of the academic subjects.

Statement of the problem

Through the researchers' works as lecturers in universities, they have formed some convictions - which are shared by the majority of colleagues, specialists and educators - that there is a clear weakness in the way students think, whether in schools or universities, concerning their daily lives and specializations. Therefore, the researchers decided to carry out this study and propose a course to be taught in an entire semester.

This course and its elements are based on the foundations and principles of the CoRT program for the development of thinking. This is because this program allows educators to design its contents in accordance with the culture, customs, and traditions of the country in which it is taught. Accordingly, the researchers will be keen to enrich this course with many topics that will be the focus of discussion, thinking and analysis of the students themselves, as well as their interests and needs.

From this viewpoint, the researchers present in this study a proposed course to develop the thinking skills among undergraduate students in Palestine in general and the fourth-level female students in English Language Department at (IUG) in particular.

The problem of the study

The problem of the study is determined in the following main question:

What is the effectiveness of the proposed course based on the CoRT for developing the thinking skills among the fourth-level female students in English Language Department at IUG?

This question is divided into the following sub-questions:

- 1- What are the thinking skills that the fourth-level female students in English Language Department at IUG should acquire in the light of the proposed course?
- 2- What is the framework of the proposed course for developing the thinking skills among the fourth-level female students in English Language Department at IUG?
- 3- Is the proposed course effective for developing the thinking skills among the fourth-level female students in English Language Department at IUG?

Hypothesis of the Study

To answer the third sub-questions of the study, the researchers will test this hypothesis:

- 1- The proposed course is not effective for developing the thinking skills among the fourth-level female students in English Language Department at IUG.

Objectives of the study:

The current study aims to:

- 1- Introducing the thinking skills that the fourth-level female students in English language Department at IUG should acquire.
- 2- Developing a proposed course to develop the thinking skills of the fourth-level female students in English language Department at IUG.
- 3- Developing a distinguished test to measure the level of the thinking skills.
- 4- Identifying the impact of the proposed course on the level of thinking skills among students of the English Language Department at IUG.
- 5- Providing recommendations in light of the results of the current study, the effectiveness of the proposed course and the possibility of its approval to be taught in Palestinian schools and universities.

Significance of the study

It is worth noting that the researchers did not find - from what they were able to find - any independent subject, research, study or course concerned mainly with developing thinking skills based on the CoRT program for university students in Palestine. The importance of the study stems from several points, the most important of which are:

- 1- This study provides a test to measure the level of the thinking skills that may benefit teachers and trainers in the field of developing thinking skills.
- 2- This study presents a new course for the thinking skills as an independent course, supported by real examples of our Palestinian people.
- 3- The study's results also provide a basic reference for future researchers, educators and theorists to better understand the process of thinking skills development among the students through the implementation of the thinking programs. As this study....
 - may change the view of some educators that thinking is a process that can be developed and improved and thus form positive attitudes towards learning and teaching the thinking skills.
 - may urge university administrations to adopt this course and to include it in a separate subject - taught in an entire semester - as a compulsory university requirement or at least as an optional requirement.
 - may urge the Palestinian Ministry of Education to adopt this course after modifying it to suit the level of primary, preparatory and secondary students.

Limitations of the study:

- 1- The study deals with the thinking skills of the first part of the CoRT program which applied to the sample study to measure its impact on their level of thinking skills.
- 2- The study and its tools will be implemented during the first term of (2021-2022).
- 3- The sample of the study consists of a group from the female students of the fourth-level female students in English Language Department at IUG.

Definitions of the study Terms:

The researchers defined the study terms procedurally as follows:

- **Effectiveness:**

It describes the process of using specific methods, techniques, and tools related to CoRT programs to provide the intended outcomes for teaching and learning.

- **CoRT program:**

CoRT is an educational program that consists of six parts and teaches students a set of thinking tools that allow them to move away from the thinking models printed in the mind and try to perceive things more clearly and freely, to develop more creative approaches to solving problems.

- **Thinking skills:**

A group of more advanced skills that a person uses in their thought process to solve a problem or to appreciate and comprehend a situation.

- **The proposed course:**

This proposed course and its elements are based on the CoRT program for the development of thinking. Its contents are in line with the abilities and levels of students, as well as in line with their culture, customs and traditions.

Previous studies:

Nor did the researchers, within the limits of what they read in the previous studies, find a study in Arabic or English devoted entirely to the application of a full study course based on the first part of "CoRT" in Palestine. This increased their motivation towards choosing this topic and dedicating the study to it. The researchers present only similar studies to their study that revolve around the CoRT program.

1- Dolapçioğlu and Doğanay's study (2021)

The goal of this study, which uses a qualitative case study approach, is to contribute to the curricula at all school levels in Turkey by focusing on the function of the (CoRT) program in the development of critical thinking abilities. Thirty-five kids in grade five from a primary school took part in the study for this reason, along with their instructor. Following each thinking education course for ten weeks, student reflections and teacher opinions were gathered to produce the data. Results showed that the CoRT program produces significant results in critical thinking about opinions, which may be influenced by emotions, values, and other people's ideas. Moreover, images and real-world examples in the classroom should be used to improve the effectiveness of the CoRT program.

2- Disouqi's study 2020

The study aimed to reveal the effectiveness of training based on the use of the CoRT program in developing the emotional intelligence of primary school students. The final study sample consisted of (34) male and female students from the sixth grade. The fifth unit of the CoRT program was applied to them, and the emotional intelligence scale (prepared by the researcher)

The findings showed that there is a statistically significant difference in favor of the post-performance between the mean scores of the study sample for the pre- and post-performance on the emotional intelligence scale.

3- Al-Shemrani's 2020

The study aims to reveal the effectiveness of a proposed educational program for teaching physics based on the CoRT program in developing creative thinking skills for the third-grade secondary school in Bisha governorate. To achieve this goal, the quasi-experimental approach was used, and a test of creative thinking skills was prepared and applied to a random sample of (54) female students from the third year of secondary school.

The results showed the presence of a statistically significant difference in the post application to test creative thinking skills in each of: fluency, flexibility, originality, sensitivity to problems, details and skills as a whole, for the benefit of the group's students Experimental.

4- Maniam, Thanasamy, Raja & Aluemalai's study 2020

The purpose of this study is to determine the use of the CoRT Program to teach expository writing for primary Year 6 students. The study sample comprised of 25 students. Pre-test and post-test tests as well as interviews were used to gather the data for this mixed-mode study. The findings revealed that the post-mean test's score was much higher than the pre-mean test's score. The results of the interview revealed that the participants responded well to this intervention and that it was a useful tool for enhancing their writing abilities.

5- Abu Al-Leef's Study. 2019

This study aimed at examining the effectiveness of the CoRT program in improving the innovative thinking of a sample of kindergarten children. To achieve these goals, the study sample reached (60) male and female children of the second stage in Imam Muhammad Abdo Kindergarten in Damietta, divided into two groups: experimental (30) and control (30). In order to achieve the objectives of the study, the researcher used tools represented in the Man Drawing Test (Godanf-Harris)

The results showed the effectiveness of the CoRT program in improving the innovative thinking of a sample of kindergarten children.

By reviewing the previous studies, the researchers can summarize the following points:

- Most of the studies were experimental studies for programs to develop students' thinking skills.
- Most of the studies were based on the premise that thinking in general can be developed if educational programs and appropriate strategies are used.
- Most of the previous studies did not address the subject of teaching thinking skills as an independent study program, and not within the prescribed curricula.

From the foregoing, it becomes clear the position of the current study among the previous studies, which aim to measure the effectiveness of a proposed course based on the CoRT program to develop thinking skills among the university students, as this study, according to the researchers' knowledge, is considered one of the first studies in the Gaza Strip that dealt with the CoRT program.

Theoretical framework

Abdel Aziz, (2014) asserts that the mind is the most important ingredient and components of the human being. The advantage of man is in using the mind to think and the flow of the thoughts and their reproduction is consistent with achieving the purpose of the creation in this universe, which is worship, and this is what distinguishes it from other living creatures. Thought, ideas and thinking are terms related to man only, without other creatures. Man is the only thinker creature, who uses thinking as a tool to test situations and decisions. Thinking has a feature and a sign and its absence is deficient and blameworthy.

The researchers think that perhaps this is what prompted specialists and researchers to study the means and tools that activate the human's use of his/her mind, in order to reach what he/she aspires to in the best and the maximum that can be done and achieved. Therefore, thinking, as a cognitive process, is an essential element in the cognitive mental construction, which distinguishes man from other creatures.

Thinking skills is "a term for a complex concept that includes interlocking levels and components that are reflected in the mental processes that we practice and use on purpose in processing information after collecting, preserving and storing it to reach conclusions and make decisions". (Afanah and Nashwan, 2018). While Naser, (2022) defined thinking skills as mental

skills that the learner exercises and uses to process information, reach conclusions and make decisions. And that thinking skills can be measured in multiple ways.

“Thinking skills transform the learner from a receiver of knowledge to a seeker, analyst and critic as it makes studying fun to access information from its sources. It also works to deepen understanding and expand thinking by dealing with information sources efficiently.” (Naser, 2022)

Finally, the researchers define the **Thinking skills** “mental skills that are practiced and used intentionally to process information, situations or solve problems. These multiple skills contribute to effective thinking.

Characteristics of thinking skills:

Afanah and Nashwan (2018), Al-Tamimi and Al-Khikani (2019), Ibrahim and Abdel Moneim (2009), Raghieb (2020) and Warsh-Agha (2021) mentioned some characteristics of thinking skills as the following:

- Transferable and practicable.
- Employable in new positions.
- Improvable with training and practice.
- The skill is a behavior that changes quantitatively and qualitatively according to the growth of the individual and the accumulation of his/her experiences.
- Purposeful behavior, that is, it does not occur in a nowhere or without a goal, but rather occurs in specific locations.
- Thinking skill is indicative of the individual personality and is related to the nature of the activity he/she is doing.
- Thinking skill is produced through the interaction of a group of factors such as the situation, previous experience, time, place and psychological state.

The current study program:

The researchers chose the CoRT program as the most famous program in the world, to teach thinking and its skills independent of the academic curriculum. This program was designed by the scholar of thinking, Edward de Bono, with the aim of teaching students a set of thinking skills, allowing them to escape with full awareness of the recognized patterns of thinking. It is suitable for all ages and includes six parts, each part consisting of ten lessons.

In their study, the researchers used the first part of the CoRT program, which is the main part of the whole program. It includes ten skills such as the skill of processing ideas, the skill of considering all factors, the skill of making decisions, etc., for more information on these skills in detail (see appendix 1)

CoRT program

The researchers reviewed a very large number of books, references, researches and studies that dealt with the CoRT program, its definition, features, objectives, components and other sub-headings related to the CoRT. The researchers have noticed the great similarity - and sometimes perfect match between these books, references and researches.

Therefore, the researchers faced a lot of difficulties when they want to cite and quote the paragraphs of this topic, due to the multiplicity of sources. One paragraph may be similar to another paragraph in another source, or even other sources and sometimes they are exactly the same.

The researchers attribute this to the fact that all of these authors of books, references and researchers talk about only one topic and it basically has only one source, which is the writings of the program's designer, the psychologist de Bono himself. The numerous writings after him are only explanations, or clarifications for this program in different writing styles and in different terms. Accordingly, the researchers were able to link these writings in their own style to produce this topic.

This program includes many examples and situations emanating from practical life (such as Jobs, choosing friends, social change, internet, university education and elections) which fulfill the condition of excitement and attention for students and can be applied independently of the study subjects and this is what de Bono supports.

The researchers chose the CoRT program and its direct skills because it is distinguished by the following:

- The CoRT program has been effectively employed by many countries (such as, Venezuela, USA and Japan) to improve creative and critical thinking skills among various groups of learners. Like these programs are purposefully made to be utilized by students of any age/level of education. (Momin and Marak, 2019)
- The CoRT program is designed to teach students a set of thinking tools that allow them to move away from the thinking models printed in the mind and try to perceive things more clearly, so that students become creative thinkers and to provide the thinking skills which designed precisely in the CoRT program for students as practical tools that can be used. (Mahmoud, 2020).
- The CoRT program is suitable for all ages, all mental levels and even special abilities. While some programs specify the stages and ages to benefit from the program; It also identified the capabilities and skills that the program develops.

Accordingly, the researchers chose a sample of their study from the fourth-level students in the Department of English at IUG.

Importance of the CoRT

Yunus, (2022) and Al-Tamimi and Al-Khikani, (2019) summarized some importance of the CoRT:

- Raising the students' morale and their self-confidence, which is reflected positively on the educational situation.
- Enhancing teamwork among students and stimulating their thinking.

The part of (BREADTH) is one of the most important parts of the CoRT program and no part can be taught or used before the first part because it prepares the student's mentality for the rest of the CoRT parts and expands his/her awareness. (Dakhel and Amin, 2022).

Characteristics and features of the CoRT program:

Al-Mosawi and Ashawi, (2020) mentioned some characteristics of the CoRT:

- Flexibility
- Integration
- Independence
- Expand your cognition
- The program is suitable for the available time.
- Using it at different academic levels.

From other studies such as (Abbas, Jdeed, & Mobayed, 2019), (Ahmed, 2019), (Raghib, 2020), (Sultan, 2020), (Momin and Marak, 2019), (Mahmoud, 2020), (Ali, 2021) and (Al-Mosawi and Ashawi, 2020) the researchers summarized these characteristics:

- The CoRT program is one of the most famous thinking programs in the world; It has been specifically designed for students and its author is one of the pioneers in this field.
- Simple, functional program; It can be used by everyone according to his/her own way and in various situations.
- A robust and coherent program; So that it remains sound, throughout its transition from one trainee to another.
- It has a balanced design; As each training level is completely independent of the other, it can be used and benefited from each part separately.

- Lessons and parts of the program are independent of each other and each serves specific objectives, making it easier for students to understand them in a gradual manner.

The general objectives of the CoRT

Momin and Marak, (2019), Abu- Ayesh, (2019), Bahjat, (2020), Al-Mosawi and Ashawi, (2020), Abu-Leef, (2019) mentioned some objectives as the following:

- A better understanding and a more comprehensive view of life by expanding awareness.
- Understand the others' perspectives and the ability to interact with them successfully to reach a common vision.
- The ability to organize ideas and plan for goals and this is evident in the first unit of the CoRT program (BREADTH), where students are trained to set goals and then plan for them and predict their results.
- Acquiring and developing students' thinking and skills by learning and using the program's skills and tools.
- Focusing attention directly on the different aspects of thinking and on crystallizing these aspects into specific concepts and tools that can be used accurately, so that it becomes a skill that the learner automatically uses in his life.
- Making thinking natural and easy, so that it can be done automatically, without requiring much effort.

One of the researchers tried hard to achieve most of these goals during his teaching the proposed course to the female students, because the course material they developed helped him to do so.

The strategies of the CoRT program:

Abu-Leef (2019), mentioned the strategies which used in the program and can be illustrated in brainstorming strategy, problem solving strategy, role-playing strategy and discussion strategy.

Steps to implement any CoRT lesson:

Some researchers put the main steps of any CoRT lesson according to de Bono directions in his writings and advices. Ahmed, (2019), Ali, (2021), Al-Mosawi and Ashawi, (2020), (Bahjat, 2020), Mahmoud, (2020), (Momin and Marak, 2019), Raghieb, (2020) and Sultan, (2020) confirmed these steps:

- Starting with a story, or an exercise that demonstrates the thinking skill that is the subject of the lesson.
- The trainer presents the objectives of the training session, the principles of work and then presents that skill to the students according to the lesson or skill requirements.
- Giving examples to clarify the nature of the skill and discussing with students its meaning and uses.
- Apply the skill step-by-step, indicating the goal, rules and reasons behind each step.
- Listen to the groups' reactions to the task they have done by presenting one suggestion or idea by each group.
- Using feedback to support the process of executing the task by conducting a discussion with the students after implementation to review the steps and rules that were followed in implementing the skill.
- Repeating the work by training in another skill, according to its inclusion in the program, noting that only the first part must be started with and the rest of the parts is not necessary to take the order into account.

- The principles and foundations of the skill are used to create a discussion about the skill in the lesson.
- Giving one of the project exercises as homework, or directing them to use that skill to apply it with an educational stand from their program or from their activities.
- Each lesson requires approximately (45 minutes), however, the teacher can determine whether the class or the teaching method requires more time or not.

All of these steps are included, by the researchers, in the lesson plans that they proposed and designed for each of the skills of the first part of the CoRT program. (see appendix 2) Also, one of them did his best to follow these steps in his teaching the proposed course during this study.

Methodology

First: Study approach:

To achieve the objectives of the current study, the researchers used the mixed quantitative and qualitative approaches. The researchers also, followed the constructivist approach to build the educational proposed course.

Quantitative method:

The quantitative method is dependent on data that takes a numerical shape, such as statistics, percentages, and the like. To put it simply, a quantitative researcher asks focused, specific questions, then gathers participant responses using an algorithm to determine the answer, and finally analyzes the data using statistics to produce conclusions that are fair and can be more broadly applied to the study population.

Experimental research is a powerful quantitative technique that examines the cause-and-effect relationship between two or more variables and analyses the impact of these factors under specific circumstances.

As mentioned earlier, the aim of this study is to examine the effectiveness of CoRT programs in developing the thinking skills among the fourth-level female students in English Language Department at IUG. A quasi-experimental approach was applied in this study where the participants were placed in one group and they were taught the ten skills included in the first part of the CoRT program.

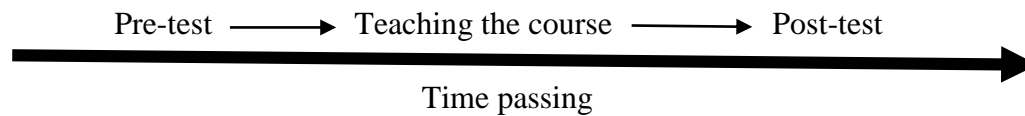
The effectiveness of the programs was measured by implementing the pre-test and post-test on the study sample, where the pre-test was held, then followed by the application of the program (eleven training meetings covering the ten skills of the first part of the CoRT program) and then the post-test was held.

Study design

The study followed a mixed methods approach to collect the quantitative and qualitative data. The explanatory design was conducted to explain the quantitative data and to help the researchers explain the problem in-depth. Objectives, behavioral aims, teaching aids, the procedure of teaching, and the assessment tools were constructed and modified. The content was appropriate for the level of the students.

During the implementation of the quantitative stage of their study, the researchers followed the design of the single group, because this design fits with their current study, as it is applied to one group of the fourth-level female students in English Language Department at IUG, where a pre-test applied to them, then the proposed course will be taught and then a post-test applied on themselves, as shown in Figure No. (1)

Figure No. (1) Single Group Design with Pre-test and Post-test



The sample of the study

The researchers chose the sample of their study by a random selection, (which means that every student has the same chance to be a subject of this sample) where the female students who participate in the sample were chosen by allowing all female students to register for participation in the training program via google forms. Thirty (30) female students participated in the program and submitted the pre-test, but unfortunately in the post-test only sixteen (16) female students did the test, which is the number on which the statistical procedures were carried out.

This sample was chosen for several reasons, including:

- The Head of Curriculum Department at the College of Education and his colleagues chose this kind of sample.
- The department of field training has provided the researchers with a suitable environment for training.
- Two of the researchers worked at the same university and their major was English Language and its literature.
- The presence of homogeneity among the sample members as they study in one department at the university, all of them are in the fourth level and they live in the same city.

Study variables

- The independent variable:

The proposed course is based on the first part of the CoRT program.

- The dependent variable:

The level of thinking skills among the fourth-level female students in English Language Department at IUG.

Materials of the study

The proposed course:

The study aimed to build an educational course to acquire thinking skills derived from the first part of the CoRT program. After reviewing the educational literature and previous studies which included building a new educational program or course, or enriching them with the contents of the CoRT program; Such as: the studies of Al-Mohtaseb and Sweidan (2010), Attar (2013), Mouna (2013), Ammar (2015), Alshurman (2017), Abu-Leef (2019), Abu- Ayesh (2019), jouda (2020), Bahjat (2020), Warsh-Agha (2021) and other studies, the researchers followed these steps in building the proposed course:

- Clarifying the foundations and justifications for building the proposed course.
- Putting the objectives of the proposed course.
- Choosing and organizing course content.
- Preparing the student's booklet "Proposed Course Content" (see appendix 3).
- Preparing a teacher's guide for the proposed course. (see appendix 4).
- Clarifying the teaching methods and plans for the proposed course. (see appendix 2).
- Preparing a bank of cases and situations of Palestinian concern. (see appendix 5).
- Presenting two PowerPoint files for the ten lessons of the course. (see appendix 6).

The content

After reviewing some previous studies, references and sources related to the proposed course, which were concerned with building a course, study units, or enrichment materials. The researcher prepared a course in light of the skills of the first part of the CoRT program in thinking and enriched it with the content that serves those skills. It has become a component in its final form of "53" forty-seven pages, in ten lessons. (see appendix 3)

The content was constructed in such a way that suited the students' level. Besides, the researchers took considered the opinions of English language specialists and methodologists. **Teaching strategies**

The researchers are going to make use of the following thinking learning strategies namely, brainstorming strategy, problem solving strategy, role-playing strategy and discussion strategy.

- Implementation

Eleven fifty-minutes lessons were given to students within six weeks starting from the 7th. March.2021 and ended on 22nd. April.2021.

- Assessment

Students were assessed regularly and continuously using different assessment techniques and activities including peer and self-assessment.

The materials and devices used in teaching the proposed course:

- student's booklet, (The proposed course).
- Teacher's guide.
- Teaching plan for each lesson.
- The bank of cases and situations of Palestinian concern.
- The two PowerPoint files to present the lessons of the proposed course.
- A computer and an LCD.
- The regular board. (Alternative option)

Data collection tools:

Two instruments were used to collect the data; a pre-post thinking skills test and an individual semi-structures interview.

1- Test of the thinking skills

After reviewing previous researches and studies that focused on the CoRT program and its skills among students, the researchers prepared an easy essay test to use it in their study tools. This is because this type of test is very suitable for measuring thinking skills; It gives the student the freedom to express their viewpoints in addressing the problem face them. Such tests are usually used to measure higher mental processes such as the ability to analyze ideas, connect with them or the ability to produce new ideas.

Steps to build the thinking skills test

- Determining the subject of the test:

Its subject is the total material of the proposed course, which was prepared by the researchers to achieve the objectives of the study. (see appendix 3). The number of its pages reached forty-seven pages, including ten lessons, each lesson dealing with one of the skills of the first part of the CoRT program.

- Determining the purpose of the test

The test aims to measure the level of thinking skills among the fourth-level female students in English Language Department at IUG.

- Determining the elements of the thinking skills test

The researchers determined the thinking skills included in the first part of the CoRT program, where they built a proposed course, which consisted of ten lessons, with one lesson for

each skill. Then they formulated easy questions to measure those skills. The test in its final form consists of six questions (see appendix 7) after presenting them in their initial form to a group of specialized arbitrators in order to express their views on them, to modify, delete, add or make any other comments on them. (see appendix 8)

- **Formulating the test questions:**

After taking into account the opinions of the specialized arbitrators, the researchers formulated the test questions taking into their account the scientific accuracy, the linguistic formulation and the comprehensiveness of questions for the proposed course.

- **Test instructions:**

The researchers formulated the test instructions on the first page of the test in order to describe the test, its time, the number of its questions, the score for each question and the final score for the entire test, to encourage the students to give as many ideas as possible.

- **Order of test questions:**

The questions were arranged according to the content of the study material and were arranged according to the order of the ten skills of the first part of the CoRT program.

- **Test validity:**

Validity means that the test measures what it was actually designed to measure and to verify this, validity was calculated in two ways:

- **Referee validity**

The test was presented in its initial form to a group of (15) specialized university professors with experience, (see appendix 8) and in light of this, their opinions confirmed that the test measures what was set for it and there was great agreement between them in their opinions regarding the test, and the researchers took all their opinions to increase the strength of the test.

- **The internal consistency validity:**

The Pearson correlation coefficients were calculated between each test question and the total score of the test, in order to find out the extent to which each of the test questions and the total score of the test were related. This is illustrated in table (1):

Table (1): The correlation coefficient between the score of each test question and the total score for the test

No.	Question	correlation coefficient
1.	The first question	.561*
2.	The second question	.489*
3.	The third question	.661*
4.	The fourth question	.517*
5.	The fifth question	.623*
6.	The sixth question	.640*

* The value of the correlation coefficient at level of significance (0.01)

Table (1) shows that correlation coefficient between the score of each test questions and the total score of the test are significance of $0.01 \geq \alpha$ and thus the researchers make sure the validity of the test before using it.

Test reliability:

Reliability is intended to obtain the same results when repeating the measurement using the same tool in the same conditions. The reliability coefficient is calculated in many ways.

First: The split half method:

The researchers calculated the reliability of the test by the split half method, where the researchers divided the test into two halves, the odd items versus the even items of the test, by calculating the correlation coefficient between the two halves, then the length was adjusted using the Spearman-Brown equation. The table (2) shows the test reliability coefficients of the test.

Table (2): The split half method to measure the reliability of the test

	Number of questions	Coefficient before adjustment	Coefficient after adjustment
Total degree of the test	6	0.760	0.860

The results in Table (2) indicate that the value of the reliability coefficient after adjustment is acceptable, as it reached (0.860). This means that the reliability coefficient is high and statistically significant. This indicates that the test has a strong degree of reliability that reassures the researchers to use it to the study sample.

2- Semi-structured interview

The interview was used as a data collection tool for the study in order to support the results with qualitative information. To achieve this goal, the researchers prepared an initial set of several questions to be asked to the study sample in order to find out their opinions about the program. After the researchers presented the interview questions to the arbitrators to know their opinions about the clarity of the questions and their suitability, and the possibility of modification, deletion and rephrase, five interview questions were approved in the final form.

The researchers interviewed 16 female students and asked them the following questions:

- How much did you benefit from this course? Give examples of your benefit in detail.
- Talk frankly about the positives of the course, and the best you found in it. Give examples of this in detail.
- Do you intend to continue using these skills in your personal life any longer? (Yes/No) Why?
- How many skills did you learn in this course, and pass them on to others to get benefit from them? Give examples of this in detail.
- What do you think about the use of English language in explaining the course material?

Results and Data analysis

The researchers show the statistical analysis of the study results as well as their statistical significance. The researchers used statistical tests included in the Statistical Package for the Social Sciences (SPSS) to analyze the collected data while answering the questions of the study and testing its hypotheses.

Answer to the first question:

The first study question was as follows: What are the thinking skills that the fourth-level female students in English Language Department at IUG should acquire in the light of the proposed course? To answer this question, a review of the educational literature and a lot of books, previous studies, published and unpublished papers were reviewed. The researchers analyzed the content of the first part the CoRT program, its elements (skills), aims, importance and methods or techniques to use it. According to the analysis, students in the English Department at IUG should develop the following level-appropriate thinking skills, which are the component of the first part of the CoRT program. (see appendix 1)

- Ideas Processing Skill (PMI)
- Considering all factors (CAF)
- Defining and setting rules (RULES)
- Predicting logical results and what follows (C&S)

- Setting goals (AGO)
- Planning
- Prioritizing the most important (FIP)
- Finding alternatives, possibilities and options (APC)
- Decision-making
- Knowing and considering other people's viewpoints (OPV)

Answer to the second question:

The second study question was as follows: What is the framework of the proposed course for developing the thinking skills among the fourth-level female students in English Language Department at IUG?

To answer this question, several more educational texts, as previously published and unpublished researches and articles were examined. Depending on that, the researchers did their best to build an educational course to acquire thinking skills derived from the first part of the CoRT program. In the theoretical part of this study, the researchers summarized the main topics of the proposed course. They mentioned the content of this proposed course, its teaching strategies, its implementation, its assessment and the materials and devices used in teaching such as, student's booklet, teacher's guide, teaching plans, two PowerPoint files to present the lessons and computer with an LCD.

Answer to the third question:

To answer the third study question which was stated as follows: "Is the proposed course effective for developing the thinking skills among the fourth-level female students in English Language Department at IUG?" The researchers formulated the first study hypothesis which stated as follows: "The proposed course is not effective for developing the thinking skills among the fourth-level female students in English Language Department at IUG"

To answer the third study question and to verify this hypothesis the researchers used the Paired sample T-test, as shown in the table (3)

Table (3): Differences between the pre-test and post-test application in thinking skills test

The thinking skills test	Group	No.	Mean	SD	T test	Sig. value	Sig. level	ETA η^2	Size effect
	Pre-test	15	13.93	3.55	-6.675	<.001	Sig.	1.72	Very high
	Post-test	15	19.6	1.92					

It is evident from table (3) that there is a statistically significant difference between the average scores in the pre and post application of the thinking skills test. Female students reported higher scores in thinking skills in the post test application compared to pretest one with very high effect size ($\eta^2 = 1.72$). Accordingly, the hypothesis of this study is not accepted which states: "The proposed course is not effective for developing the thinking skills among the fourth-level female students in English Language Department at IUG". So, the researchers can conclude that the proposed course is effective for developing the thinking skills.

Qualitative method:

Interview

The researchers resorted to a semi-structured interview to get more insight and understanding of the above results and their interpretation. They interviewed 16 female students. The interviewees were asked five questions. Their answers were as follows:

The researchers used the problem-solving interview questions because they allow them to evaluate the interviewee in gathering data, analyzing a situation, developing several solutions, weighing the pros and cons of each, and deciding the final outcome.

In this table the researchers explained the interview's questions, the students' response and the researchers' comments.

The question	Students' responses	The researchers' comments
"How much did you benefit from this course? Give examples of your benefit in detail".	All students asserted that they benefit greatly. The benefit was greater as there were several evidences to benefit from thinking skills and its practical applications in the students' daily lives.	What caught the researchers' attention was the students' emphasis on the change in their thinking style for the better, and the increase in positivity in their personalities. There are many statements confirming this.
Talk frankly about the positives of the course, and the best you found in it. Give examples of this in detail.	All the students reported their satisfaction with the program's contribution to improving their thinking skills. They reported that the program included many and various interesting activities in which they were engaged.	The most prominent issue that were talked about is their admiration for the effective and fruitful discussion during meetings, discussions and meetings, whether between the trainer and them, or between themselves.
Do you intend to continue using these skills in your personal life any longer? (Yes/No) Why?	The sample members reported that the program was interesting and fruitful and the activities considered their individual differences. They showed a strong correlation in the program and a great desire for determination to continue to use the skills they have learned in their public lives and not to leave them aside at all.	This is because it has become part of their daily and practical life, and this is confirmed by their determination to keep the course's material to be reviewed in the future, and to use it to develop these skills.
How many skills did you learn in this course, and pass them on to others to get	The researchers found some activities and movements among the	This is one of the positive indicators of the impact of the program on the

benefit from them? Give examples of this in detail.	participants to transfer their experiences and skills they learned from the program to their peers at the university and among their families at home.	participants, as well as their conviction of the importance and necessity of teaching others those skills.
What do you think about the use of English language in explaining the course material?	All the students reported that English language was a helpful factor in motivating them in dealing with the program and interacting during the meetings. The English language was an encouraging factor for each student to challenge herself in developing her language abilities, her ability to discuss and thinking in a language other than her mother tongue.	Really, the students' responses were on the contrary to what the researchers expected. This trend can be attributed to the fact that the use of English is a source of enjoyment for students

Discussion of the study results

All students of the group showed an increase in their performance on the thinking skills achievement in the post-test after the implementation of the proposed course. The results of the study show in table (3) revealed a statistically significant difference at a level (0.05) between the mean scores of the fourth-level female students in English Language Department at IUG in the pre and post applications of thinking skills test in favor of the post application. This indicates a very high effectiveness of the proposed course in developing the thinking skills among the female students.

The researchers can emphasize that these results may be due to the following reasons:

- Novelty in teaching type. All ideas during the course were new to the students.
- The researchers adopted attractive teaching methods that help to develop thinking skills, which are not often used in schools/universities because the students were previously accustomed to receiving theoretical information according to traditional teaching methods.
- The researchers used examples that stimulate thinking and motivate the mind.
- The examples which used within the proposed course are closely related to the students' daily real lives.
- The program is characterized by flexibility, clarity and ease of application and this may lead to breaking the deadlock in the students' minds.
- The program contributes to provide students with intellectual abilities that contribute to expand their awareness, organizing their information and helping them in solving problems.

- The program made teaching natural stemming from everyday situations away from mistakes resulting from artificial situations that may lead to intellectual stagnation.
- The CoRT program links the learner with what he/she has learned through lively situations that arouse his/her attention and attract his/her interest.
- The students were encouraged to use thinking tools in classroom activities as well as teamwork among students.
- The proposed course provided students with opportunities to think at different times and places, which helped to improve their thinking skills.
- Facilitating communication between the students themselves and between them and the instructor (one of the researchers).
- Using the advanced technologies in order to present the lessons of the CoRT.

The previous results of this study are in agreement with the results of many previous studies, for example, but not limited, such as those of Alshurman (2017), Al-Refaeey (2018), Abu- Ayesh (2019), Abbas, Jdeed, & Mobayed (2019), Al-Amin (2020), Al-Shemrani (2020), Warsh-Agha (2021) and others. All of these studies confirmed that CoRT program had a positive effect on developing students thinking skills.

The researchers concluded that the proposed course had a greater role in improving the thinking skills of the female students (the sample members). This course is designed to expand understanding and awareness of the learners through selected examples from practical and real life.

The improvement in the performance of the female students in the group can be explained by the fact that they were affected by the skills and activities mentioned in the first part of the CoRT (BREADTH). This illustrates how the CoRT program has impacted students' skills to think creatively, unconventionally, and with confidence in real-world situations.

The goal of teaching appropriate skills for students is to help them to deal with real-world situations, broaden their perspectives, gain more experience, develop a sense of responsibility, help organize their information, solve their problems and make wise decisions.

According to De Bono, founder of CoRT, the program leads to better thinking in general. This program encourages us to think, even to expand and organize our thoughts, by providing us with opportunities to do so and by showing that the conclusions reached through such thinking are insightful and useful.

The researchers also believe that the first part of the CoRT program helps to develop and expand the learner's understanding and awareness; It helps him/her to analyze and study all the situations he/she faces during the real life. This makes him/her better communicator with others because of the great importance and benefits that he/she gets whether in his/her studies, social interaction or solving many academic and psychological problems. Moreover, this program is designed according to the students' interests to help them utilize their maximum potentials.

Hence, disregarding students' demands and selecting topics and activities for the classroom that do not match their interests can make them lazy and have a bad impact on them. On the contrary, it is crucial to consider the preferences and interests of the students while selecting the program that is being delivered in order to keep them interested and motivated.

The researchers believe and support that there is a substantial relationship between students' motivation and their academic achievement and recommend that in order for students to be more engaged and motivated, learning activities should challenge their skills.

Conclusions:

Based on the current study results, the following conclusions were derived:

- CoRT is the most popular program to improve thinking skills.
- The proposed course plays a major role in developing the thinking skills among the university students.

- The proposed course led to an increase in students' motivation to learn and the degree of cooperation between them.
- The more we use thinking skills in new ways, the more we will improve our performance towards the problems of our lives.
- The proposed course provides students with a clear teaching and learning environment, which has positively affected their achievement and performance in thinking skills as well as their writing skills.

Recommendations

The following recommendations were given regarding the learning and teaching of thinking skills to students in Palestine in light of the results of this study:

- The first part of the CoRT Program (BREADTH) should be held for most university students.
- Hold more courses to include the other five parts of the CoRT program.
- Schools and universities in Palestine should implement the CoRT program for all their students because of the study results and many similar studies that confirmed the positive impact of this program on the level of thinking.
- Draw the attention of curriculum planners to the need to focus on thinking skills and give them their place in curricula and courses, guided by modern learning theories and their educational applications.
- It is the duty of the national government to encourage higher levels of thinking in both teaching and learning.
- Teachers should be trained to teach thinking skills that may increase student achievement.
- Holding in-service training sessions for teachers at different stages to train them on strategies through which to develop thinking skills.

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