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The Impact of Using the First and Third Parts of the Cort Program on the Development of Critical Thinking for Talented Students in Tafila Governorate

Dr. Jehad A. M.Turkey

Department of Educational Psychology

Tafila Technical University

E-mail: jturki@ttu.edu.jo

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Abstract

This study aims to examine the impact of using some of the skills of the (CoRT) program on the development of critical thinking skills among a sample of talented students in King Abdullah II School of Excellence in Tafila Governorate. The sample consisted of 60 male and female students randomly selected. They were divided into two groups: an experimental group that consisted of 30 students exposed to the acquisition of the skills of the CoRT program and the control group that consisted of 30 students who did not study the program. The Watson Glaser critical thinking test was also applied. The results shows a statistically significant effect, at ($\alpha \leq 0.05$), in improving the critical thinking skills of the students of the experimental group and shows a statistically significant effect on the test of critical thinking skills due to the variable of educational level and for the favor of the ninth grade. The study also reveals that there were no statistically significant differences in the test of critical thinking skills in relation to the the gender variable. The researcher recommends developing the teacher competencies to teach the skills of thinking in general and critical thinking skills, in particular, through the conducting of courses, seminars, and workshops in the CoRT program.

Keywords: Critical thinking skills, talented, CoRT program, Tafila Governorate.

1. Introduction and Literature Review:

Changing the traditional stereotype of learning within the classroom, which has been practiced by schools and curricula for a long period of time is the concern of interested researchers and educators in order to develop the educational system through the development of the educational process in all aspects by providing opportunities to learn thinking skills, especially creative and critical thinking. Therefore, the issue of critical thinking must be taken seriously considering the increasing requirements and complexities, thus encouraging students to employ the thinking skills needed to solve the complex problems they will face in order to achieve personal success and success at work.

The importance of learning and teaching thinking skills in general and critical thinking, in particular, comes from the reality of contemporary life characterized by rapid development, and the huge amount of data and its complexity. It is no longer useful to deal with these circumstances with traditional methods of thinking, which are dominated by the method of lecture or discussion valid in the past (Debono, 2015).

Traditional education, which was based on a culture of indoctrination, was introduced to meet the needs of the society in earlier periods. It no longer has the same capacity to meet the needs and challenges of a rapidly changing society. Therefore, the modern methods of education should not depend on the expansion of experiences and activities and increase information for the student but must work to stimulate the mind of the student and raise his standards of thinking and skills (Abdel Hameed, 2015).

Thus, human's success in meeting these challenges and ensuring a bright career depends not only on his knowledge but also on his ability to participate in the production and use of knowledge. Sternberg (2003) encourages teachers to teach useful information that students can transfer and employ which requires a shift in the perception of learning and education as a process not limited by time or place, an indispensable element in the process to facilitate the adaptation of individuals to developments in their environment. Effective learning of thinking skills is more urgent than ever (Jarwan, 2007).

Thinking is the foundation of the learning process, helping the student adapt to the changing circumstances of the times, confronting new environmental attitudes, assimilating, perceiving and judging variables, and linking the elements of knowledge; making him more able to apply and interact effectively with issues and problems (Hammadna & Asi, 2015).

The development of critical thinking skills among individuals is one of the modern orientations of educational systems because of the urgent need to develop individuals' abilities to face difficult challenges and to help them acquire knowledge. Obaid and Affana (2003: 55) emphasize that critical thinking must be of great interest in any educational system, because we need students who are able to know the assumptions, evaluation of discussions, clarification, elicitation, ratiocination skills, as suggested by Abdelhameed(2015), the ability in self-organization, evaluation, and analysis by adopting appropriate standards in the process of evaluating the cognitive output (see Astleitiener, 2002).

The scholar Ennis (1985) points out that critical thinking is the contemplative and logical thinking that focuses on what we should believe or do. According to Facione (2000), it is simply a deliberate judgment on what to do or what we believe. Lipman (1988) defines it as clever and serious thinking that facilitates good judgment because it is based on standards, self-correction, and sensitivity to attitude. Watson & Glaser (1980) defined it as "An ongoing attempt to test facts or opinions in the light of the evidence they provide rather than hasty jumping to conclusions So as to include knowledge of logical flipping skills that do not help in determining the value of different evidence, arriving at sound results, testing their validity, and evaluating the discussions in a purely objective manner." Watson has classified the sub-skills of critical thinking into the following skills: knowledge of the assumptions, evaluation of discussions, clarifying, elicitation, ratiocination (see Al-Otaibi, 2007). The characteristics of individuals with critical thinking can be summed up: mental openness, broad-mindedness, tendency to look for reasons, love curiosity and love of knowledge, and respect for the views of others (Ennis, 1985; Bailin et al., 1999; Facione, 1990, 2000).

The skill of critical thinking stems from the hypothesis that it is not heredity, but is formed in the way attitudes, knowledge and skills, and can be taught and developed for each individual through the preparation of training programs (Qatami, 2005, Soror, 2005, Facione, 2011), Since the ability to think critically is developmental (growing by age), even young children can benefit from learning critical thinking skills at all levels of education from pre-school to secondary rather than limited to junior high school students. For example, in early childhood, teaching children, thinking, the importance of reason and truth, finding the right facts, looking at alternatives before making a decision, can be willing to perceive things from the perspective of others, respect and understanding the views of others, all of which facilitate study to reach honest conclusions, help solve problems and remove suspicions (Bailin et al, l999, lai, 2011).

Critical thinking skills as a form of thinking are more important than ever. If individuals do not have critical thinking skills, they cannot promote and develop their industries and they will be more dependent on others. It is also described as helping to neutralize tendencies and emotions, achieve sufficient immunity for students to evaluate the ideas presented to them from a variety of sources, and audible, written, or visible information provided for them, and distinguishes between useful and non-useful ideas, or to distinguish between truth and hypotheses, and personal viewpoints, means, the ability to examine information and assessments validity, and the irregularities. It also helps them to assume alternatives, arrange them, make the right decisions in their lives, and be independent in their thinking (Paul & elder, 2006, Facione, 2009, Ali, 2009. Rzoqi, Mohammad and Dawod, 2016). It also encourages them to succeed in various aspects of their lives. Encouraging the spirit of questioning, research, and inquiry, the non-recognition of facts without investigation or exploration leads to the expansion of the horizons of cognitive students, and drives them to embark on wider scientific fields, thus enriching their knowledge structures and increasing their qualitative learning. (Abu Gado and Nofel, 2007). In the view of Paul& Elder (2004), critical thinking is the basis of effective education, not its subject.

These trends are in line with Piaget's vision of the primary goal of education, which is to prepare innovative and explorers individuals and to have the ability to think critically and

creatively (Schwartz and Peraz, 2003), which stimulates student motivation for scholastic success (Alhawary& et all, 2009). It also helps organizes information, whether theoretical or practical, simple or complex (Ibraheem, 2010), develops students' strong leadership skills, communication skills, and teamwork skills (Živkoviü. S, 2016), and helps objectivity in making correct decisions (Beyer, 1995) (Haj, 2018).

The study of gifted and talented people who hold future hopes in building and improving society, and who, if invested in their abilities and ideas, have led to the progress and development of the society and its prosperity. Therefore, it is clear that the interest in thinking in general and the critical thinking in particular for gifted and talented helps to know their needs and problems and work to solve them and provide all forms of care and psychological and material support to achieve the desired goals (Hamadneh and Assi, 2015).

The researcher found that the study of critical thinking and the development of the skills of talented students represent a fertile area recently and educational demand. Hammadneh and Assi (2015) noted that the level of critical thinking among a sample of talented students in Jordan is average and below the expected level. Similarly, Newman (2008) noted that the level of critical thinking among talented students in California was average. Al-Zeq (2012) also noted that the level of critical thinking among talented and ordinary students at the University of Jordan is not high and below expectations.

Based on what has been established so far, the purpose of this study was to investigate the impact of the use of CoRT (Part I and III) on the development of critical thinking skills among a sample of talented students in King AbdullahII School of Excellence/ Tafila Governorate. To the best of our own knowledge, since there are a few studies conducted in this area, this will provide an opportunity to conduct such a study more deeply The previous studies related to the current study subject were reviewed, which the researcher was able to view them, and classified them in chronological order from the latest to the oldest.

Sotohi study (2016) aimed at identifying the effectiveness of CoRT's thinking program, the art of the six thinking hats, and the combination of them in teaching science to develop the critical thinking skills and the habits of mind of the superior students in the sixth grade, the study sample consisted of (60) male and female students distributed as follows: (15) students from Al-Ittihad elementary school in Qalqandul, representing the control group, (15) students from the elementary school of Qalandul representing the first experimental group, and (15) students from the elementary school of Abu Bakr representing the second experimental group, and (15) students from Alrawda elementary school represents the third experimental group, the measurement tools were used: critical thinking skills test in science for superior students in the sixth grade, and the scale of the habits of mind for superior students in the sixth grade. The study found that there were statistically significant differences at the level of (0.01) Between the average scores of the students of the three experimental groups (studied under the CoRT program and the thinking hats and the combination of them) and the students in the post-test group to test critical thinking skills for the students of the three experimental groups.

The study of Hamdneh and Assi (2015) which aims to identify the level of critical thinking among talented students in Jordan, the study sample consisted of (173) students enrolled in the

King Abdullah II School of Excellence in Irbid. To achieve the objectives of the study were applied California critical thinking test rated on the Jordanian Environment (Al Rabadi, 2004). The results showed that the level of critical thinking among the sample of the study was at an average and below the expected level. The results also showed differences in critical thinking skills (analysis, reasoning, ratiocination), and Critical thinking as a whole is attributed to gender and to females.

The study of Melhem&Issa (2013) aimed to measure the level of critical thinking and creative thinking among middle school students in Basrah Governorate and to identify the relationship between critical and creative thinking according to the variable grade (fourth - fifth - sixth), The research included 400 female students in middle school were selected randomly and 400 female students in middle school stratified random sample, the study was based on the following tools: the Watson-Gleiser test for critical thinking (the short version), the Torrance for creative thinking (the verbal version). The results showed that the degree of critical thinking among middle school students falls within the acceptable educational level. The results also show a correlation between critical thinking, creative thinking, and each stage.

The aim of the study of Al-Hadabi and Al-Ashwal (2012) was to identify the availability of some critical thinking skills among talented students in the secondary schools in Sana'a and Taiz, And the detection of the relationship between gender and educational achievement to the level of ownership of the sample of those skills, Where the number of samples (121) students; (61) talented students from Al-Mithaq school in the capital Sana'a and (60) talented students from Zaid Al-Moshki School in Taiz city, to achieve the objectives of the study the researchers used the Watson-Glaser testto measure critical thinking skills. The research found that the degree of possession of the skills of critical thinking did not reach the acceptable educational level, as there were no statistically significant differences between the average scores of males and females on the test of critical thinking skills as a whole.

The Donaldson study (2010) was designed to explore the development of critical thinking skills using the CoRT program. A qualitative research methodology was used. The study sample consisted of (20) students of the first year of distinguished students who were enrolled in different nationalities according to certain criteria in a university Midwest In the United States, the focus of study on the effectiveness of skills developed by CoRT in helping students generate creative solutions, the researcher collected data to assess the nature of skill changes among participants, The use of thinking skills in guiding ideas and helping to generate them in the creative problem-solving project was assessed by comparing pre- and post-10 responses to the thinking skills taught in the coursework program, examine weekly assignments for students, classroom notes, and analysis of final collaborative creative projects, The results indicated improved fluency in participants' response, limited improvement in the skill of originality, no effect on creative solutions to the problem, and a positive impact on the development of critical thinking.

The study of Al-Otaibi (2007) aimed at finding out the effect of the use of CoRT program on the development of critical thinking skills and improving the level of academic achievement among a sample of high school students in Riyadh. The study sample consisted of (40) students

from the eleventh grade from a secondary school in Riyadh city, they were selected randomly cluster and was divided into two groups: experimental and control. The study used the test of critical thinking skills, as well as CoRT program (Expanded field of perception, and interaction) of de Bono, The results showed that there were statistically significant differences between the experimental group and control in critical thinking skills for the experimental group, it also showed that there were There are statistically significant differences between pre and post measurement in critical thinking skills in favor of posttest.

The study of Jaa'afra and Kharabsheh (2007) The aim was to identify the degree to which superior students from the Jubilee School in Jordan possess critical thinking skills. The sample consisted of (94) male and female students of the tenth and eleventh grades (50) males and (44) of the females. The researchers used the California scale of critical thinking. The results indicated a clear decline in the sample scores in the total and for each skill separately on the applied scale. There are also no statistically significant differences between the average scores of individuals due to gender variable and variable Grade level, while a statistically significant effect of interaction was found gender and grade in both skills elicitation, ratiocination; in favor of females inthe tenth-grade for elicitation skill, and in favor of males in the tenth grade for ratiocination skill.

Al-Faouri (2006) conducted a study aimed at investigating the impact of the CoRT Thinking Program (4) on the critical reading of gifted and talented students at Ain Al-Basha Pioneer Center. The study sample consisted of (30) students in the tenth and eleventh grades, the researcher applied the critical reading test that was prepared by her, the results concluded that there was a positive impact on the teaching of the CoRT program in the development of critical reading, also the results indicated that there were statistically significant differences due to the gender variable in favor of females.

The study of Al abbaji (2002) aims to know the effect of the first, third, and fifth parts of CoRT program on developing cognitive skills, critical thinking, and Convergent thinking among fourth-grade students at Al-Mutamayzeen Secondary School in Ninawa, Iraq. The sample consisted of (60) fourth-grade students divided into two groups: experimental and control, the researcher used two tests, a cognitive expansion test, and a critical thinking test. The results indicated that there were significant differences in the test of cognitive expansion and critical thinking in favor of the experimental group.

1.1 Problem Statement

The problem of the study is to examine the impact of using some of the skills of the CoRT program on the development of critical thinking skills among talented students; CoRT and critical thinking have great educational importance because they are associated with teaching thinking, With the lack of attention to the actual teaching of thinking in school curricula and teaching methods used, where traditional methods still dominate the educational learning process, Elder (2007) emphasizes that traditional methods of education do not nurture the intellectual capacity for personal and academic success, which made its educational outputs inadequate to adapt to the era of knowledge explosion and effectively confront contemporary problems and efficiency.

Therefore, the research attempted to answer the following main question:

1- Are there statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the average scores of the critical thinking skills test attributed to the skills program of CoRT?

2- Are there statistically significant differences at the level of ($\alpha \geq 0.05$) in the mean scores of experimental group members on the critical thinking skills tests attributed to gender?

3-Are there statistically significant differences at the level of significance ($\alpha \geq 0.05$) in the mean scores of experimental group members on critical thinking skills test due to the level of education?

1.2 Objectives of the Study

The study is aimed at:

1. Knowing the effect of using the CoRT program (Part I and Part III) in the development of critical thinking skills among a sample of talented students in the schools of Tafila.

2. Identifying the differences in the degree of development of critical thinking skills among a sample of talented students in Tafila schools due to gender and educational level.

3. Identifying the differences between the mean scores of students of the experimental group and the control group in the test of critical thinking skills.

4. Identifying the differences between the average scores of the experimental group students in the test of critical thinking skills (particularly pretests and posttests).

1.3 Study importance:

It is hoped that the results of this study will benefit:

1. Teachers in order to expose schoolchildren to the skills of the CoRT program and encourage them to use it.

2. The concerned officials at the Ministry of Education in the design and development of educational programs based on the development of thinking skills.

1.4 Limitations:

The results of this research are determined by the following determinants:

- Human border: research was limited to a sample of the seventh and ninth grade talented and talented students enrolled in special programs (King Abdullah School of Excellence), where Members of the experimental and control groups were selected.

- Spatial boundaries: King Abdullah School of Excellence/ Directorate of Education in Tafila Governorate.

- Time limits: First semester of the academic year 2017/2018.

2. Methodology

2.1 The sample

The study sample consisted of 60 students from the seventh and ninth grades in the King Abdullah II School of Excellence in the Directorate of Education in Tafila Governorate in jordan. They were divided into two groups, the experimental group consisted of (30) students studied through the program of the CoRT, and the control group consisted of (30) students studied in the normal way at King Abdullah II School of Excellence. The researcher chose the school because it is the only school specialized in the care of gifted and talented students in Tafila Governorate during the second semester of the academic year 2017/2018.as shown in table 1 below.

Table 1. sample distributed by the intersection of the study levels

Class	Experimental		Control	
	Male	Female	Male	Female
7th grade	8	7	9	6
9th grade	8	7	8	7
Total	16	14	17	13
	30		30	

2.2 Instrument

To achieve the objectives of the study, two tools were used: The Critical Thinking test and the CoRT Program (Part One and Part III).

2.3. A- The Watson Glaser critical thinking test, which was developed for the Jordanian environment Al-Barsan (2001), which consists of (5) sub-tests (15) paragraph for each sub-test, with a total of (75) items; the sub-tests included in the test are: Know the assumptions, Evaluation of discussions, Clarifying, Elicitation, ratiocination. Each paragraph of a variety of positions consists of several statements, requiring the student to take a stand to show the degree of practice of critical thinking skills, the score on the testfor each sub-test is between (0-15) degrees, and the total score of the test ranging between (0 - 75) degrees.

2.3.1 Reliability and Validity of the test

This measure has indications of reliability and validity in the Jordanian environment (Al-Barsan, 2001). The researcher verified the indicators of reliability and validity in the current study as follows:

In order to verify the clarity of the items and their relevance to the study community, the test was presented to five authorities from the Faculty of Educational Sciences. In light of the results of the arbitration, some language modifications were made to some of the ambiguities. Thus, the test has maintained the number of items consisting of (75) items distributed among the five skills of critical thinking.

2.3.2 Content validity of the test

The Content validity of the test was verified by applying the test to a sample of 30 students from the research community. It was followed by making sure that the veracity of the test items and the linguistic integrity of the students, as well as to determine the time required to answer all the test items, where the time to answer the test was set at 60 minutes.

2.3.3. Reliability test

The reliability of the test was verified by a two-week period re-test on a sample of 30 male and female students from outside the study sample by calculating the Pearson correlation coefficient, as shown in Table (2):

Table 2. Reliability coefficients for the skills of critical thinking test and total score were evaluated using the re-test method

Skill	Number of items	reliability coefficient
Know the assumptions	15	0.84
Evaluation of discussions	15	0.83
Clarifying	15	0.73
Elicitation	15	0.88
Ratiocination	15	0.81
Total	75	0.86

** is statistically significant (0.01)

2.3.4. **B** - (Cort) Thinking Program: is the name given to a program of 60 ‘thinking tools (lesson)’ designed by Dr Edward de Bono and a group of associates while a Rhodes Scholar at Cambridge University in the late 1960’s. The research group was known as the cognitive research trust – the derivation of Cort . It is widely used in different cultures, situations, ages, and abilities, it teaches thinking as an independent material. The program consists of six chabters, each chabter has 10 lessons, in a parallel design, with thinking tools and skills that students are trained to be active thinkers and interacting at the same time, as well as the practical skill required by real life (Debono Center, 2015).

2.3.5 Study program Objective

The study program aims to develop critical thinking skills through the implementation of the first and the third chapters of the Cort’s program.

2.3.5 Study program Duration:

The study program was implemented collectively on the experimental group, by two lessons per week, the duration of the lesson (45 minutes), during the period (12) Week

2.3.6 Program Description

Cort program consists of six different modules and the first chabter of CoRT must first be taught, because it focuses on expanding the field of cognition or thinking, and this skill is essential in Cort's program.

Each module consists of ten lessons (tools), each with a name and a goal to be achieved during each chapter's lessons

Cort 1 Breadth Thinking Tools

The main objective of this part is to expand the range of understanding and cognition in students, which is an essential part and must be studied before any of the other parts. It includes the following lessons: Addressing ideas, considering all factors, laws, logical outcomes and their aftermath, objectives, planning, first important priorities, alternatives, possibilities and choices, decisions, and the views of others.

Cort 2 Arrangement Tool

This part helps students organize their ideas, the first five lessons help the student to identify the problem, and the last five teach the student how to develop strategies for developing solutions. It includes the following lessons: Recognize. Analyze, Compare, Select. Find Other Ways, Start, Organize Focus, Conclude. Consolidate, Decide.

Cort 3 Interaction Tool

This part is concerned with developing the process of discussion and negotiation among students so that students can assess and control their perceptions. It includes the following lessons: EBS: Examine Both Sides, Evidence: Type, Evidence: Value, Evidence: Structure, ADI: Agreement, Disagreement, Irrelevance, Being Right 1 Being Right 2. Being Wrong 1. Being Wrong 2. Outcome

Cort 4 Creativity Tool

Creativity presents ideas-generating and processing strategies, and includes the following lessons: yes, no & po, stepping stone, random input, concept challenge, dominant idea, define the problem, remove faults combination, requirements, evaluation

Cort 5 Information& Feelings Tool

This tool concerned with emotional factors affecting thinking, it includes the following lessons: information, questions, clues, contradictions, guessing, belief ready-modes, emotions, values, simplification, and clarification.

Cort 5 6 Action Tool

Action is concerned with providing a general framework for solving the problem and is concerned with the process of thinking starting from the choice of the goal and ending with the formation of the plan to implement the solution (achieving the goal). it includes the following lessons: target, expand, contract, a target of expanding contract (t e c), purpose, input, solutions, choice, operation, tec – pisco Debono (2007). Teacher's Guide(2012)

Procedures for applying the lesson: The lessons of the program are presented in a regulatory and structural sequence as follows:

1- Start with an illustration: The lesson begins with a story or an example that illustrates the required mastery skill of thinking in each lesson.

2- Provide a simple idea about the tool used or the subject of the lesson.

3- The training is based on collaborative learning, through which the paragraph training is defined, implemented and discussed by students who are distributed in the form of three groups. Each group includes 10 students, taking into account the presence of a leader for each training group change periodically in order to increase motivation for the rest of the group.

4- Provide feedback and strengthen each group, all groups are asked to present and evaluate their list of ideas.

5- Discuss the principles (practical principles) about the thinking process that is the subject of the lesson, as well as the principles derived from the lesson. Edwards (1991).

- The program was implemented in the second semester 2017/2018, starting from 12/ 2/2017, as of 17 May 2017.

2.4 Study Approach

To achieve the objectives of this study and answer the questions, the researcher adopted the semi-experimental approach, which depends on the design of two groups, one experimental and the other control. The experimental group was taught in the training program (CoRT program) while the control group was exposed to the traditional method of teaching. In addition, the design of the control group and experimental group was based on pre-testing and post-testing. After the program was completed, the design of the search can be expressed in symbols as follows:

Experimental group	O2	×	O1
Control group	O2	-	O1

The equivalence of the two groups was confirmed by applying the pre-test. The (T) test of independent samples was used on the study sample members of the control and experimental groups in the pre-test of critical thinking skills, Table 3 shows that:

Table 3. T-test results for independent samples to determine the significance of differences between the control and experimental groups on the test of critical thinking skills in the pre-test

skill	Group	Number	means	deviation	df	T value	Sig.
Know the assumptions	Control	30	20.87	1.45	58	1.774	0.081
	Experimental	30	21.63	1.86			
Evaluation of discussions	Control	30	22.27	1.74		1.635	0.107
	Experimental	30	22.90	1.21			
Clarifying	Control	30	21.87	1.50		1.685	0.097
	Experimental	30	22.50	1.41			
Elicitation	Control	30	21.57	1.45		1.602	0.115
	Experimental	30	22.13	1.28			
Ratiocination	Control	30	35.73	5.12		0.173	0.863
	Experimental	30	35.93	3.70			
Total	Control	30	122.30	5.21		1.965	0.054
	Experimental	30	125.10	5.81			

The results in Table 3show that there are no statistically significant differences at the level of ($\alpha \leq 0.005$) between the mean scores of the experimental and control groups in the pre-test of critical thinking skills. As the value of the calculated (T) for the whole = (-1.965), and its significance level is equal to (0.054), For the five skills (knowledge of assumptions, Evaluation of discussions, Clarifying, Elicitation, and ratiocination), the calculated (T) values = (-1.774, -1.635, -1.685, -1.602, -0.173) respectively, Indicating a parity between the control and experimental groups in pre-test.

2.5 Statistical Design

This study is classified as a semi-experimental study. The study variables can be classified as follows:

2.5.1 Independent variables: They include one independent variable, the training program (CoRT program).

2.5.2 Dependent variables: Include a one follower variable which is (critical thinking and sub-skills).

2.5.3 Processing statistical data

The following statistical methods were used:

(T) test for independent samples, and (T) test for two linked samples to answer the study questions.

The sekweens scale were calculated to get the result of (0.01) and (0.05) of the value of the carotuses scale. These values are sufficient for the data to be close to the normal distribution chart.

3. Results and Discussion:

3.1 First: The results related to the first question and states the following:

"Are there statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the average scores of the critical thinking skills test attributed to the skills program of CoRT? "

To answer the first question, the (T) test of independent samples was used to determine the significance of the differences between the control and experimental groups in the post-test of the critical thinking test and its skills, as shown in Table 4:

Table 4. Results of (T) test for independent samples to determine the significance of differences between the control and experimental groups on the test of critical thinking skills in post-test

skill	Group	Number	means	deviation	df	T value	Sig.
Know the assumptions	Control	30	21.37	1.32	58	- 4.239	0.000
	Experimental	30	22.97	1.58			
Evaluation of discussions	Control	30	22.57	1.67		- 3.031	0.004
	Experimental	30	23.70	1.18			
Clarifying	Control	30	22.10	1.32		- 6.022	0.000
	Experimental	30	24.03	1.16			
Elicitation	Control	30	21.90	1.44		- 4.740	0.000
	Experimental	30	23.60	1.33			
Ratiocination	Control	30	36.43	4.88		- 2.473	0.016
	Experimental	30	39.43	4.51			
Total	Control	30	124.37	4.47		- 7.329	0.000
	Experimental	30	133.73	5.38			

The results in Table 4showthat there are statistically significant differences at the level of ($\alpha \leq 0.05$) between the mean scores of the experimental and control groups in the post-test on the critical thinking test and its skills as the value of calculated (T) for the whole = (-7.329), with a significance level of (0.000), For the five skills (knowledge of assumptions, Evaluation of discussions, Clarification, Elicitation, and ratiocination) the calculated (T) values = (-4.239, -3.031, -6.022, -4.740, -2.473), respectively, indicating an impact of the program in the development of critical thinking. These differences were attributed to the benefit of the experimental group members with an average of arithmetic means on the total score (133.73) And standard deviation (5.38), While the subtotal averages of the sub-skills were; the While the subtotal averages of the sub-skills reached the knowledge of assumptions (22.97), Clarifying (23.70), Evaluation of discussions (24.03), Elicitation (23.60), Ratiocination (39.43).

It is observed that these differences are in favor of posttest indicating that the program has an impact on the development of critical thinking.

The improvement in the performance of students in the experimental group can be explained by the fact that they have been influenced by the skills and activities included in the first part (Expanding Cognition Area) and Part 3 (Interaction) Which reflects the impact of CoRT program Which give rise to thought and give them the ability to think in an unconventional way, and gives students self-confidence in life situations, reflecting the impact of the program in the development of critical thinking skills which aims at teaching students some appropriate skills to help them deal with life situations, expand their perceptions, increase their experience, develop a sense of responsibility, help in organizing their information and solving their problems, and to make appropriate decisions. De Bono points out that the CoRT program leads to an improvement in the level of thinking in general, We all think, and this program encourages us to think, even to expand and organize our ideas, where we create the positions in which we have to think, and that the outcome of this thinking is meaningful and useful (De Bono, 1995).

In view of the results of the question, we find that there are statistically significant differences between the pretest and posttest in critical thinking skills for the benefit of posttest, which indicates the impact of the training program on the development of critical thinking skills. The results of this study are in line with the results of some previous studies(e.g. Al-Otaibi, 2007, Al-Faouri, 2006, Sotohi, 2016, Donaldson, 2010, and Al abbaji, 2002).

3.2 Second: Results related to the second question: "Are there statistically significant differences at the level of ($\alpha \geq 0.05$) in the mean scores of **experimental group members** on the critical thinking skills tests attributed to gender?"

To answer the third question, the (T) test of independent samples was used to determine the significance of the differences in the experimental sample in the post-test of the critical thinking test and its skills according to gender. Table 5 shows the results of the analysis.

Table 5. Results of (T) test for independent samples to determine the significance of the differences in the experimental sample in the post-test of the critical thinking test by gender

skill	gender	Number	means	deviation	df	T value	Sig.
Know the assumptions	male	16	22.87	1.78	28	- 0.333	0.742
	female	14	23.07	1.38			
Evaluation of discussions	male	16	23.56	1.09		- 0.677	0.504
	female	14	23.86	1.29			
Clarifying	male	16	24.25	1.18		1.098	0.281
	female	14	23.78	1.12			
Elicitation	male	16	23.19	1.22		- 1.898	0.068
	female	14	24.07	1.33			
Ratiocination	male	16	40.06	4.15		0.812	0.423
	female	14	38.71	4.93			
Total	male	16	133.94	4.46		0.218	0.829
	female	14	133.50	6.44			

The results in Table 5 show that there are no statistically significant differences at the level of ($\alpha \leq 0.05$) between the mean scores of the experimental group members in the post-test of the critical thinking test and its skills attributed to the gender of the critical thinking test and its skills. As the value of calculated (T) for the whole = (0.188), and its significance level equals (0.829), and for the five skills (Know the assumptions, Evaluation of discussions, Clarifying, Elicitation, ratiocination), The values of calculated (T) = (-0.333, -0.677, 1.098, -1.89, 0.812) were respectively.

In view of the results of the question, we note that there are no statistically significant differences between the average scores of the experimental group members in the post-test of the critical thinking test and its skills related to gender. It can be justified that the CoRT program does not include activities, attitudes or issues that may be considered to be gender-related and that all activities are appropriate for both genders. The results of the study are consistent with those of some previous studies (Al-Hadabi and Ashwal, 2012) in general, and the study of Jaafara and Kharabsheh(2007).

On the other hand, the results of the current article are different from those of some previous studies (e.g. Hammadneh and Assi, 2015), which indicated differences in critical thinking skills (particularly Clarification, Elicitation, and ratiocination), and critical thinking as a whole is due to gender in favor of females. The study of Al-Hadabi and Al-Ashwal (2012) indicates differences in the skill of elicitation for the male group and in the skill of 'Know the assumptions' for the female group, and the study (Al-Faouri, 2006) which indicated that there were statistically significant differences due to the gender variable in favor of females.

3.3 Thirdly, the results related to the third question:" Are there statistically significant differences at the level of significance ($\alpha \geq 0.05$) in the mean scores of **experimental group members** on critical thinking skills test due to the level of education?"

In order to answer the fourth question, the test of independent samples was used to determine the significance of the differences in the experimental sample in the post-test of the critical thinking test and its skills according to the educational level. Table 6 shows the results of the analysis.

Table 6. Results of (T) test for independent samples to determine the significance of the differences in the experimental sample in the post-test of the critical thinking test and its skills according to the educational level

skill	grade	Number	means	deviation	df	T value	Sig.
Know the assumptions	7th	15	22.87	1.68	28	- 0.340	0.736
	9th	15	23.07	1.53			
Evaluation of discussions	7th	15	23.47	1,18		- 1.088	0.286
	9th	15	23.93	1.16			
Clarifying	7th	15	23.73	1.16		- 1.444	0.160
	9th	15	24.33	1.11			
Elicitation	7th	15	23.07	1.38		- 2.366	0.025
	9th	15	24.13	1.06			
Ratiocination	7th	15	38.60	5.04		- 1.013	0.320
	9th	15	40.27	3.90			
Total	7th	15	131.73	5.82		- 2.160	0.039
	9th	15	135.73	4.18			

The results in Table 6 show that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) among the average scores of the experimental group members in the post-test due to the educational level on the critical thinking skills test and for the ninth grade, As the value of calculated (T) for the whole = (-2.160), and its significance level equals (0.039), there were no statistically significant differences in the four skills (Know the assumptions, Evaluation of discussions, Clarifying, ratiocination) values of calculated (T) = (-0.340, -1.088, -1.444, -1.013) respectively.

There are no differences in the skill of devising and for the ninth grade, where the value of calculated (T) = (- 2.366), and there were no statistically significant differences in the four skills (knowledge of assumptions, interpretation, evaluation of discussions, conclusion) the value of calculated (T) = (-0.340, -1.088, -1.444, -1.1013), respectively.

Based on the results of the study, there are statistically significant differences between the average scores of the experimental group members in the post-test in relation to the educational level and the ninth grade. This can be explained by Piaget's theory of cognitive growth and the role of the interrelationship between neuropsychological or intellectual preparations and environmental experiences in the development of the child's intelligence and the growth of his reasoning ability. The theory explained that cognitive growth goes through four stages: motor sense, pre-operations, physical processes, and finally abstract operations, as the child in the early stages of growth has the ability to understand concepts of conservation and begins to use some logical processes such as skills of generalization and classification, but in the final stage the focus shifts from the concrete facts to the possibilities. The student can think about building and understanding hypotheses and provides a vision of alternatives, the capacity of which is at the core of the critical thinking process, as it is the ability to disseminate and apply information, to create new possibilities, and to reject prejudices. This result is consistent with the study of Issa (2014) that showed a correlation between critical and creative thinking skills and the

school stage, and contested with the study of Jaa'afara and Kharabsheh (2007) that showed that there are no statistically significant differences between the average scores of individuals regarding the gender variable and grade level variable.

3.5 Recommendations

Based on the results, the study recommends the following:

1 - Conducting studies on the effectiveness of the first and third parts of the CoRT program on other age groups of talented students.

2 - Conducting further studies on the effectiveness of applying other parts of the CoRT program.

3 - Increasing the awareness of teachers and encouraging them to employ the skills of the CoRT program during the process of teaching.

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