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INTEGRATING CRITICAL THINKING SKILLS USING THE CORT PROGRAM IN ARABIC READ-ALOUD SESSIONS: AN INFUSED CURRICULUM APPROACH

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Abstract

The teaching of Arabic literature for children faces two main challenges: the presentation of the information in a didactic way that does not engage the learners or stimulate their thinking, and the irrelevance of the presented curriculum to students' lives. The current research aims to mitigate these problems by designing a culturally relevant and engaging curriculum that infuse moral and ethical values in a dialogic format. The current paper present two excerpts as a model of how to immerse learners into Arabic literature by infusing de Bono's CORT program in Arabic literature for two age groups. We adopt a unique approach by using culturally relevant examples to teach the CORT values, unlike previous studies that use the same examples and application of the CoRT handbook. Additionally, the presented curriculum follows a holistic approach that aims at developing students' empathy and emotional awareness by reflecting on real-life situations, in addition to their thinking skills. Another aspired outcome of the designed curriculum is the improvement of students' engagement with Arabic literature at deeper levels. The curriculum presented include guidelines that make the units implementable by teachers and parents in school and out-of-school setting. We consider the current content to be a unique contribution towards integrating higher thinking skills and moral values into Arabic literature. We hope that this curriculum could be implemented in a follow up study to examine its impact on students.

Keywords: Arabic children's literature, critical thinking skills, CORT, higher-order thinking, infused curriculum

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1. Introduction

The twenty-first century increasingly demands children's improved critical thinking skills, especially because knowledge is increasingly available through the Internet and open access. Thus, students need higher-order thinking skills for evaluating available knowledge, analysing differences between sources, choosing reliable resources, and evaluating their choices' outcomes. Unfortunately, the national curricula in Arab countries emphasize basic skills, or lower order thinking skills, such as understanding and memorization. Although these skills are necessary, we would rather consider them complementary to higher order thinking skills, including critical thinking, problem solving, and creativity. The impact of Edward de Bono's Cognitive Research Trust (CoRT) program on improving students' thinking skills has been tested empirically, both internationally and specifically in the Arab world. For example, (Al-Faoury & Khwaileh, 2014; Hmeadat, 2016; Khalid,2010) used CoRT I and III to improve students' English language and science learning, respectively. However, these studies measured students' gains from CoRT application in academic achievement, not in the development of thinking skills.

Compared to other reports on CoRT's effects, we perceive the current paper to have several unique aspects. Unlike other studies which used exactly the CoRT guidelines, examples, and applications that de Bono suggested, our infused curriculum integrates CoRT's thinking tools into children's Arabic literature. This infused curriculum is designed to increase students' engagement with appreciation of the Arabic literature. Additionally, teaching students about critical thinking in their mother language and in a relevant context could have more positive outcomes in their thinking and attachment to their cultures and values. Additionally, such approach avoids overreliance on the Western literature that affects students' language and cultural norms and decreases the use of their mother language.

Another significant contribution of this research is the indirect delivery of moral values by inviting students to analyze events, critically evaluate them, and arrive at the moral value themselves, rather than directly telling students what is right or wrong, which is not effective in developing moral skills (Fairweather & Cramond 2010). They further suggested that when students engage with content and construct their own meanings, their autonomy usually increases, enhancing their critical thinking and moral skills.

To summarize, this research aims to (1) develop students' higher-order thinking skills by engaging with Arabic literature; (2) enhance their engagement with the Arabic literature in culturally relevant context; and (3) deliver moral values through dialogic teaching that allows them to think for themselves and to assess the outcomes of their decisions.

Below, we begin by defining higher-order thinking skills and approaches to teaching them. Next, we describe the CoRT program as our selected methodology. Finally, we describe the process of infusing two CoRT programs (I and V) into two pieces of children's literature, respectively targeting age groups 8–10 and 12–15.

2. Literature Review

2.1 Higher Order Thinking Skills

Higher order thinking skills is an umbrella term that includes, but is not limited, to: critical thinking, problem solving, reasoning, and analysis (Lewis & Smith, 1993). There is no consensus on the definition of higher-order thinking skills, since "critical thinking,", is highly dependent on the individual discipline. Philosophers, for example, count suggest that argumentative elements are important in reaching truth, so their critical thinking includes accuracy, relevance, consistency, logic, depth, completeness, significance, fairness, and adequacy, among other qualities. Psychologists focus more on the thinking *process*; for them,

a well-designed problem would be described as a situation that has one or more appropriate solutions and is complex enough, but soluble, to challenge students (Newman, 1990).

2.2 Lower- and Higher-Order Thinking Skills

A wide variety of research has distinguished between lower- and higher-order thinking skills. One well-known example is Bloom's taxonomy, a pyramid system listing lower-order thinking skills, such as memorization and understanding, at the bottom and higher-order thinking skills such as application, analysis, evaluation, and creation at the top. However, the difference between the two is not that straightforward. As Lewis and Smith (1993) argue, a situation that requires lower-order thinking skills for one student could require higher-order thinking skills for another, depending on cognitive ability. Accordingly, one cannot simply assume a level of thinking based on content but must also consider the student's "intellectual history." Additionally, content makes a great difference. For example, applying multiplication rules to solve a problem greatly differs from applying construction principles to design and build a house, although the concept *application* occurs in both examples. For Newman (1990), one distinction is that lower-order thinking demands only routine or mechanical application of previously acquired information, such as inserting numbers into already learned formulas, while higher-order thinking challenges students through interpreting, analyzing, or manipulating information.

2.3 Infusing Higher-Order Thinking Skills into Curricula

For decades, calls have been made for infusing critical thinking skills into curricula. In Great Britain for example, the National Advisory Committee on Creative and Cultural Education (1999) warned that their curriculum was hindering creativity (Fairweather & Cramond, 2010). In a parallel example from the United States, the National Center on Education and the Economy (National Advisory Committee on Creative and Cultural Education, 1999). The committee advised systematic adaptation of the curriculum to the job market, where students need to make decisions efficiently because "shifts in the economy become ever faster and more dramatic. …" Such calls shed light on higher-order thinking skills in the curriculum not as a luxury, but as a requirement for the job market and for responsible citizenry in an ever-changing world.

Several studies, including (Burke & Williams, 2008), reported that infusing teaching skills into the curriculum positively affects students' thinking skills. For such implementation to thrive, however, classroom teaching would likely require a structure or framework that facilitates teaching higher-order thinking skills together with some concrete examples and cases. Therefore, we decided to use the CoRT program that offers concrete thinking "tools" to train students about certain thinking strategies by using some examples and situations.

2.4 Using CoRT Theory to Develop Critical Thinking Skills

Cognitive Research Trust (CoRT), developed by Edward de Bono is a program for directly training students on how to think using practical tools or strategies. Assuming that thinking is best taught from 9 to 11 years old. De Bono argues is essential to develop the youngster as a "*thinker*" (De Bono,1983). CoRT contains 60 non-hierarchical thinking tools, which is organized into 6 programs (CoRT I–VI) with 10 tools each (de Bono, 1985). Teachers are advised to begin with CoRT I (breadth) and then proceed in any order through CoRT II–VI, thus providing flexibility for subject and context. De Bono (2009) claims that CoRT tools were designed to be used easily since teacher training is advantageous.

CoRT has four main objectives (De Bono, 1983)

1. To treat thinking explicitly as an important, distinct area in the curriculum
2. To view thinking as a learnable skill, improved by practice
3. For pupils to view themselves as "thinkers"
4. To acquire "transferable" skills applicable to other contexts

Widely used both in and out of school settings, CoRT has been applied to more than 100,000 students worldwide, from Venezuela to Malta, the United Kingdom, the United States, and Europe, with 9-year-olds to older students (De Bono, 1985). It is reported that CoRT was implemented since 1982, in language arts, social studies, science, and mathematics (Melchior, Kaufold, & Edwards, 1988).

2.5 Importance of Storytelling and Integration of Critical Thinking

We selected storytelling as the main content of the curriculum, since it provides an opportunity for student-teacher and student-students dialogue and interaction (Rosenberg, 2008).The dialogic elements are essential components of higher-order thinking (De Bono,1983). Storytelling allows discussion of various hypothetical situations, hence it also provides a space for creative thinking, such as imagining alternatives solutions, unlike fixed school curricula that emphasizes a single narrative.

3. Methodology

3.1 Context and criteria for content design

The criteria for selecting appropriate literature for embedding CoRT is : (1) had to be written in Arabic; (2) present a moral value; (3) use straightforward, simple language for students' ease of understanding to allow students to focus on the content and morale of the story rather than understanding the language itself. ; and (4) be suitable in content and for students 8–10 and 12–14 years i.e., within their zone of proximal development—material attainable and engaging but not overly challenging (Shabani, Khatib, & Ebadi, 2010).

3.3 Procedures

Based on instructional approaches by (Paul et al., 1990) and CoRT's teacher handbook (De Bono, 2009) we provide some guidelines that are considered essential prior to teaching the designed module:

3.3.1 Making Thinking Explicit

Teachers need to spell out the thinking skills students should practice at each stage. First, however, teachers should discuss with students the importance of thinking skills and its difference from rote learning or memorization, to raise their motivation and willingness to put in the needed effort.

3.3.2 Collaborative Learning

Second is valuing discussion and perspective taking, because students' critical thinking improves when they think together rather than individually (Johnson & Johnson, 1983). Swartz et al. (1999) advise teachers to value collaboration in critical thinking, not only as acceptable but as preferred. Indeed, all CoRT tools are designed to promote discussion and brainstorming; when students gather, they come up with ideas that no single individual can think of alone. Thus, teachers must believe in discussion's power and encourage students to participate actively by maintaining a safe environment where everyone is heard and no opinion is better than the other.

3.3.3 Metacognition

Metacognition refers to students' awareness of and knowledge about their thinking. Although students with high metacognitive skills can monitor and control their thinking, teachers can improve students' metacognition by asking questions like the following: What questions did you answer? What is the difference between your past and present ways of thinking? Would you use this method in the future? Why?

These questions are essential for raising students' consciousness of their learning and thinking processes, the ultimate goal of the CoRT program, i.e., avoiding automatic thinking. According to Costa and Lowery (1989), several methodologies can improve metacognitive skills, including teachers who are paraphrasing or reflecting students' ideas, labeling students' cognitive behaviors, journaling to track students' thinking processes, discussing and evaluating thinking abilities admired in others, and modeling students' own thinking processes.

4. Results

In this section, we present the designed program that integrates De Bono's skills into read-aloud sessions in an engaging way that promotes their critical thinking and encourages discussion about moral values.

4.1 Embedding Tools from CoRT I into Arabic Literature for Children 8–10

In this program, we aim to infuse tools from CoRT I into a children's story for ages 8–10. This program aims to train students to think broadly and to take decision effectively using different tools that will be explained in the subsequent sections.

As a main gateway to thinking skills, the main topic of CoRT I is breadth, i.e., tools that widen students' thinking as much as possible: Consider All Factors (CAF); investigate the pluses, minuses, and interesting of a topic; think about long-term consequences and probable sequels (C&S) of an action (De Bono, 2009). Table 1 lists and describes these tools.

Curriculum 1: Who Planted the Spines on my Back?

> Written by Intesar Abd El-Moneim (Nahdit Misr Press, 2018), *Who Planted the Spines on my Back?* illustrates the life of five white animals living in a shelter. They eat, play, grow, and do everything together, enjoying a peaceful life. As they become older, one animal, Rooty, notices that her siblings are no longer close to her. They do not play with her as usual; when they sleep, they cuddle one another but leave her to sleep alone.

Very frustrated, Rooty decides to leave home and live independently, assuming the others do not care. Upon noticing her absence, however, they searched for her, found her, and explained that she has spines growing on her back, so they are a little afraid to be close to her. Assuming she is a rabbit like them, Rooty was surprised, not knowing that, indeed, spines are growing on her back. When they all realize that she is a hedgehog, they set some rules for playing and living together peacefully while also ensuring that no harm comes to anyone.

4.1.1 The Infused Curriculum

In designing the curriculum, we considered the foundations above for teacher-student interaction. Additional considerations included (1) developmentally appropriate questions and exercises for the targeted age group (8–10-year-olds); (2) examples that are relevant to students living in the Arabic culture; (3) along with each stage's thinking skills, educational outcomes to integrate thinking skills with teaching moral/ethical values; and (4) most learning objectives matching verbs targeting the higher-order thinking skills of Bloom's taxonomy.

Below, we provide a summary of the story line, then a brief description of each thinking tool (from CoRT) and show how we integrated it into the selected literature, present intended educational outcomes, and provide tips for application in the classroom. We hope this self-explanatory guide can replace extensive teacher training.

Consequence & Sequel (C&S)

In the story's first scene, the forest has been attacked by hunters who are ruining it and killing the animals.

Students will be able to:

1. Analyze potential hazards and benefits that result from deforestation and hunting.
2. Empathize with animals and learn about consequences of cutting down trees or killing animals.
3. See the other perspective of the deforestation and what motivates people to do it.
4. Care more about the environment and become more protective of plants and animals.

Teachers can start by asking student to use the C&S tool to think about the consequences of cutting down trees and hunting animals in the short and long term. C&S aims to help students think about short- and long-term consequences, for example, of cutting down trees and killing animals. Students should engage especially in discussion of long-term consequences, for instance, of managing food resources. There is also a space to integrate science content on animals and plants and ask students to make connections.

Alternatives, Possibilities, and Choices (APC)

The APC tool is used to nurture creative thinking and problem solving, by asking students to consider the alternatives, possibilities, and choices of any decision. In the story, one day, Rooty found brown and white hair growing on her siblings' backs and expected the same would grow on hers. Students use the APC tool to think of possibilities and alternatives for the hair on Rooty's back.

Students will be able to:

1. Use previous, probably scientific, knowledge about animals' skins to think about animals' possible coverings.
2. Think outside the box about all possibilities, even if they do not exist, for example, red hair or green thorns.

Through this discussion, the teacher can spark students' imagination by asking what do you think could be growing onto Rooty's back? This activity allows students to think creatively and openly about possibilities and alternatives. Encourage them to expand their imaginations and think in many different ways, using their previous knowledge, and also non-existent options, to practice using their imaginations.

Aims, Goals, Objectives (AGO)

AGO tool is used to encourage students to differentiated between aims, goals, and objectives. The following activity is designed within the context of the story. In the story, all the animals are going on a trip into the forest. During this activity, students evaluate the trip's aims, goals, and objectives in order to plan it.

Students will be able to:

1. Plan a trip in terms of time and space.
2. Ask questions to ensure their plan is feasible.
3. Acquire more knowledge about the forest and rabbits' habitat.

Encourage students to think about the details of a forest trip. They can imagine themselves as rabbits organizing a trip for other rabbits: What animals would they see, what they might eat, and how can they play? It would be helpful to discuss trip details and create an "itinerary" based on their AGO.

Other People's Views (OPV)

OPV trains students to think about other peoples' points of view and to see how difficult it is to understand their views, for example, their parents' views on something. In the story, when the rabbits went on the trip, they did not play with Rooty, who was all alone. They slept cuddled together but left her to sleep separate from them.

Encourage students to do an OPV about what Rooty's siblings think of her.

Students will be able to:

1. Build empathy and see the other's perspective.
2. Learn to take a different perspective on another.
3. Understand that we sometimes misinterpret another's views about ourselves.
4. Learn the importance of clear communication to avoid misinterpretation.

Encourage students to think about other perspectives and imagine different scenarios. Even if students disagree with other perspectives, training to seek other perspectives is important. Discussing our views reveals that our views differ since we have different experience, culture, and knowledge. Our views can be right for us, but we cannot impose them on another because of our differences, thus respecting other views is essential.

Consider All Factors (CAF)

De Bono (1991) describes CAF as "the prime information input tool" used during planning. It encourages students to think as broadly as possible and to ensure all factors are considered before making a decision. However, CAF involves factors already in play, while C&S directs students to forecast what could be the result of an action.

In the story, Rooty decided to leave home and live independently. Ask students to use CAF to help Rooty consider all possible factors in her decision.

Students will be able to:

1. Evaluate various factors to consider before making decisions.
2. Appreciate that decision-making is a complex process because factors interact, thus making the decision harder.
3. Think about the value of home, siblings, and family, specifically protecting and caring for them.
4. Think about possible forest environments and learn that each animal prefers a certain environment for survival.

Encourage students to think broadly about different factors as much as possible, including Rooty's siblings, her new environment, food, and safety. Drawing a concept map with arrows might encourage broad thinking. Here not dismissing or judging any idea is important; remember that we are encouraging students to think broadly.

First Important Priorities (FIP)

FIP usually follows CAF, AGO, or C&S to help students prioritize factors after they have completed CAF. During CAF, students think as broadly as possible and then during FIP, they narrow or filter by listing the most important factors and dropping the least important

ones. Since students are encouraged to rate ideas and differentiate between very important and less important aspects in their lives as well, this is an important task.

Encourage students to evaluate different CAF factors in Rooty's decision to leave home, using FIP to identify the most influential factors and to dismiss the rest.

Students will be able to:

1. Know that all factors do not have the same value.
2. Differentiate between levels of importance in home, security, food, and family.
3. Rate factors according to their importance when making a decision.

This tool trains students to think strategically and to evaluate ideas and factors from CAF or AGO because not all factors have the same value. Students' personal priorities—for instance, safety or food—can provide interesting discussions. Support students by asking them to rate factors from least to most important ones, for example, "What should Rooty most consider before deciding to leave home?." Remember that "right" answers are not necessary; the important things here are students' thinking processes and their evidence for their arguments, regardless of what they are.

Plus, Minus, Interesting (PMI)

De Bono describes PMI as a tool for training open-minded attitudes, i.e., useful for "treatment of ideas" before a decision or simply for avoiding labeling an idea as good or bad. This helps students avoid emotional reactions to an idea through its careful examination. PMI "forces" students to think discretely in three ways: pluses, minuses, and interesting points.

Interesting ideas cannot be described as good or bad, but worth noticing, and possibly leading to more interesting ideas. The "interesting" category provides students space to avoid the "good-bad" labeling dichotomy. PMI teaches students that we sometimes unadvisedly reject an interesting idea because it first seemed "bad" and see disadvantages of an idea that first seemed "good." At the same point in the story, for example, Rooty and the readers discover the spines growing on Rooty's back. Students then do a PMI about Rooty's spines.

Students will able to:

1. Think outside the box and brainstorm advantages and disadvantages of having spines.
2. Build more empathy for Rooty and, especially, for those who look different on the outside.
3. Learn not to judge by physical appearance.
4. Learn that anything that happens to us has both positives and negatives and that considering both is always good.

This activity represents the main lesson of the story. Students might rush to the judgment that having spines is bad. Be patient, however, and encourage them to think carefully about pluses and interesting points of having spines. The critical outcome should be understanding of and empathizing with Rooty and, more importantly, with those different from us, may it be color, race, ability, or physical appearance, among other characteristics. Help students think discretely in three ways: plus, minuses, and interesting points. To structure their thinking, ask them to discuss each category separately and to avoid thinking of pluses and minuses simultaneously.

RULES

As the name implies, Rules is a final, operational strategy for making directives widely known, easy to understand, and possible to obey. A rule should benefit the majority, and people should understand its purpose.

After Rooty discovers that she is a hedgehog, she decides to live independently, but the rabbits promise they will play with her every day. Ask students to make some rules so that the rabbits and the hedgehog can play together happily and safely.

Students will be able to:

1. Appreciate that making rules is not easy.
2. Reach the conclusion that not all people will be satisfied with the rules.
3. Make rules that consider both the safety and enjoyment of play.
4. Think on the broader level: what rules should apply to the school playground?

This exercise involves students in making rules so that they appreciate the complexity of the process and think about each individual. Research shows that when students are involved in making rules, they develop a sense of ownership and belonging to the community and are thus more compliant. Use this opportunity to transfer the exercise into classroom practice, for example, setting classroom rules for behavior, discipline, participation, and answering questions. In this example, we wanted to ensure a democratic process so that every voice is heard and to allow student involvement and voting on which rules are applied.

4.2 Embedding CoRT V into Arabic Literature for Children 12–15

In targeting 12–15-year-olds, we use CoRT V. We have also chosen a story that matches its complexity and mirrors its main themes of information, analysis, and emotions.

In targeting values and feelings, CoRT V, with ten tools, is considered more advanced than CoRT I in extracting information and analysis, in addition to integration of feelings (Table 2; De Bono, 1987).

Curriculum 2: Going Out of the Bubble

Going Out of the Bubble (Dar El Balsam, 2015), selected to implement CoRT V, is a modern Arabic story by Dr. Ibrahim Shalaby, a cancer therapist. The story concerns Samer, a 12-year-old boy, who suffers from blood cancer and faces challenges he could not have imagined. During his medical journey, Samer discovers that he was living in a "bubble" as he meets new people and witnesses their challenges and sometimes witnesses even the deaths of close friends. Samer narrates his intense experience's positive influence in changing his values and perceptions about life, death, and people in general.

Going Out of the Bubble contains rich emotions and values that well suit the aim and structure of CoRT V, which focuses on our chosen values, the information we process, and emotions underlying decisions. The story presents a realistic narrative of the difficulties a 12-year-old faces during cancer treatment, especially in Egypt. Additionally, it presents valuable lessons to preteens and teens, most especially those from the Middle East and the Arab World.

A key narrative message is the value of empathy with whoever is different, illustrated by cancer's power to bring people together regardless of religion, identity, or socioeconomic status. The vivid narrative presents strong emotions—empathy, desire, fear of death, and understanding of life after death. Overall, the story portrays a young cancer survivor whose life is transformed by his exposure to an intense experience.

Embedding CoRT V into this story was rather more complex than in the CoRT I application because of (1) the complexity of CoRT V's advanced tools for thinking, which go beyond the written text into deep emotion and analyze what is absent or missing information, contradictions, and ready-made opinions and (2) the rich content that presents real-life experiences very vividly, sometimes leading the reader to laugh or cry.

In this exemplification of CoRT V application, we first summarize a scene and then suggest how to embed CoRT V into a classroom read-aloud session. CoRT I could be divided according to thinking tools because each tool was used separately. In CoRT V, tools are used more than once and integrated. Neither do we illustrate learning outcomes, as in the previous application, because of this story's nature and the targeted age range. We do provide guidance on each scene's main outcomes but leave more space for organic dialog between teachers and students, rather than limiting instruction to specific points as in the previous story due to the wealth of topics and emotions that could result from such organic dialogues.

Scene 1: Information in (FI)/Information out (FO) & Fishing Questions (FQ)/Shooting Questions (SQ)

In the first scene, Samer is teaching Adel, his stuffed toy bear, about cancer, but the reader does not know who Adel is or why Samer is talking about cancer. After the first paragraph on page 7, stop and ask students to think about the presented and missing information (FI & FO). Next, ask questions about the characters, topics, and the entire setting (FQ and SQ) as in the teacher guidelines below.

Here, the aim is to raise students' curiosity about the opening scene and to increase their suspense about possibilities and missing information. After figuring out what type of information is missing, students can be asked FQ and then SQ to open their thinking:

Fishing Questions (FQ) are used to explore different ideas, such as: Who is Adel? Who do you think is the speaker? Why is he talking about cancer? Why isn't Adel responding?

Then, Shooting Questions (SQ) are used to ask about a specific piece of information: Is Adel a child? Is Samer a teacher? Is Adel a friend of Samer? Is Adel sick? These questions let students then exclude some earlier options and choose from fewer options.

Scene 1: Belief Personal (BP)/Belief of Other (BO) and Big Guesses (BG)/Small Guesses (SG)

At the end of scene 1, Samer confesses to his bear Adel that he has cancer and some of his medication will probably cause his hair to fall out.

Ask students whether what Samer thinks is belief personal (BP) or belief of other (BO). Importantly, ask students how BP differs from BO and the consequences of adopting a BO without experiencing it.

Next, ask students to use small guess (SG) versus big guess (BG) to predict whether Samer's hair will fall out. Here, remind students that SG is used when there is existing evidence and high probability of guessing correctly, while BG are used when there is little information and high probability of guessing wrong.

Scene 2: Ready-Made Help (RM-H)/Ready-Made Substitute (RM-S)

After discovering he has cancer, Samer confronts his grandfather. This is a major scene because Samer's family was hiding it from him until he overheard a conversation about it. This is Samer's first confrontation of a family member about his disease and, particularly, about his family hiding the fact from him.

This emotionally intense scene dramatizes an unexpectedly mature dialog between a 12-year-old and his grandfather. During their dialog, Samer expresses his fear of death, but his grandfather questions Samer's fear and assures him that death could be a better option if he met God and went to Paradise.

In this example, the teacher can tackle some of Samer's assumptions about cancer, especially that it always leads to death. Ask students if Samer's assumption that he will die from cancer is a RM-H (ready-made help) or a RM-S (ready-made substitute). Drawing students' attention to the danger of using RM-S as a substitute for thinking, a trap that Samer falls into. Remind them that we should use RM-H as a guide to thinking, not as a substitute for it.

Scene 2: Contradiction (Co)/False Conclusion (Fco)

During the dialogue between Samer and his grandfather, Samer says, "I love God, but He does not love me" [because of his illness].

At this point, stop to question whether Samer has reached a Co (contradiction) or an FCo (false conclusion) by assuming that God does not love him because he is sick. Discuss that even if bad things happen to us, they do not mean God does not love us. Samer draws a false conclusion.

Scene 2: Value low (VL)/Value High (VH)

By the end of this scene, Samer's morale has greatly improved, and he feels ready to face treatment. After the dialog, ask students to analyze the dialog's influence on Samer's perceptions about cancer, using VL and VH.

Encourage students to notice how Samer's values have changed by the end of his conversation with his grandfather. Use this opportunity to reflect on how his concepts of disease, death, and relations with God have changed.

Scene 12: Emotions (EM)/Ego (EG)

In this scene, Samer receives his first blood transfusion, unaware that a real human being has donated the blood. His physician explains the process and comments that the donor is "a moral human being who sacrifices one of the most valuable things he has for others to survive." The idea that another person gives his lifeblood so an unknown other can survive is a revelation to Samer. Because Samer cannot thank the anonymous donor, as his only option, he decides to pray for him.

Use this lesson to differentiate between ordinary emotions (EM) and ego emotions (EG), such as pride and power. The blood donation is a powerful opposite of EG, for instance, altruism and sacrifice, emotions and actions Samer does not readily understand until he witnesses them. Ask students to think about the possible emotions of the blood donor and the receiver. Also ask them to think about various emotions that arise in such difficult situations.

Build on this example by encouraging students to reflect on how they manifest altruism and sacrifice toward humanity, for example, donating clothes, food, or toys to the poor.

Scene 14: Ready-Made Help (RM-H)/Ready-Made Substitute (RM-S)

Samer and his mother meet their neighbor Hany at the Children's Cancer Hospital and are surprised that he visits the hospital regularly to entertain the children and raise their self-esteem by singing and playing with them. Samer's mother, who had earlier disliked Hany because of his "reckless" appearance with his "long hair and open shirt" and always warned her children to stay away from him, felt ashamed; she had judged him unfairly, based on his physical appearance.

This scene offers the opportunity to train students to differentiate between RM-H and RM-S by considering Samer's mother and the neighbor Hany. Draw out how Samer's mother used ready-made opinions as a substitute (RM-S) for thinking and how this could eventually

be harmful, misleading her future thinking and decisions. The main outcome is to think how RM-S leads our thinking, and us, in the wrong direction. On the moral level, this scene illustrates a valuable lesson on not judging according to physical appearance and appreciating people for who they are, not for how they look.

Scene 16: Clues Separate (CS)/Clues Combined (CC) & BP/BO

In this scene, Samer discovers the "real face of poverty." He meets a married man with an infant daughter suffering from cancer. For hospital treatment, she must be accompanied by her mother, but the father does not allow this. Since the mother takes care of their cows, their main source of funds, they cannot afford her to leave them and stay in the hospital with their daughter.

Since we aim to improve students' thinking skills and to learn about a moral value, this scene provides both thinking and moral dimensions. First, stimulate students' thinking about possible reasons why the father refuses his daughter's therapy by, using CS & CC tools, examining clues separately and then combining them.

Second, the scene could be used to differentiate between BO and BP, by examining Samer's belief about poverty (BO) and how it changes after witnessing the infant's story (BP). In general, use BP & BO tools for students to differentiate between personal beliefs (BP) and beliefs of others (BO) on a variety of topics—poverty, diversity, and illness, among others. The main outcome is to appreciate personal experience's role and to avoid taking all BO as givens, without carefully examining them.

This scene is very rich morally, developing Samer's empathy through his close experience of a sorrowful story: Samer sees how the "real face of poverty" can affect peoples' important decisions. This could develop students' awareness of others and of the existence of suffering and pain, thus being unable to imagine a situation's intensity until they actually witness it.

Scene 24: Emotions (EM)/Ego Emotions (EG) & VL/VH

In the conclusion, Samer finally returns to school and talks about his journey against cancer. Samer says, "I usually ask myself, 'Do I feel angry or sad because of cancer?' … and the answer is 'No,' because Samer now is much better than the Samer you knew a year ago." Addressing his classmates, Samer continues his intense narration of how his struggle against cancer made him a better person, how he was exposed to different cultures and people of whom he was previously unaware of, how he developed mentally and emotionally, and how he even became more religious and ethical.

Again, we aim to improve students' thinking skills about emotions; we want the students to *think* about their emotions and analyze them. For analysis of Samer's emotions, use the emotional tools EM & EG for students to trace how Samer's emotions developed from EG (ego emotions) to more altruistic ones. Help them notice how such hard experiences transformed Samer's emotions into better ones. Encourage students to provide examples of ego emotions and altruistic ones.

This scene also provides a rich opportunity to think about how Samer's values changed over time. The main outcome is to observe how experiences can change one's values positively or negatively, by using VL & VH. Students can list Samer's VL (low values) before learning about his disease and then his VH (high values) after his struggle with the disease and witnessing other people's suffering.

Focus on the story's main concluding scene and invite students to examine Samer's words closely to see the main lessons he learned and the value of being exposed to a larger world than ordinary life.

5. Discussion

This research aimed mainly to enhance students' thinking skills and information processing using literary content in a context relevant to their culture and environment. We also built on evidence that training develops these skills, as suggested by de Bono and others; accordingly, we designed two curriculum pieces to develop students' thinking skills using de Bono's CoRT program as the framework, namely, CoRT I and IV (De Bono, 1987, 2009). However, unlike other studies, we selected stories with important values and morals to embed into them the CoRT framework, thus making our study unique. The platform chosen as suitable for delivery and implementation were read-aloud sessions that enable dialog between students and teachers, along with rich discussion, as suggested by de Bono.

In the first implementation, we mainly targeted broad thinking skills according to the CoRT I program, which enables students to examine all possible alternatives and factors before making a decision. These are essential skills for students aged 8–10 because they usually rush into making a decision without carefully examining possible consequences. Thus, various factors should be taken into account. The selected story also focuses on empathy, exemplified in appreciating the difference between people and seeing it as a source of power and strength rather than weakness This carries a critical message for this age group, particularly in the Arab region, particularly in treating issues related to bullying that could cause major problems (Kazarian, 2013).

The second implementation, designed for students 12–15, has more complex content in terms of emotions and thinking. That said, a strong element of thinking accompanies the emotional intensity as it rises and falls across the story's plot. Thinking skills mainly help reframe Samer's various emotions so that he understands and evaluates situations differently. Thus, between Samer's learning about his illness and his talk to his classmates, emotions and thinking intertwine complexly. Here, the main aim was for this emotionally intense content to teach students how to change their perspectives by thinking intensely about life events that often look very different when examined in depth. The character Samer was a wonderful example of changing perspectives about people, illness, and even himself, throughout the story. Samer change his perspective not only about cancer and his fellow patients but also his own world and his isolated lifestyle—his 'bubble'—typical of an Arabic student at his age from a middle socioeconomic status.

6. Conclusion

The development of students' thinking skills is a twenty-first-century priority, especially because of the nature of the existing jobs that demands increasingly require higher-order cognitive skills. For this, however, curricula in most Arab countries do not sufficiently target these skills.

This research aimed to close this gap by creating a practical program infusing thinking skills into engaging content that teaches students how to think in addition to delivering a value or moral. The program is straightforward and includes guidelines and tips for teachers, parents, or educational practitioners who can easily understand our philosophy and implement the program to reach its intended educational outcomes. We believe this program complements children's literature and thinking programs by serving both fields in an integrated fashion.

We also perceive this work as a seed for future research, wherein we aim to implement this program with different age groups and to measure its impact in improving not only students' thinking and decision-making skills but also their emotional development, in order to reduce the spread of behavior-related problems, such as lack of empathy that often leads to bullying. Also, since we believe our program can be customized for different subjects, age ranges, and cultural contexts, we aim to extend its implementation.

Finally, we believe that the program's successful implementation would not only develop students' thinking skills and moral decision-making but also prepare them to be more responsible citizens and leaders who aim to develop their countries in the future.

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Appendix

Appendix : Description of the Tools Use in Each CORT program

Table 1. CoRT I Tools for Breadth of Thinking

Tool	Description
Consequence & Sequel (C&S)	A prediction and evaluation tool which helps students think about short-term (1–2 years), medium-term (2–5 years), and long-term consequences (over 5 years). C&S is concerned with actions by self or others. Students try to foresee the future and evaluate long-term consequences of actions
Alternatives, Possibilities, and Choices (APC)	De Bono [15] calls APC the "tool for creativity" since it allows students to think about alternatives and to continue looking for possibilities until they find a really good one
Aims, Goals, Objectives (AGO)	AGO encourages students to think about any activity's purpose. They are asked to question intentions behind any action and which goal(s) is(are) more important. AGO is a main (pre)planning tool
Other People's Views (OPV)	OPV trains students to think about other peoples' points of view and to see how difficult it is to understand their views, for example, their parents' views about a certain topic
Consider All Factors (CAF)	De Bono [15] describes CAF as "the prime information input tool" used during planning. It encourages students to think as broadly as possible and to ensure all factors are considered before making a decision
First Important Priorities (FIP)	FIP usually follows CAF, AGO, or C&S for prioritizing factors post-CAF, i.e., thinking as broadly as possible and then narrowing or filtering by listing the most important factors and dropping the least important ones
Plus, Minus, Interesting (PMI)	PMI mainly trains for an open-minded attitude. As de Bono suggests, it is useful for "treatment of ideas" before making a decision or simply labeling an idea as good or bad. PMI "forces" students to think carefully in three ways: pluses, minuses, and interesting points
RULES	As the name implies, Rules is a final, operational strategy for making directives widely known, easy to understand, and possible to obey. A rule should benefit the majority, and people should understand its purpose

Table 2. CoRT V Tools for Information, Analysis, and Integration of Emotions

Tool	Description
Information (FI & FO)	**FI** refers to "information in," i.e., information already present or supplied **FO** refers to "information out," i.e., omitted or missing information
Questions (FQ & SQ)	This tool helps students ask two types of questions, particularly after FO: **FQ**: "Fishing questions" are exploratory, encouraging students to ask open-ended questions, especially when they do not know the answers. FQs are used at the beginning to collect a lot of information **SQ:** "Shooting questions" are very specific, which are used either to confirm or reject information and thus expected to have "Yes" or "No" answers. SQs narrow possibilities after FQs
Clues (CS & CC)	This tool links to FQ & SQ since questions can offer clues or little pieces of information and, when combined, might contain a solution to a problem **CS:** "Clues separately" refers to examining each hint alone, using a "magnifying glass" to discover what each means. **CC:** "Clues combined" means to examine all hints together to see how they add up. When combined, some clues might be eliminated and others emphasized **CS** always precedes **CC**
Contradiction (Co & FCo)	**Co:** "Contradictions" refers to opposites that cannot both be valid **FCo:** "False conclusion" refers to an illogical connection between points,

	which lead to invalid reasoning
Guessing (SG & BG)	**SG:** "Small guesses," in which one is more likely to be right than wrong, is a guess based on strong reasons/evidence. Thus, one's guess would be right unless something unusual occurs. **BG:** "Big guesses" include possibilities that being wrong is equal to or even less than being right
Belief (BP & BO)	**BP:** "Belief personal" refers to individual experiences leading a person to a certain belief **BO:** "Belief of other" refers to a belief acquired through others' experiences or reporting
Ready-Mades (RM-H & RM-S)	Two types of ready-made opinions are adopted from other people: **RM-H** "ready-made help" refers to ready-made opinions that *help* thinking as a starting point or ingredient **RM-S** "ready-made substitute" refers to ready-made opinions that *substitute* for one's own thinking; thus, one does not further examine presented solutions
Emotions (EM & EG)	**EM** refers to ordinary emotions: anger, hatred, love, and fear, among others **EG** refers to ego emotions concerned with one's view of the self, which includes pride, power, drawing others' attention, and needing to be right Emotions always participate during thinking; however, distinguishing which type of emotion is shaping one's thinking is important
Values (VH & VL)	**VH** "value high" refers to what we prize the most. Values ranking differs from one person to the other **VL** "value low" refers to what we prize the least De Bono suggests that value is very subjective and we cannot assign value without deciding between two choices
Simplification & Clarification (SF & CF)	**SF** "simplification," the opposite of complication, is usually shorter than the original version **CF** "clarification," the opposite of confusion, makes things clearer