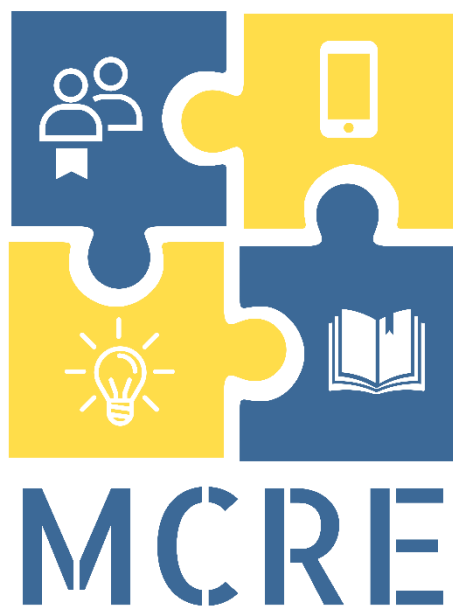




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MODULE 3: Critical thinking – how to improve your skills

Developed by E&D Knowledge Consulting
within the project

MCRE - Media literacy, critical viewing and CREative vision as effective learning
approach for people with fewer opportunities

THE PARTNERSHIP:





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1. AIM AND LEARNING OBJECTIVES

1.1. AIM OF THE MODULE

The aim of this module is to motivate you to upskill competencies and to increase your critical thinking skills in a way that enables you to understand and interpret received information.

The need for this personal development comes from an increasing growth of disinformation and spread of fake news intended to mislead the public. The circulation of false information negatively impacts the public opinion and therefore can pose as threat to society and democratic principles. While these types of narratives keep being diffused around several media, such as television, social media, and the internet (in general), it is important that people who use these platforms know how to identify if such information is true or not. This capacity involves understanding and thinking in a critically manner, questioning statements that are presented to us and having the skills to look for the right facts and to not share incorrect news.

To think critically is an especially relevant competency in today's context where we assist to a vast and fast paced evolution of information and communication technologies, where we can be daily exposed to these and other narratives. Therefore, it is the aim of this module to transmit useful strategies to capacitate yourself. The module provides learning contents and practical activities to an efficient comprehension.

1.2. LEARNING OBJECTIVES

By the end of the present module, you will:

- Identify your level of critical thinking.
- Acknowledge your needs for self-development.
- Recognize your abilities to question given statements.
- Interpret information in a critical manner.
- Access, gather and understand relevant strategies and techniques to upskill yourself and others.

2. SELF-ASSESSMENT EXERCISE – ARE YOU A CRITICAL THINKER?

Following-up on the last module, that provides a clear view on critical thinking concepts, here it is presented a short self-exercise that enables you to have a sense of your level on some competencies related to critical thinking. The exercise is an



adaptation of a known skills assessment test – the Watson-Glaser Critical Thinking Appraisal. This version^a consists of a set of 5 logic questions with different types of response. Each question corresponds to a critical thinking related competency. The goal is for you to answer and reflect in the end about the skills you have just used in the process.¹

Question #1 | Inference

From the following passage, it was written a proposed interpretation. State your thoughts on the veracity of the interpretation based on what the passage claims.

Passage: 50 people have been interviewed for a job vacancy. During the meetings with the interviewers, voluntary work was the most discussed element because companies today find it of great importance to fill any position.

Proposed interpretation: The company hasn't found the right candidate because all of the interviewees have experience with voluntary work.

True

Probably True

Insufficient data

Probably False

False

Question #2 | Recognition of Assumptions

The goal here is to verify if the referred proposed assumption can be presumed from the following statement.

Statement: The lack of certain groceries in the supermarket implies that they didn't arrive to the store.

Proposed assumption: Unpredictable circumstances can condition the supply of goods to retail stores.

Assumption made

Assumption not made

Question #3 | Deduction

The objective of the exercise is to verify if the presented possible conclusion follows the following statement.

Statement: Most people that try to integrate the job market look for vacancies related to areas of their training. Nonetheless, it is important that people search also for areas of their interest.

Possible conclusion: Some people look for job vacancies within areas that interest them.

Conclusion follows

Conclusion does not follow

^a Adapted from a sample WGCTA test from JobTestPrep.



Question #4 | Interpretation

From the following statement, verify if the possible conclusion that is also presented follows beyond reasonable doubt.

Statement: John is the most multilingual person of his city, talking 10 foreign languages including Romanian, Polish, Greek, Turkish, Spanish, Italian and Portuguese.

Possible conclusion: If John met a Spanish person, he would be able to have a conversation with him.

Conclusion follows

Conclusion does not follow

Question #5 | Evaluation of Arguments

Related to the following question, evaluate if the argument is strong or weak, having in mind that the argument must be considered true. Note that a strong argument is one defined as relevant and important.

Question: Should airlines give a discount on plane tickets bought last minute?

Argument: Yes. Since it can motivate people to buy a ticket, fill the plane and avoid more air pollution due to the aircraft functioning.

Strong argument

Weak argument

3. LEARNING CONTENT

The present chapter intends to provide you with a set of resources, materials, information, and theory context necessary to develop and improve your own critical thinking skills set.

As seen in previous modules and throughout this handbook, critical thinking is a tool of added value and majorly relevant for several situations of our daily life. Holding skills like problem-solving, analysis competences or creativity and having the know-how to use them and apply them when we consider to be important can impact the way we inform ourselves, our attitudes when participating in society and our lifelong learning journey.

3.1. CHARACTERISTICS OF CRITICAL THINKING SKILLS DEVELOPMENT

In this section, by introducing you to the topic of how you can improve your critical thinking skills, we intend to provide you with a view of mental tools that can help with the process.



These are what educational researchers define as dispositions. As mental, they contribute to enhance your thinking capabilities, setting your readiness and how open you are to start or develop your critical way of thinking². In this way, note that it is important to have these inclinations for the critical thinking learning process, although you can also take your time to develop yourself on this topic.

Initiating dispositions

Habits that causally contribute to the start of the thinking transition process

Internal dispositions

Habits that causally contribute to think critically, once you have started doing it

There are two types of mental dispositions²:

Although, both of these disposition types can help with any phase of thinking critically, some authors identify the following elements as important to the process:

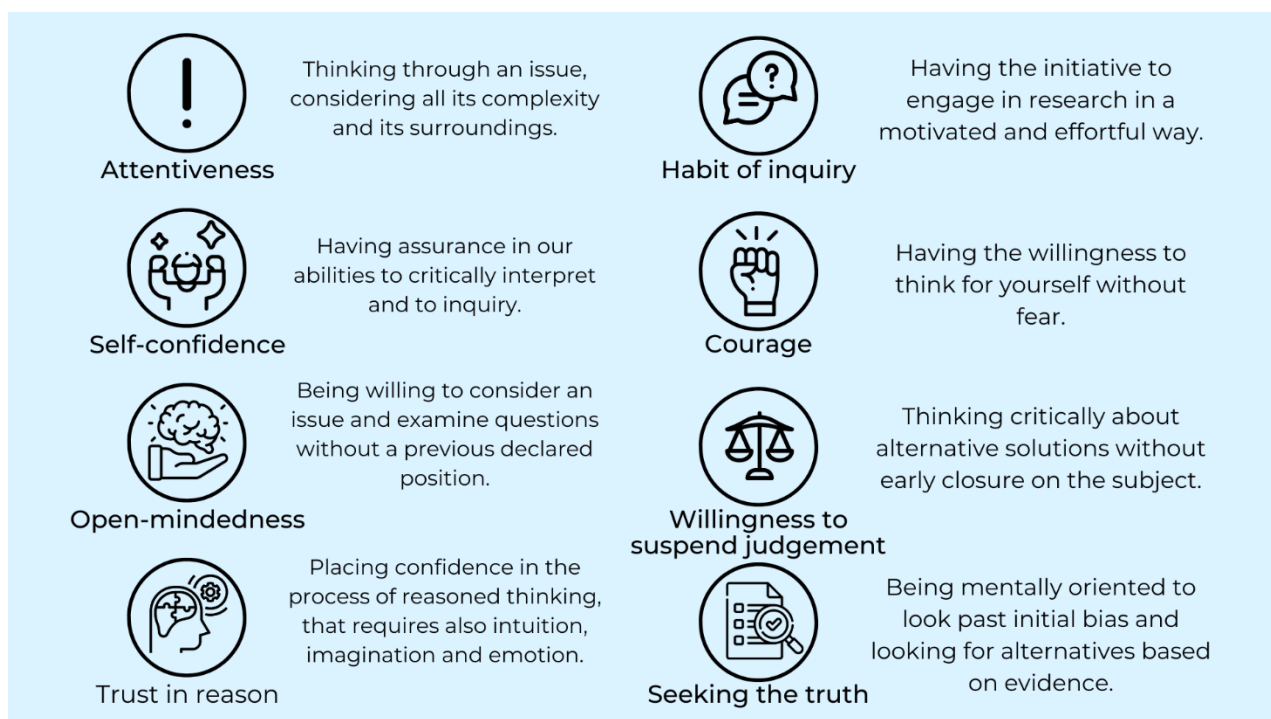


Image 1: Adapted and developed by E&D based on content from David Hitchcock (2018)



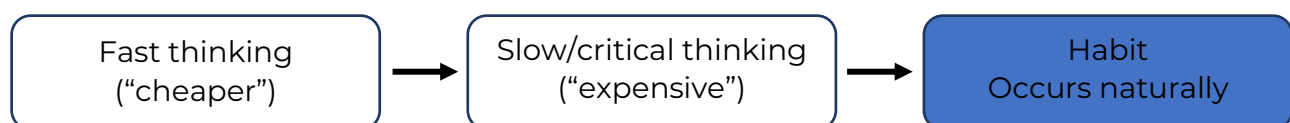
Critical Thinking is “the intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action” – Robert Ennis, 2015⁴

Developing a mindset in preparation towards the process of critical thinking also involves understanding the differences between the type of thinking we aim to achieve and our own state of thinking process. Critical thinking skills involve, as it follows the logic of the MCRE E-Book, connecting the dots³:

- with knowledge provided by experience: meaning at developing and adjusting our beliefs and points of view to the assimilation of real-life evidence based on what we experience.
- with abstract thought: putting the puzzle together around different scenarios and possibilities, where one meets the concrete reality of facts.

From the point of view of theory of how such skills can be improved, the present module focuses on characterizing this skills path as a hierarchy of learning, where one should learn a set of basic skills before advancing to more advance or higher skill formation. The model proposed³ assumes that this development is a process that can be incorporated and ultimately become part of our thinking routines without having to initiate the whole process when performing certain activities that require it, such as self-clarifying if a news piece is “fake news” or disinformation.

List states that **the improvement of skills, namely critical thinking skills, arises not from the lack of some resource or something, but from a desire to develop ourselves as a person and in the many contexts on our lives, such as society, work, school, and others.**





As a human tendency, the mind applies a “fast thinking” approach when facing information, observations, or experiences due to the fact that less time is spent on the thinking process, making it a more mentally “cheap” solution, regarding other ways of thinking, where one needs to dedicate more effort and time. The problem lies on the fact that when this too direct, not considerate, type of thinking is activated, systematic errors called **cognitive biases** occur within our decision-making process, which leads to misapplied and incorrect reasoning.⁵



Therefore, although developing a critical thinking mindset can be a slower process, more “costly” in terms of time and effort applied, it is a solution to incorporate a questioning and critical perspective into our habits of thought, which ultimately will reduce the “costs” of thinking critically.

In this sense, we provide a starting point to establish what you can expect to learn at the end of the MCRE E-BOOK, regarding attitudes, behaviours, and skills proper of a critical thinking approach.

The following statements^{6,b} reveal critical thinking skills. Although their purpose is to have a starting point to the skills development exploration topic, you can use it as a self-assessment exercise in order to understand your perspective on the described actions, as well as the frequency in which you use them, throughout the E-BOOK.

 **Notes** 

Critical thinking skills actions

- ☐ I look for evidence before I believe in other's statements
- ☐ I take in consideration different perspectives of a problem or situation
- ☐ I present my own arguments with confidence, even if they oppose to the views of others
- ☐ I actively search evidence that may oppose what I already know and belief
- ☐ My opinions are influenced by evidence, not just personal experience and emotion
- ☐ If I'm not sure about something, I'll search to find out more
- ☐ I know how to look for reliable information to develop my understanding of a topic
- ☐ I can draw logical conclusions based on information
- ☐ I can solve problems in a systematic way (define the problem, identify the causes, prioritize, etc.) without making decisions only by intuition

Image 2: Adapted and developed by E&D based on content from The University of Manchester

^b Adapted from The University of Manchester’s short version Critical Thinking Self-Assessment.



After reading and interpreting the provided statements, this module presents you with a news piece covering a statement from former U.S.A. President Donald Trump on the broadcaster NBC NEWS from 2020. The purpose is for you to interpret and deconstruct the piece (from title, subtitle and provided text body^c) solely taking in consideration the statements provided under the Critical thinking skills actions image.

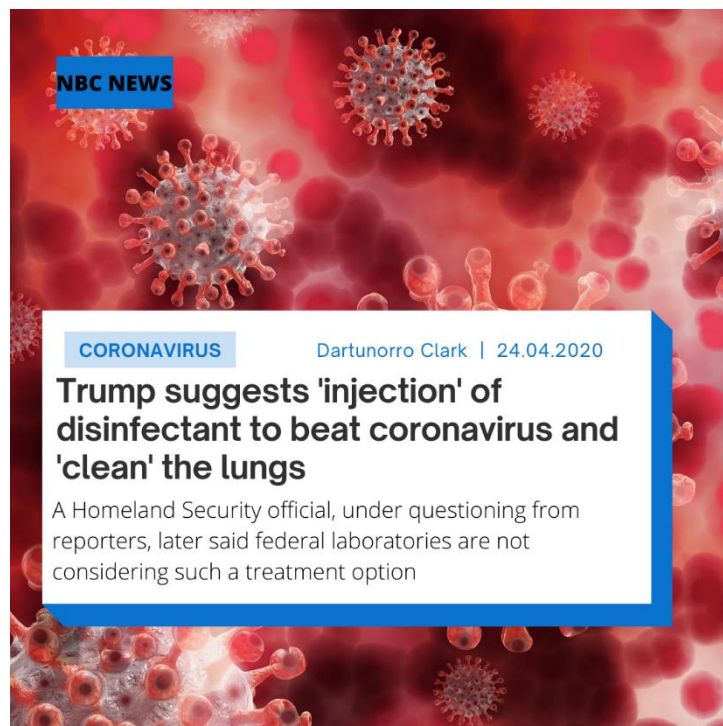


Image 3: Developed by E&D based on the referred news piece

From this exercise, some elements can be considered regarding the critical and questioning thinking process:

- Looking for evidence before believing in claims: consider the actual harms/hazards of the contact of chemical products with our organism. It is essential to search about the topic before believing in claims that can lead to dangerous actions.
- Taking in consideration solutions and different perspectives: search for proved means of protection against the disease and looking at what experts have stated about the situation.
- Drawing conclusions based on the information researched: with a throughout search for facts and evidence and a multiple source research, drawing clear conclusions about the veracity of the information.

At this point, we can assume that fast thinking leads to errors in the thinking process, caused by flaws that don't enable the mind to think considerately and critically about

^c [News piece: Trump suggests 'injection' of disinfectant to beat coronavirus and 'clean' the lungs](#)



all the aspects or alternatives of a solution or a problem, therefore causing errors in our statements.

As mentioned throughout the module, learning to improve critical thinking skills is not a direct process with instant results, but rather incorporating useful and clear habits that can make us think differently about ideas and beliefs that we assume as true or even information that we are exposed to on a daily basis, as information and communication technologies develops. This learning process isn't exclusive when it comes to improve critical thinking skills, as it can be developed in several ways according mostly to person of interest – the learner. Some authors provide explications that follow a hierarchy of the thinking ability, from which one can implement learning strategies. In this sense, skills are shown to be integrated in a hierarchical order, in which learning low order thinking skills is necessary to advance to higher ones, ultimately detaining a complete set of critical thinking abilities.

An important reference in this sense is the Bloom's Taxonomy^{7,d}, as a reference for learning through clear educational objectives and categorized thinking according to the skills order.

Bloom's Taxonomy

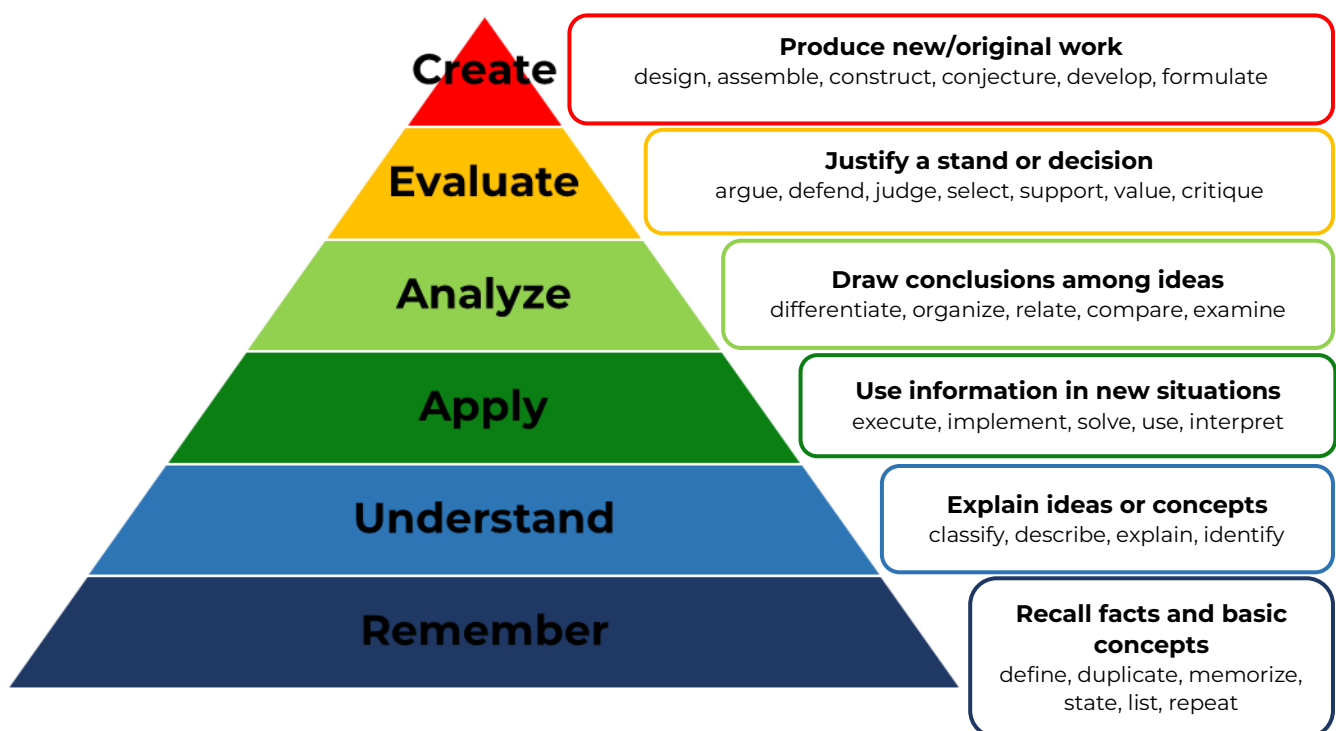


Image 4: Adapted and developed by E&D based on content from Vanderbilt University Center for Teaching

As a learner that wants to improve his/her critical thinking skills, the Bloom's Taxonomy is useful to define learning objectives and practise exercises according to the logical

^d Adapted from the online resources from Vanderbilt University Center for Teaching.



order so that the learner can make use of higher order skills having a supporting ability base. As you can see from the representation in Figure 3, for each skill, there are several verbs attached that correspond to actions that can be developed or performed in order to improve one's skill capacity. By using the verbs, it is possible to develop activities focusing on a certain input (such as a news piece, a text, or a video), creating tasks for that purpose¹⁴.

As an example, we state that if one wants to analyse the fast spreading of fake news in recent years in Europe, the learner should be able to understand several elements of the topic, such as the means of propagation, the impact of social, political, or economic events, or even the state of awareness of the European population towards the subject.

For the educator, the taxonomy consists of a reference framework that helps towards the development of exercises, to assess learners on their thought level and to establish a mutual exchange of knowledge and awareness of critical thinking skills that both teacher and educator can understand and act on. As such, exercises involving a complete incorporation of the skills order (through the categorize actions) help to improve critical and questioning thinking skills^{7,8}.

Exercise example

For educators: Developing a task-based exercise can be useful to teach critical thinking, by using an integrated task approach in order to get students to reach a certain output. The designed tasks should follow the logic of steps to reach the target goal, according to the verbs given by Bloom's Taxonomy.

For students and educators: an example.

1. The causes and possible solutions of the spread of fake news in recent years.
 - List the causes of the recent fake news spread, based on what you already know;
 - Explain the causes of the phenomena;
 - Interpret and connect to other events in the European and global society;
 - Analyse what is available to act upon the problem;
 - Provide recommendations for possible solutions to act upon the fast spread of fake news.
2. The advantages and disadvantages of online distance learning.
 - Identify and place in categories the arguments in favour and against the implementation of online distance learning;
 - Compare the opinions and arguments;
 - Based on the provided arguments, defend your point of view;
 - Discuss with others your opinions and justify them.



In another hand, development of critical thinking is also important to be incorporated through the self-awareness of the learner about his/her thinking. As such, some authors⁹ use the THINK model to assist students throughout their upskilling journey. By following these next steps, you can be aware of a number of skills and attitudes that are part of the critical thinking approach, when observing what surrounds us, interpreting what others say or even perceive information we are exposed to.



Image 5: Adapted and developed by E&D based on content from Rubenfeld and Scheffer (1999)

3.2. CRITICAL THINKING PRINCIPLES OF LEARNING

“People are better prepared to think for themselves if they first learn how to use the CT process through guided practice” – Wales, Nardi, & Stager, 1993⁹

The critical thinking transition is a powerful input that we can provide to our thinking habits and processes in order to facilitate the way we achieve logical conclusions based on facts and evidence and our own experience. Several studies have defended that the (further) development of critical thinking skills should be a part of education



programmes, in order to prepare students from all ages to deal and face the new challenges of today's society, marked either by the fast development of information and communication technologies and thus by the amount of information we receive.

Critical thinking requires that learners view themselves as autonomous individuals so that the fostering of skills that can be incorporated as an independent habit. For this to occur, special learning conditions¹⁰ need to be provided to empower learners on their journey, such as:

- the dedication to the **open mind** approach to receive and develop knowledge;
- a **sense of autonomy** within an environment of respect and sensitivity towards other's points of view;
- induce students on a safe context where they feel free to take **initiative** and active questioning, engagement, and risk, by going beyond the simple receiving and transmitting of information;
- appropriate time, support, and guidance towards the **need for reflection** and dissection;
- the support of a teacher/ **facilitator** to help them on the process;
- creating a **stress-free, cooperative** learning environment, where ideas can be put experimented and put in place, as well as alternative hypotheses and proceeding on resolution and decision-making problems;
- foment **thought-provoking discussions** - the relation between dialogue and questioning/thinking, as the impact a question can have on a learner's thinking and learning is greatly positive;
- to focus on "the educational power of rational dialogue focused on questions of significance in an atmosphere of mutual support and cooperation" (Paul, 1984)¹⁰;
- emphasize learning through **higher cognitive questions** that lead to thinking process to obtain a response, instead of fact questions;
- having a facilitator/ educator that actively demonstrates **metacognitive behaviours** related to the self-awareness of knowledge and thinking, such as planning sharing, describing goals and objectives, showing the purpose of their actions;
- **having a critical spirit!** This is possible through:
 - adopting and making use of critical thinking skills in exploring mentally topics and situations;
 - thinking critically about our own process of thinking, in which way could it be improved;
 - being willing to take actions accordingly to the critical process.

The 12 principles of critical thinking for adult learners¹⁰ are important references to support the improvement of critical thinking skills in learning contexts, by motivating both learner and educator to increase their knowledge and awareness on the topic.



1. To improve critical thinking, the learning environment must provide opportunities for adults to have in consideration several opposing points of view, which includes both their strengths and weaknesses.
2. Chances to reflect on, discuss and assess beliefs and actions of others and our own foster critical thinking.
3. It is important to evaluate a wide spectrum of alternatives when making decisions.
4. The learning environment must encourage (adult) learners to raise ethical questions about one's actions and their consequences, themselves and of others.
5. Collaborative questioning among all the participants, especially in the relation learner-educator, should be actively present in the learning environment atmosphere.
6. The learning context must reflect analytical questions, where thinking is necessary.
7. Critical thinking is especially facilitated when learners are motivated and engage in exploratory dialogues with themselves and others, where they provide inputs, submit and explore ideas through reflective thought.
8. Opportunities to identify, examine and question assumptions play an important role in increasing critical thinking and spirit.
9. Reaching inferences, interpretations, and conclusions based on observation and information should be an element of learning context, where those opportunities should be given to learners.
10. The discussion of contradictory views, thoughts or actions foments the critical approach.
11. Learners should be given the opportunity to identify implications of actions.
12. Generalizations should be challenged in learning environments to promote a questioning perspective (Jones, 1989)¹⁰.

3.3. METHODS AND PRACTICES

In this section we provide you with strategies that can be used either by educators or by learners themselves that will foster the development of critical thinking skills. The authors¹⁰ also suggest that these methods and tools can be used in different learning contexts, such as distance or blended learning, not only regular/traditional environments.

3.3.1. Critical analysis

This strategy involves an individual learner, or small groups in case of multiple participants, questioning, analysing and elaborating critiques on the proposed material, such as news pieces from broadcasters and press, related to a specific topic.



Example:

Subject

Investigating political issues on the society

Activities

Read and critique articles from newspapers and reliable online sources regarding current social events

Questions to raise

What are the demanding needs of our society and local communities?

Which parties can represent our society and its needs the best?

Which issues are currently being addressed? By whom?

How can we, as a collective, give importance to certain subjects?

3.3.2. Debate teams

Two opposing teams are built, and learners are assigned to the teams. One of the teams supports and defends a specific subject or a position towards it and the other opposes to it. Following a general introductory presentation from the session facilitator, team members present evidence and logical arguments in defence of the respective team's position. The strategy causes a greater impact if the supported position of a learner differs from his own.

Example:

Subject

Social media as a source of information

Defending position

High capacity of sharing that leads to greater access.

Collaborative and creative approaches.

Opposing position

Higher risk for disinformation and spread of fake news.

Less use of traditional media to inform.

3.3.3. Dramatization

Strategy of dialogue and action dynamics to support the interpretation and analysis of situations. It depends on a holistic and developed in detail plot. The facilitator shows a section of a video, relevant television show episode or movie that addresses the specific topic defined for the exercise. After the visualization of the short segment, the remaining script is thought, written and act out by small groups of learners, around the created alternative endings.



3.3.4. Action Maze ^{10,11}

Learners are divided into groups, involving two/three participants, where each group is given a specific difficult situation (or elaborates its own) and learners need to decide what to do next based on the information. Often, they are given a few optional decisions, but for a more efficient CT development process, learners should create their own action options while also identifying the resulting consequences for each alternative. Each set of consequences is written on a board (or other) and the action leading to them is written on an adhesive and put on top, hiding the writings on the board. The facilitator can provide as many connected situations as needed. When completed, the teams complete and follow the maze elaborated from another team. They identify alternative actions and consequences and compare it to what was defined.

3.3.5. Critical Incident

This strategy involves the presentation by a facilitator of a highly important part of a supposed critical situation or issue to the learners, who must solve it. The facilitator, holding the totality of the information, only shares it according to the direct questions raised by the learners, who do not have the full content. While the solutions being shared, the facilitator refers important points and comments the responses.

3.3.6. Socratic Questioning

This strategy is an important method and a reference in critical thinking skills development, as it conducts to the type of thinking that requires actual reasoning about situations. It requires asking adequate questions, instead of ones that bring closure to the learner's thinking by providing a yes/no answer or by repeating retained information. According to Bloom's Taxonomy, these evidence lower thinking skills and don't require a higher thinking capacity. Socratic questions, named after Socrates, provide the possibility of interchanging perspective and ideas, give new meanings to content, and exploring wider applications.

Example:

Logic of the dynamic

- In case of lockdown imposed by unpredictable public health events, how could we assure the maintenance of teaching activities?
- One possibility is resorting to distance learning.
- With this approach to the situation, what would be the impact on the student's learning?



3.3.7. Creative Visualization

This method allows the learner to imagine himself placed in a future situation they might find themselves at some point. The facilitator asks questions to help them to create this mental image and accompanying emotions, noting that the learners are in a relaxed and comfortable position with closed eyes.

Example:

Possible situation

Being the administrator or manager of a news channel

Questions to ask

- ✓ How do you spend a normal day? What are your activities?
- ✓ How do you motivate in the search of veracity in journalism?
- ✓ How do you match the needs of your organization and those of the colleagues you want to hire?

3.3.8. Journal Writing

The method involves having a journal or diary where learners are asked to write between CT development skills sessions about the follow-up and reflection of personal and related actions and behaviours. In this sense, journal writing could improve learner's sense of awareness, among others, by the opportunity for them to properly reflect on specific topics and learner's approaches towards them.

3.4. KEY TAKEAWAYS - INCORPORATING EVERYDAY HABITS

As critical thinking skills are important capabilities relevant in several dimensions of our everyday life, such as job purposes or participating in society of knowledge and information, it provides many benefits that play an important role to these dimensions. In this section, we provide three principles or tips that when incorporated, act as important habits to improve oneself as an effective thinker. In this sense, these given practices evolve around a questioning attitude towards available information, which enables a thinking process adapted to logic and reasoning, so that it can be diversified and open minded.^{12,14}

→ **Expand your skill set!**

Learning about yourself in what concerns your strengths and weaknesses in terms of skills, capabilities, dispositions, and knowledge can give you a perception of which tools you can develop and get interested in so that you can perform more efficiently in your everyday life. Also, by learning about biases and your own perspectives and biases/prejudices you can gain a perception of other points of view and interpretations of other people that may contradict yours. Having them in consideration will help you develop and open your mind to new ways of thinking, providing you different solutions.



Reading information resources such as books, papers, or articles about the specific skills you may want to improve (and reading about critical thinking itself) is of great relevance and importance as well.^{12,14}

→ **Take the initiative to solve problems!**

When facing a difficult situation or a problem, first of all, taking time to ponder and think about the issue is highly relevant. Assuming that time can be spent on deliberating how you want to provide a solution or when facing a potential for a possible problem to arise, it is important to reflect on some issues such as what you know about it; the relevance of the timing and content of the information; considering other perspectives and interpretations of it and potential solutions. This process of detailed problem solving requires you to analyse data and from there put in practice other skills such as creative thinking, designing and planning, as well as undertake strategies like brainstorming and researching to learn. With trusted resources and a sustained opinion, taking the initiative through reason to achieve a solution can create good habits and incorporate the critical thought process.^{14,15}

→ **Exercise your brain!**

Critical thinking can be improved by word games, puzzles, and other entertaining activities as these are mental exercises that activate parts of your brain that direct attention and problem-solving skills. Besides these being activities characterized by low-stress dynamics that make you avoid others that may cause you anxiety or frustration, factors such as concentration, cognitive flexibility, and using numbers and letters in several ways exercise your mental capability and control. Examples of these activities include logic puzzles, riddles, chess, solitaire, and crosswords.^{14,16}



4. FURTHER READING

In this section, we provide extra resources you can use to deepen the knowledge related to the module:

- Relation between writing and thinking – [Jordan Peterson - The Best Way To Learn Critical Thinking](#)
- Multiple discipline education programs and the perception of critical thinking by its students – [Teun J. Dekker - Teaching critical thinking through engagement with multiplicity](#)

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