

Module 4: Critical Thinking

Key Words:

Duration:

Learning Outcomes

- Better awareness of the importance of critical thinking
- Improved Critical Thinking
- The ability to dissect an argument
- Detecting Fallacies

4.1 Introduction and Definitions

What is Critical Thinking?

Critical thinking is the capacity to think rationally and logically while comprehending the logical relationship between ideas. In short, it is **the ability to think clearly and rationally about what to do or what to believe**. It does not correspond to the accumulation of information, or people with good memories, but with the ability to interpret consequences from what one knows, how one makes use of information to solve problems, and seeks out sources of information to gain knowledge. The ability to reason is what enables you to think critically. Consequently, the goal is to learn actively rather than passively.

Instead of choosing an answer just because it feels right, a critical thinker evaluates all options critically and with skepticism. Everyone comes across chances to apply critical thinking challenges and decisions in everyday life, in fact it is considered by most to be a universal denominator of success both in personal and professional life. This is primarily due to being able to think outside the box and come up with new innovative solutions to current problems or gaps in the market. Moreover, because of the abundance of free knowledge available to everyone via the internet, critical thinking abilities appear to be even more necessary in today's modern world.

Some examples of critical thinking:

- A manager trying to be as objective as possible when settling a dispute by summarizing the alternatives, with fairness to all sides to a disagreement.
- A person trying to interpret an angry friend's needs, expressed through a rush of emotion and snide comments, to give that friend some help and support.
- An educator using clever questioning to guide a student to new insights.
- A person running a small business trying to anticipate the possible economic and human consequences of various ways to increase sales or reduce costs.

“Critical thinking seeks to identify reliable information and make reliable judgements. It encompasses mindset and skills, both of which can be developed through an understanding of key concepts, practice and application.

Argumentativeness or criticism of others should not be confused with critical thinking. It is important to realize that critical thinking skills can be applied to the discovery of fallacies and wrong reasoning, as well as the innovation of cooperative and constructive thinking. Knowledge, improved theories, and stronger arguments can be derived from critical thinking. Moreover, critical thinking can be used to enhance work processes and enhance social institutions.

What does critical thinking look like?:

- Analysing inconsistencies and common reasoning errors/ Sceptical of information

- Identifying connections between ideas
- fair in their assessment of evidence and other people's points of view
- A systematic approach to problem-solving
- A reflection on the reasons that one holds a particular belief or value
- Assessing the importance and relevance of ideas
- The identification, construction, and evaluation of arguments



Critical Thinking is:

A way of thinking about particular things at a particular time; it is not the accumulation of facts and knowledge or something that you can learn once and then use in that form forever, such as the nine times table you learn and use in school.

Why is Critical Thinking Important?

1. Critical Thinking is Universal and Multifaceted

The ability to think critically is a domain-general cognitive talent. What exactly does this imply? It indicates that these abilities will always be reliable and valuable to your career and personal life, regardless what route or job you choose or the context of the situation. Critical thinking is therefore not restricted to any one field or situation. Critical thinking encourages the development of a variety of skills, including:



2. Promotes Creativity

The practice of critical thinking isn't only necessary for problem solving but sets the foundations for coming up with fresh and innovative solutions by thinking outside the box. This can be extremely beneficial for keeping up with fast-moving economies and business environments.

3. Aids Self-Reflection

Critical Thinking allows individuals to self-reflect and rationalise ways of life and opinions. To correctly evaluate your own and others' ideas and feelings, you must be able to comprehend all of the variables. When it comes to examining your own mental condition, introspection is critical. When you are self-aware, you will have a clearer understanding of your basic beliefs and will be able to perceive things from the perspective of others. Using this methods, individuals may strengthen their relationship with themselves as well as their relationship with those around them.

4. Fosters Better Decision Making

Critical thinking assists us in dealing with everyday difficulties as they arise, and it is extremely common for this thought process to occur subconsciously after practiced frequently. It allows us to think for ourselves and trust our instincts. Moreover, as we are living in increasingly information-filled societies, critical thinking may ground us in filtering the facts, and assessing problems from multiple angles, consequently resulting in well-informed decisions.

Critical Thinking and the Workplace

Critical thinking is a crucial ability that provides the foundation for creativity and problem-solving, not just a useful soft skill. Critical thinking, when appropriately nurtured in the workplace, may assist people and teams in overcoming obstacles and achieving corporate objectives. Approaching every issue with an open mind is the first step toward

really applying critical thinking. Problem solving, creativity, and cooperation are all aided by it.

4.2 Methods and Tools of Application

Every day, we are faced with a multitude of choices. Which politician, for example, should I vote for? Should I give the current diet fad a shot? How should I approach a situation with an angry friend? As a result, decision-making is a constant part of our lives, making it nearly impossible to make ideal decisions all of the time. However, there are numerous techniques to boost our odds, with critical thinking being one of the most successful.

Critical thinking is the process of sifting through information to arrive at an **unbiased, logical conclusion** through careful deconstruction. There are constant examples of critical thinking all around us. We evaluate information on a daily basis to judge its authenticity and whether we trust what we're taught. However, seeing the process of critical thinking in action is instructive. Because Critical Thinking is a muscle which can be exercised and improved, there are several methods and tools which if applied regularly to everyday situations can greatly improve both personal and professional life. The following are some techniques which can be used when approaching, and consequently resolving, problems.

1. COMMUNICATION

Communication is an important tool for critical thinking since it allows you to hear what others are experiencing.

- Seek diverse perspectives and justifications for the same thing. You will be able to study all choices to find the ideal solution if you invest in the topic.
- Active observation, in which you watch and listen closely, can assist you figure out what to make of the information being shared. It gives you hints about what the overall consensus is on the subject at hand and opens up new ideas.
- You can improve your connections by listening without interrupting and only asking questions or raising issues once the speaker has finished.
- You can better hear/read the perspectives of the persons contributing if you are completely engaged on a vocal or written discussion.

- Ask for confirmation of the speaker's or writer's point of view. This allows you to pay complete attention and critically think about what you're hearing.

2. CREATIVITY

The process of critical thinking requires to step outside the box, therefore an element of creativity is crucial to the process!

- In order to get out of your comfort zone, brainstorm with your team in a different place or work-shadow an industry expert.
- Play mental games like Sudoku or chess to see how different variables can be managed to achieve a desired result. These games assist in the formation of connections between previously isolated nerves, allowing your brain to find multiple solutions to issues.
- Collect information and present it as colorful, eye-catching charts, graphs, and mind maps. The easy exercise trains your mind to combine material in new ways and present it in new ways, allowing you to reach numerous unique conclusions and pick the optimal one.

3. ANALYTICAL THINKING

To understand the importance of analytical thinking we must first know the difference between critical and analytical thinking. By using analytical thinking, you're examining the information, gathering the facts, and determining whether an identified cause and effect follows logically. Critical thinking refers to one's ability to investigate, assess alternatives, and form opinions based on the information acquired.

- Make it abundantly clear why you require the information. This means recognizing your limitations and planning ahead of time to overcome them.
- Collect data from as many sources as possible, including peers and experts, podcasts, related literature, and wherever else you can think of.
- Rephrase the questions several times to acquire different perspectives on the facts and, potentially, new solutions.

- Break the facts down into factual groups and connect them to the problem at hand.
- To build new links, think on paper. Create thought maps, draw, or utilize spreadsheets. Data displayed in a visual format can assist you in making new connections and deciphering developing patterns.

4. OPEN-MINDEDNESS

Open-mindedness is a fluid state which must be re-assessed frequently. Everyone thinks they're open minded to a certain extent but this process requires a constant shifting of perspectives and breaking of walls.

- Be open to conflicting views! Hear a viewpoint that differs from yours without responding before the viewpoint is completely expressed.
- Recognize that there may be multiple approaches to solving an issue, each of which may be correct in some manner.
- When making any necessary changes, keep your genuine feelings in mind.
- Allow yourself to let go of long-held views and assumptions.
- Be totally honest with yourself about your advantages and weaknesses, as well as how they will affect the situation.

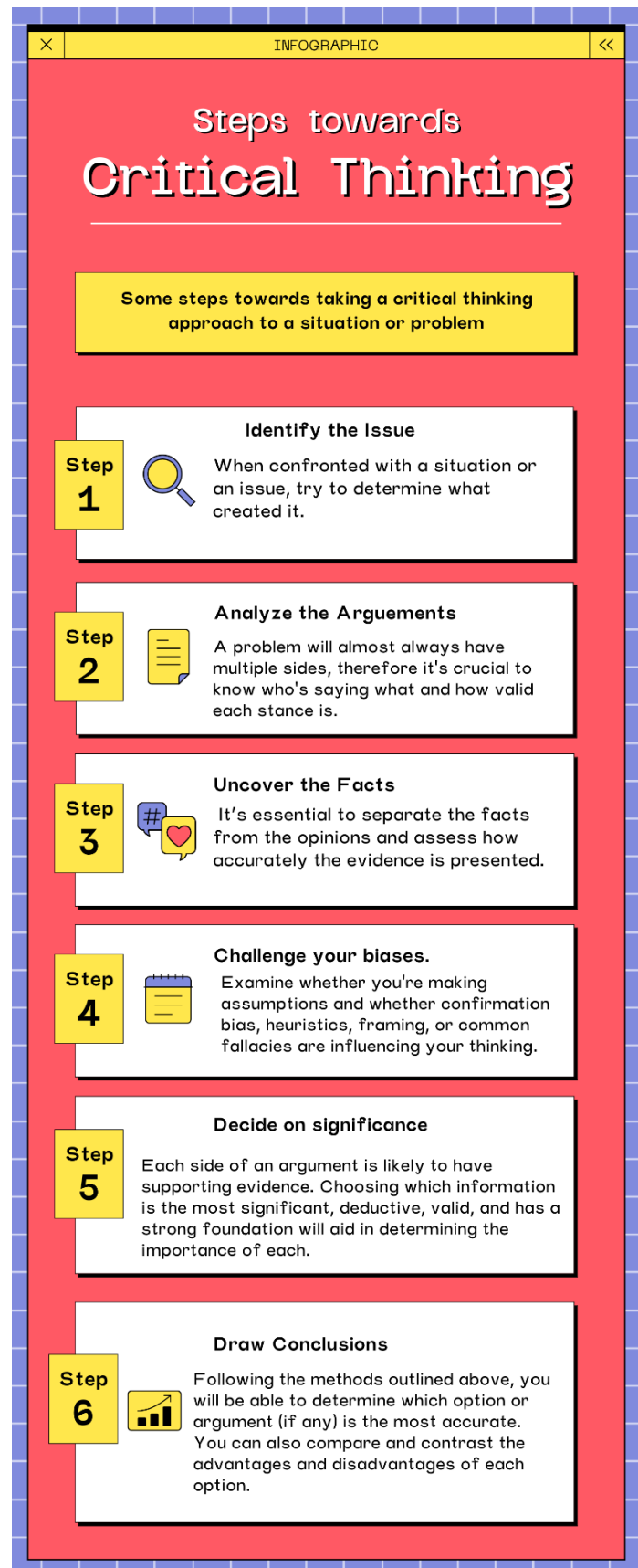
5. PROBLEM SOLVING

Critical thinking results in problem solving. It entails identifying and analyzing the problem with the purpose of determining the most effective way to overcome the hurdle. The following stages must next be completed:



(Retrieved from: http://nyscseapartnership.org/website/lmc_web_resources/resource_lmc_probsolve.cfm)

Although everyone's critical thinking and problem solving process is different, there are a few simple steps to follow:



Detecting Fallacies

A fallacy is a flaw or error in reasoning. A **logical fallacy** is a statement that appears to be accurate until reasoning is applied. Eventually you discover it's not true. People are frequently misled by logical fallacies, which are used to persuade them to believe something they may not otherwise believe. Being aware of these fallacies is a critical thinking activity in and of itself. When people are aware of these tactics, they can be spotted and avoided more readily. The following are some key fallacies, how to detect them and how to avoid them.

Appeals to Authority:

This is a method of persuasion in which the opinions of a renowned expert or person of authority are regarded as more important due to their position of power. This counters the basic principles of good logical and critical thinking which requires one to evaluate the foundations of their views. Agreeing or adopting a belief solely because someone else shares it is not a valid method of critical thinking

Tip: Take peoples arguments into consideration but make sure to be thorough with your own research and logical process.

Fallacy of Composition:

The argument that if one part of the argument is true then the whole argument must be correct. Just because part of an argument has weight does not mean that the whole argument is correct.

Tip: Make a list of the Pros and Cons.

The Red Herring Fallacy:

An arguer attempts to divert his or her audience's attention by bringing up an unrelated subject, then claiming that the original problem has been effectively resolved as a result of the unrelated diversion. This is very common in political discussions.

Tip: Always refer back to the original question and hand.

The Strawman Fallacy:

This occurs when someone misrepresents or caricatures an opponent's arguments or viewpoints, then attacks the weakened version instead of the original. For example if person A makes a point about CO2 emissions and car use and person B answers with 'That's a terrible point. How would we get to work?'

Tip: Always be fair and present arguments as they were placed to begin with.

At the Person Fallacy:

This is when you reject someone's argument by criticizing them rather than examining it on its own merits. It is a method of insulting the opponent's arguments and viewpoints by distorting or caricaturing them in order to attack the weakened version.

Tip: Never make arguments against someone else's viewpoint personal.

Appeal to Popularity:

This happens when one assumes that an argument is correct due to its popularity. Although a consensus among well informed individuals can sometimes be helpful in dissecting an argument, the opinion itself does not stand merely because it is popular.

Tip: Try to find adequate arguments both for and against popular opinions.

Appeal to Ignorance:

This happens when an arguer claims that an argument is true because no one has proven it false yet.

Appeals to Emotion:

A person tries to elicit feelings of pity or compassion, when such feelings are not logically relevant to the conclusion they are arguing for.

The Slippery Slope Fallacy:

This methods claims that the first step is an innocent one and should not be taken, since after taking it, the next step and the next will follow until you find yourself in a situation that no one wants

Fact vs Opinion

A remark that can be verified is referred to as a **fact**. Objective evidence can be used to prove if something is true or false.

A remark that reflects a sentiment, an attitude, a value judgment, or a belief is known as an **opinion**.

FACT	OPINION
<ul style="list-style-type: none">-can be established as true or incorrect using objective evidence.- is based on the use of denotative language.- regularly use quantifiable or verifiable figures, statistics, dates, and measurements	<ul style="list-style-type: none">- it is not possible to verify the statement presently.-It is based on the use of connotative language.- may have a variety of meanings for different people.- utilizes adjectives and comparisons that convey value judgments, such as "best," "most," and so on...

It is additionally important to note that:

- due to scientific or technical-sounding terms, opinions can sometimes appear to be facts.
- False facts are still facts
- If a statement is in the form of a prediction it is still an opinion because it cannot be presently verified.
- Words like value (or judgment) are frequently used to express opinions: e.g.
Antonio is the **best** employ

Examples of Value Words (these words cannot be verified or measured):

best	great	beautiful	worst	terrible
bad	should	must	good	strangest
disgusting	wonderful	pretty	most	lovely

4.3 Glossary

Analysis

The practice of deciphering what is going on in a message by breaking it down into its constituent parts and asking questions about each one.

Appeal to a higher authority

When the truth of a proposition is supposed to rest in the opinion of a famous figure or authority, it is said to be a fallacy.

Appeal to Ignorance

When we argue that something must be accepted because it cannot be demonstrated differently, we are committing a fallacy.

Appeal to Pity

A fallacy that arises when an argument tries to persuade people to embrace it by emphasizing the negative repercussions of not accepting it.

Thinking Critically

Active thinking is the process of evaluating and analyzing data to identify the best course of action.

Deduction

The truth of the argument's premises guarantees the truth of the argument's conclusion.

Evaluation

The process of evaluating an argument's many assertions and premises to determine its validity.

Evidence

Research, claims, or anything else that is used to back up a claim's veracity.

Fact

a thing that is known or proved to be true.

Fallacy

A defect in reasoning or a logical fallacy.

Imply

To express or offer a concept.

Induction

The truth of the propositions in an argument lends weight to the conclusion.

Infer

To arrive at a conclusion that is unrelated to the message.

Interpretation

Explanation and extrapolation of inferences drawn from a statement.

Opinion

a view or judgement formed about something, not necessarily based on fact or knowledge.

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4.4 Activities

Activity 1

A fallacy is a flaw or error in reasoning. A **logical fallacy** is a statement that appears to be accurate until reasoning is applied. Give specific examples of each fallacies below. Refer to section 4.2 for help.

Appeals to Authority:

Fallacy of Composition:

The Red Herring Fallacy:

The Strawman Fallacy:

At the Person Fallacy:

Appeal to Popularity:

Appeal to Ignorance:

Appeals to Emotion:

The Slippery Slope Fallacy:

Activity 2

Pros and Cons

A pros and cons list is a straightforward but effective decision-making tool for gaining a better understanding of both sides of a debate and can greatly aid the critical thinking process.

Arguments in support of a certain decision or action are listed as pros. Arguments opposing it are mentioned under cons.

Remember to ask the questions **why how why where**.

Pick one of the following arguments and make a mind map of the different arguments and points at hand.

- Drugs should all be legalized
- All people should have the right to own guns
- Bottled water should be banned
- Religion should be taught in schools
- Social Media has improved human communication

PRO	AGAINST

Activity 3

Fact or Opinion

The goal of this activity is to distinguish between fact and opinion. A fact can either be proven true or untrue. An opinion is a sentiment or a point of view that cannot be proven to be accurate or wrong.

Statement	F or O	Reasoning
The capital of Mexico is Mexico City		
We should use Ocean water for drinking		
Pitbull's are the most dangerous dogs alive		
Veganism is the healthiest life choice		
When you blush, the lining of your stomach also turns red!		
There were many deaths during the Second World War		