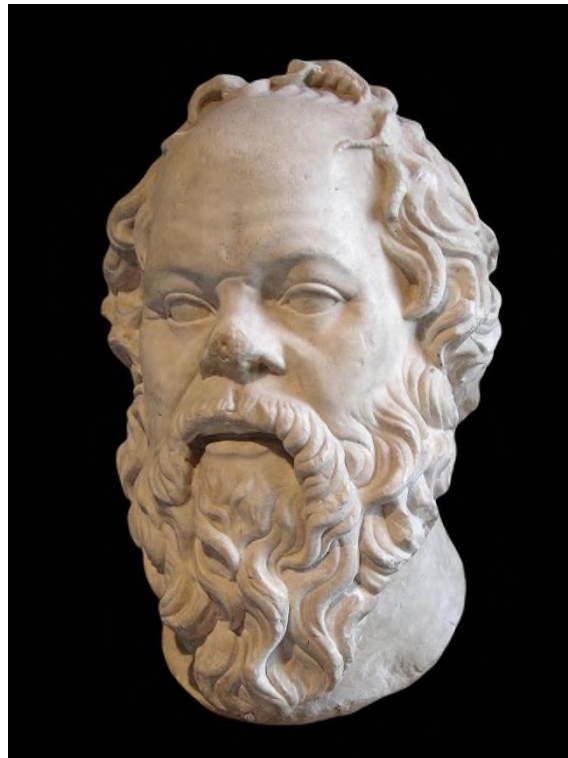


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CRITICAL THINKING



**ATLANTIC INTERNATIONAL UNIVERSITY
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INTRODUCTION

“Education is not the learning of facts, but the training of the mind to think.” Albert Einstein

Critical thinking is the ability to think deeper in order to solve complex problems. It is also the ability to think as a mature person. Critical thinking is the methodical training that helps us being the best version of ourselves. It is the way to become great leaders.

Critical thinking is a trans-disciplinary topic and its origin could be traced in Athens, Greece through the Socratic debate. The Socratic debate is based on asking and answering questions for the sake of stimulating the mind and draw out new ideas.

But, the term critical thinking was introduced by John, Dewey in 1910 as the scientific attitude of mind.

Although initiated before the Common Era, critical thinking still have great impacts on our daily lives.

Let us provide more details about critical thinking.

1. CRITICAL THINKING: DEFINITION

Critical thinking is the methodical way of thinking that provides answers to these six Wh question words; meaning: Who – What – Where – When – Why and How.

In a single question, it becomes Who is doing what, where, when, why and how?

So, this concept applies to human beings since one definition of people in general could be animals that have the capability to think (Aristotle) and even make the right decision with the help of one of the most powerful processor ever made by God; meaning the brain, human brain.

As we now have minimum knowledge about critical thinking and the category of living beings on which that term could be applied, let us deal with where it has been applied for the very first time.

The origin of critical thinking can be traced in Athens, Greece through the teaching of Socrates, the Socratic method or Socratic debate.

The Socratic debate is a form of cooperative dialogue between individuals, based on asking and answering questions to stimulate the mind and draw out ideas and underlying presuppositions.

The Socratic method is also a method of hypothesis elimination, in that, better hypotheses are found by steadily identifying and eliminating those that lead to contradictions.

The Socratic debate occurred between the 5th and 4th century before Christian Era and has been impacting the world of philosophy among them, the very first disciple of Socrates meaning Plato.

But, the term critical thinking was introduced by John Dewey in 1910 as the name of an educational goal, which he identified with a scientific attitude of mind.

Now, why should we think critically?

Critical thinking allows us to have trans-disciplinary visions, solutions to life issues. That implies improving the ability to analyse situations, evaluate the impact in short, middle and long term. It also implies reasoning on a given issue and making decision in order to solve the problem.

Critical thinking is for life long learners. In so doing, we become great thinkers, great teachers since “Teaching is learning twice” according to Joseph Joubert.

Critical thinkers are leaders, role models for their generation and beyond.

So, what are the steps to think big, to think critically?

How can we apply critical thinking to our daily live?

Life is a succession of decision making that leads to failure or success. So, as human beings, we have to maximize success and minimize failure. To do so, we have to think right in order to make the right decision. Successful people select their fields of interest in order to stay motivated when doing things they like.

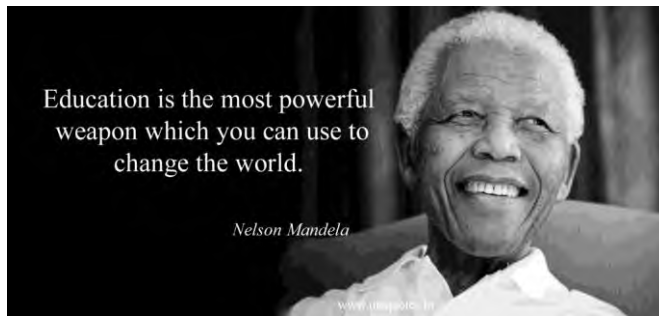
To be a critical thinker, we should make a list of our fields of interest. After making the list, start from the most important to the least important. For unexpected events, keep calm and think RED; meaning Recognize assumption among a variety of statements. Then, Evaluate the main argument and Draw a conclusion. The same, thinking about problems related to an unexpected situation could increase the pain. But, thinking about the possibilities to solve the problem reduces the pain. Seek also for interesting people, people who are very good at your field of interest in order to learn from them.

To improve our critical thinking, we should be curious, being a good listener and questioner and always looking for more information, details, workshops, seminars or webinars related to our field of interest. This to add one more thing to what we already know since knowledge is what one knows plus one. It also implies being studious. Then, we should share what we know and draw lessons about our performance in order to do better next time; improving what we already know or capable of. We should also be creative as much as possible for the sake of touching the emotion of our audience and make them feel at ease or emotive whenever we perform, publish a book or present a piece of art. For example, make them say if it is this teacher, we won't miss the class, because they are much better than the others. As they add each time a special touch to their way of teaching.

In one word, critical thinking make us look different and allows us to impact or influence positively our living environment locally or worldwide.

Let us share now some branches of critical thinking and show how we can apply them to our daily live.

2. CRITICAL THINKING IN EDUCATION



According to the Oxford dictionary, education is the process of receiving or giving systematic instruction, specially at school or university.

The key word here is instruction. In order to receive or give good education, the instruction should be precise and comprehensible both for learners and teachers.

So, critical thinking in education is the methodical and constant thinking or reflection that permits to give more and more comprehensible instructions to learners and to work on students' reactions to the instruction in order to make the whole class involve in the learning process.

The same, critical thinking helps learners think more effectively and makes them more reactive to any given instruction.

Nelson Mandela says "Education is the most powerful weapon which we can use to change the world.

So, who are the actors of education and what should be their respective role to change the world?

One may say the first actors are governments of each country. Governments have the duty build more schools specially in rural areas in order to encourage children and young people from these areas to go to school since they have to walk every day on long distance to go to school.

Second, governments should progressively ameliorate the salary of teachers specially in private schools to help teachers work more efficiently. As others says "little salary, little work."

Third, governments should progressively ameliorate literacy rate by reducing school fees to allow poor families to send their kids to school.

The second actors in education are parents. They just have to let their children go to school both for boys and girls since an old African proverb says "educating girls is educating a whole nation."

The same, parents should regularly check the work of their children and make sure they do their homework. Parents should also help their children if they have any concern with their studies. This to follow how their children perform at school and have remediation to their weaknesses in order to have better results at the end of each school year.

The third actors in education are teachers. They are the main ones in education. Teachers should provide their students with good education.

To do so, they should be themselves well trained and their instructions should be precise and understandable; meaning adapting the language to their students' level.

Moreover, teachers should make their classes more inclusive taking into account disabilities of some students.

The fourth actors in education are students. They are the last ones in the link. Governments, parents and teachers work together and try to do their best to provide students with good education. Students just have to work hard in order to have better school results at the end of each school year.

Now, the question is where does critical thinking occur?

It occurs both at home and at school. Teachers have to prepare their lessons at home before coming in classroom. Then, perform their classes with passion and reflect on each of their performance after each class for the sake of performing better next time.

Students in turn, have to be reactive in classroom and learn their lessons every day in order to have better school results.

Honour implies responsibilities. In other words, we can't do better and then perform worse than before. This to say that critical thinking is a constant reflection on how to do better than before. Critical thinking should be practised through the whole school curriculum and beyond. Like already said, critical thinking is a life time process. It is the remedy to avoid any failure in education.

Below are some advantages linked to the practice of critical thinking in education. For instance, students who think smart are most of time studious. They are also organized and express their ideas in a very clear way. In addition, critical thinkers are great teachers. They also have innovative ideas. Great teachers are more creative and very organized so that their classes are lively and students enjoy having class with them. Since two hours with great teachers is like spending two minutes.

As a teacher, how can we apply critical thinking to our daily work?

Critical thinking could be applied in education through the action research cycle.



Action research aims to identify problems and then produce an iterative plan of action with strategies to strive for best practice (Dickens & Watkins, 1999).

One may reflect on the way their students react in classroom when conducting a course. Next, find a strategy to make their students better react during classes. The following step would be applying a new strategy. Then, observe how their students react to the new strategy in order to reflect again on why some aspects of the strategy didn't work as they wanted.

Retake the cycle of action research over and over till obtaining "satisfaction". Then, find another issue linked to our performance as a teacher. Reflect on that and ...

There is always something to improve. So never stop reflecting on our performance.

We think that is the way to apply critical thinking in education.

Be humble enough to ask for help with colleagues who are better than you. Also, share what you know. Remember, "Knowledge is what one knows plus one."

Another aspect of critical thinking is the six thinking hats.

3. THE SIX THINKING HATS



The six thinking hats is a concept rich developed by the psychologist Dr Edward de Bono in 1985. It aims to make decisions from a number of important perspectives. It is a methodical process that helps move outside habitual thinking styles. It is also a set of different hat colour that has a specific role.

For example, the white hat is related to the data available.

The red hat looks at problems using intuition, gut reaction and emotion.

The black hat in turn is related to the negative aspect of the decision; meaning why it might not work; the risks.

The other colour is the yellow one. The yellow hat deals with optimism; benefits related to a given decision.

The green one deals with creativity; meaning improving the present situation with attractive ideas.

The blue hat permits to control the process.

The six thinking hats boot creativity and innovative performance. It can be used immediately to achieve long-lasting results.

According to Laura Donahue, the six thinking hats help generate ideas quickly, evaluate them and implement action plan effectively; elaborate actions plans to minimize risks.

Each of the six thinking hats could be used in specific way. For example, the green hat could be used in domains such as arts, music, architecture, technologies and things in the same kind to help being more creative by providing intellectual work that would always attract people and touch their emotion.

The red hat in turn, could be used by psychologists to analyse human behaviours in order to identify instinct behaviours and things done on intentionally. So that they could explain why this or that has been done and make proposal of solutions.

The blue hat permits to control process. So, it can be used in food and drink manufacturing to always provide us with safe good for nutrition.

The black hat is for risk managing in order to avoid company bankruptcy. One may call it the positive pessimism.

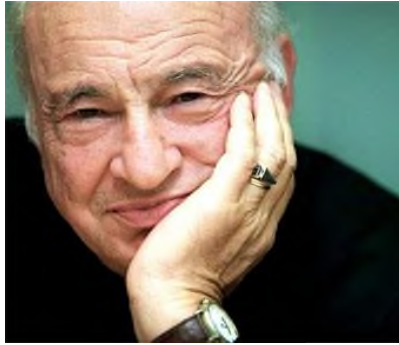
The yellow hat would be essential in business affairs to maximize profits. It is a way of possessing in mind what we don't have now. It is a real optimism.

The white hat is critical before launching a new project. Here, we will be collecting data in order to make the project successful.

Then, we could say that what the six thinking hats have in common is generating ideas in order to make the right decision.

The six thinking hats is a major part of critical thinking. Let us also deal with another important branch of critical thinking so called complex thinking.

4. COMPLEX THINKING



Complex thinking is the high level of reflection; meaning analysing, evaluating and creating solutions from a given context. This is opposed to the lower level of thinking that only consist in remembering, understanding and applying what have been learnt. Complex thinking is something we always work at. There is an obstacle but we can move forward.

Complex thinking also refers to the ability to interconnect different dimension of reality. (maximulaton, August 7, 2017). Each decision we make, contains uncertainty that we shouldn't neglect. In addition, complex thinking permits to better understand other people.

So, as a learner, one should make an effort to ask relevant questions when learning about new ideas. Also try to improvise with unscripted ideas and play games that develop reasoning and logic skills.

As a leader, we should assume contradictions and make complementary things that are opposite. We should also have in mind that progress is complex and problematical. (Edgar Morin 1982, p91).

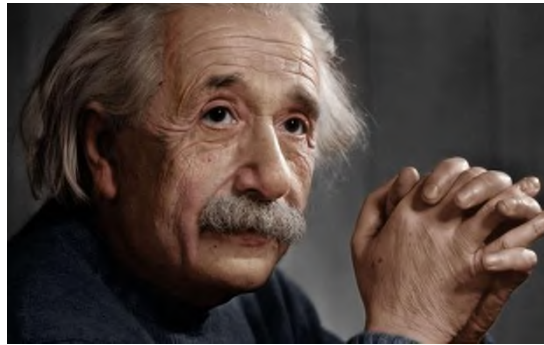
We could then apply complex thinking in education both for learners and teachers. This, to maximise potential and creativity.

One could use it in politics to stay a better leader.

Complex thinking could also be applied at home when dealing with family affairs.

Complex thinking is essential in many domains and it is a good illustration of critical thinking. In the same vain, let's talk about the psychological thought.

5. PSYCHOLOGICAL THOUGHT



Psychology is the scientific study of the behaviour of humans and animals. (Dr. R. Hamm). Having a psychological thought is the ability to train the mind in order to understand a fact and the idea behind the fact. That is why Albert Einstein says “Education is not the learning of facts, but the training of the mind to think.”

Psychological thought goes beyond the common sense and reflect on the unseen. But, deep thought may also lead to doubt and confusion. As Rene Descartes did in the seventeenth century, we may till today say “I think; therefore I am.” This is a kind of landmark we might have as we reflect on crucial problems. Landmarks permit to have a stop time before moving forward.

Psychological thought also permit to structure the project we are conducting. This is why it is recommended to apply the critical thinking skills; meaning: analysing, reasoning, evaluating, problem solving and decision making.

Analysing something is to examine in details for the sake of explaining and interpreting or reasoning on it. The next step will be evaluating the issue in the interest of making decision to solve the problem or ameliorate the result. Critical thinking is a non-stop process, a life time process.



Perfection is not from the earth. But, seeking it makes us have solution to number of things, and make the world a better place to live.

Dealing with the application fields of the psychological thought, we can say that it could be applied at workplaces to understand the people we work with and have better collaborations with them.

As a leader or manager, apply psychological thought to solve unexpected complex problems happening in your institution.

At school, educators could use psychological thought to better educate difficult students.

Parents in turn, could be the best version of themselves in managing the caprices of their children by applying the critical thinking skills.

Psychological thought or the methodical study of humans behaviours to understand and solve complex problem. Now, let us go deeper again by elaborating the difference between thought and knowledge.

6. THOUGHT AND KNOWLEDGE

According to the Oxford dictionary, thought is an idea occurring suddenly in the mind.

It is energy, an electric signal moving inside our brain for the sake of producing new ideas. The general goal of thinking is to figure out the lay of the land of any situation we are in. Thought is automatic and also occur when we are unconscious, when we are sleeping. The same, thought helps us solve neuron equations that determine the instantaneous behaviour.

The sleep is the ability to spontaneously form new ideas which associate old ones to reorganize our thoughts. It is a natural remedy when we feel tired after long hours of work.

Life does not depend on others. It depends on the ability to master our own thoughts. Good thinking pays off; meaning critical thinking permits to have better results and give self-satisfaction. But poor thinking causes problems, wastes time and energy, engenders frustrations and pains.

Below are strategies to clarify our thoughts.

First, we should state one point at a time. Next, elaborate what we mean. Then, give examples that connect our thoughts to life experiences.

The following is recommended to clarify other people's thought.

First, ask them to restate their main point. Then, ask for more details. Next, try to tell what you have understood. And tell them to confirm if it is correct.

There is an intelligence inside us that can elevate our life to the highest level. The greatest power we have is the power of our thoughts. So, be positive and never think a thought you do not want to become true.

Thought attracts what we think. How about knowledge?

Knowledge is any facts, information and skills acquired through experience or education. (Oxford dictionary).

Knowledge is power. The more you know, the easier it will be for you to learn new things. Knowledge brings more knowledge. It permits to think with relevance. Knowledge clarifies our thoughts and permits to better understand other people.

It is important to master the field we work in. Otherwise, we become a danger to ourselves and in the same vain to others. That is why George Bernard says "Beware of false knowledge; it is more dangerous than ignorance."

Knowledge deals with long term behaviour and helps solve mnemonic equations. It is also recommended to turn our knowledge into actions. The same, we should create something new with what we already know. To be successful in this process, we should make learning about thinking our priority.

Knowledge is in some sense true. It is the result of a process of thinking. This way, we can clearly say that there is a link between thought and knowledge. To illustrate

that, Augustus Hare says “Thought is the wind, knowledge the sail and mankind the vessel.”

Constant critical thinking leads to strong knowledge building. That is why we should never stop applying the critical thinking skills.

The next step of our piece of work will be dealing with metacognition.

7. METACOGNITION

Meta is a Greek word. It means beyond. Cognition is a set of mental process related to knowledge. So, metacognition goes beyond knowledge. It is the study of what allows us to acquire knowledge, the study of the cognitive systems; meaning the brain. Metacognition is a reflection on how the brain works for the sake of providing us with knowledge.

The term metacognition has been introduced in America by John Flavell in 1979. He is currently an emeritus professor of developmental psychology at Stanford. The aim of Flavell research is focused on children's knowledge and how to control their memory processes.

Metacognition to study the brain in order to help people use their brain for maximum potential by determining what could be difficult to do and identifying personal mental assets.

Since every human being has specific skills in which they feel at ease, psychologists devote themselves to study human behaviour in order to help children and young people identify their fields of interest, the fields their brain is good at. The same could be done for adults to help them in complex thinking, to help them think critically.

Now, what are the cognitive systems and how could we use them to obtain the results we need?

Human brain has 6 main parts; meaning the frontal lobe, the temporal lobe, the parietal lobe, the occipital lobe, the cerebellum and the brain stem.

The frontal lobe is responsible for problem solving, emotional traits, reasoning, speaking and voluntary motor activity.

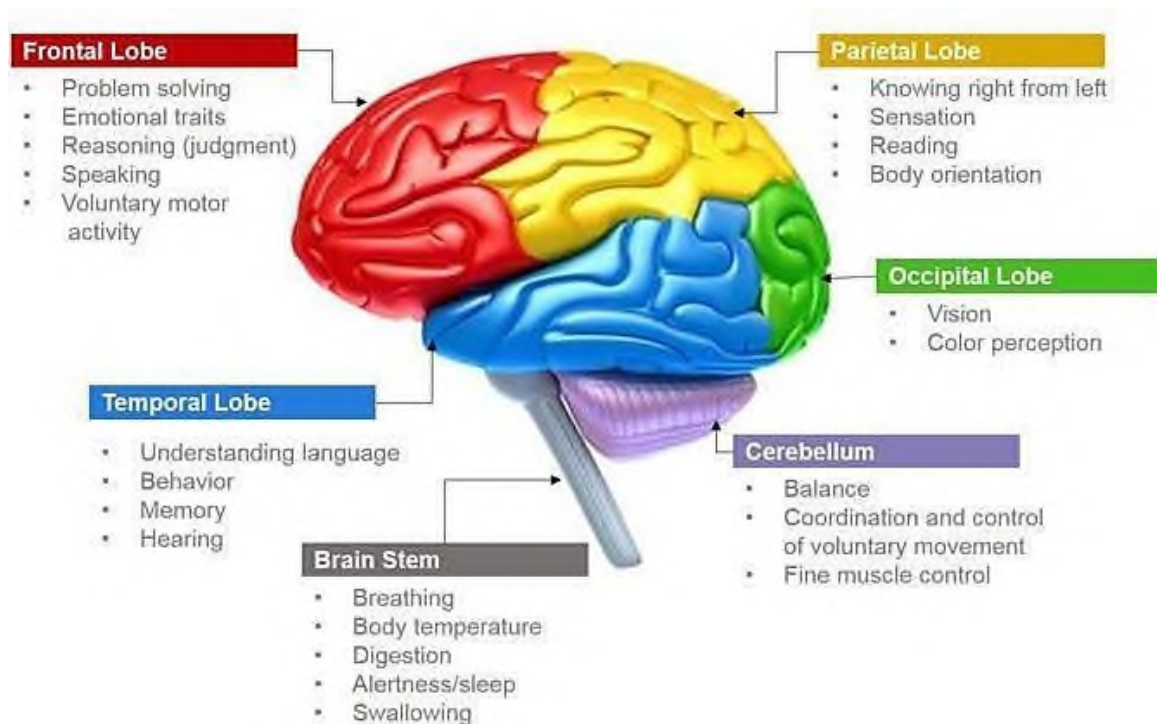
The parietal lobe is for knowing right from left, sensation, reading and body orientation.

The next one is the temporal lobe. It is responsible for understanding language, behaviour, memory and hearing.

The occipital lobe is for vision and colour perception.

The cerebellum deals with balance, coordination and control of voluntary movement and fine muscle control.

The last one is the brain stem. It is responsible for breathing, body temperature, digestion, alertness / sleep and swallowing.



After describing in short the main parts of the brain, we could then check if we don't have any problem with the given functions above.

If we have the grace to have all of them functioning correctly, we should protect the whole; meaning the brain. In the interest of having clear thinking, we shouldn't overuse the brain. In addition, we should eat foods that keep our brain working well. Foods such as fatty fish, vegetables (cabbage, green beans), wheat, fruits (strawberry, watermelon) and pig meat.

Metacognition for maximum potential. But, why some people have immature behaviours and how we can learn from it and turn it into a positive thought.

8. IMMATURE BEHAVIOURS

Immature behaviour is related to behaviour of children or adolescents. But, it is often the case of some adults. Some adults sometimes behave like immature people. One characteristic of these types of people is that they are self centered. However, knowledge comes from outside; from other people. Knowledge comes when we learn from others and when we share what we know.

The opposite of knowledge is ego. That is why Albert Einstein says “More the knowledge less the ego. Less the knowledge more the ego.” But, how to tell immature people that they are wrong? How to tell them that they are onto the wrong way of thinking and turn them onto the right one?

The first step of the solution is to always appreciate immature people; tell them they are right. Then, provide solutions or make proposal in the same direction of their view points. Change takes time. It is repetition and daily training. So, we have to be patient with immature people. Avoid acting with them as an all knower. That will irritate them and the purpose of transforming immature people into wise ones would be lost. Always work on their reactions when spending time with them. People become more receptive when they feel at ease with the people their spend time with.

CONCLUSION

After the study on critical thinking, we could easily say that critical thinking, although initiated before the Common Era, still have great impacts on our daily lives. It is the way to become great leaders. Since critical thinking provide a variety of technics to solve complex problems.

The same, through this study, we also discovered that critical thinking is a life time process. It is a closed loop process that permits to appreciate the world over different angles. Critical thinking helps us better understand human behaviours and being very helpful to immature people.

The secret to think big is to be studious or a hardworking person. It also implies to be humble enough to learn from others. That is why I enjoy saying “Knowledge is what one knows plus one.”

It is ok to think smart. But, how about thinking right; meaning ethically?

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