Critical Thinking

"Widespread intellectual and moral docility may be convenient for leaders in the short term, but it is suicidal for nations in the long term. One of the criteria for national leadership should therefore be a talent for understanding, encouraging, and making constructive use of vigorous criticism." When I think in critical thinking, without any doubt Carl Sagan comes to my mind. He wrote the previous quote.

Carl Sagan was one of the most influent people in the contemporary time in the science development, divulgation and popularization. Probably, he had the perfect contemporary combination of poetry, knowledge, ethics and vision. What most reveals the Mr. Sagan's mind was his absolute critical thinking. He developed such as sophisticate critical thinking that allows him to reach incredible conclusions from extremely simple sources; usually he applied these thought to the science, but also to social, mental, physical, religion, etc issues. Mr. Sagan taught a course on Critical Thinking at Cornell University until he died in 1996; today, we could enjoy several fantastic books by him, specially "The Demon-Haunted World: Science as a Candle in the Dark", where he presented tools for testing arguments and detecting fallacious or fraudulent ones, essentially advocating wide use of critical thinking and the scientific method.

Mr. Sagan taught his critical thinking course with focus in two key concepts: self-awareness and attitude. In his class and books, Sagan provided instruction for building one's "baloney detection kit." He covered several common fallacies and ways to avoid them. He emphasized the need for skepticism in critical thinking and the necessity for verification and corroboration of claims before accepting them. And he returned again and again to the role of the mass media in forming our characters and opinions, stressing the internet as an antidote for this thinking control.

Thinking about thinking

Our brain works base on a learning process. The neural network that our brain is made has a very powerful capacity of learning and response according to this. Neural Networks (NN) theory represents a scientific emulation of our brain; a simplification that strongly helps understanding several learning processes. We train our brain during our whole life; this is the background on what our brain will decide. Other important factor is the synapses, the speed and amount of the connections, the threshold to trigger the neuron excitation, etc. Some of these characteristics are part of our nature; other could be improved through learning, food, and training. Both NN theory and laboratory experiments shows interesting results looking for the learning process and the decision making process, the level and amount of active neurons, the area in our brain, etc, constitute the quality of the thinking, decision, understanding, etc.

When we understand these processes, also we could easily understand many others such as the possibility of the manipulation in the thinking and/or decision process, but mainly the absolute importance of the critical-thinking process.

This critical-thinking operates as a powerful tool of brain validation. A continue and permanent self-evaluation of how our brain works. This process will allow to our brain to work in a permanent self-improvement, a characteristic that converts the person in a powerful thinking person. Those people how has understood the importance of the critical-thinking, they are prepared to go further of the classical and common thinking. A brain how is capable of self-improves its thinking it is like a machine who could become more powerful each time; then, the frontiers do not exist.

So, critical thinking is the tool to liberate our brain from all the limitations that the own learning process introduce to us. To continue practice and develop this critical thinking gives us the direct connexion between our environment and our more cognitive thinking; and this cognitive thinking is the source of innovation, creation, self-awareness, etc. The permanent development of this critical thinking is what Carl Sagan called attitude, attitude to build our critical thinking.

Critical thinking and leadership

The critical thinking in a leadership has many relations. When the leader is discussing with him/herself, developing his/her self-awareness, etc, s/he should develop a deep critical thinking process. This process will help to improve and enhance his/her values, vision, personal philosophy, etc. In other way, once in the running of the leadership process, many goals should be set for moving to the new and better stage. This trip between stages has many barriers that should be overcomes, the trip is not straight, the path is not flat, so the leader should command all time to be sure that s/he is in the correct direction. Critical thinking provides this permanent feedback to be sure that not only the leader is moving in the correct direction, but also in the most efficient conditions; being sure that all people are on the same path, working in a team, sharing the vision, encouraging to overpass the difficult time or circumstances.

A simple example of critical thinking as continuous feedback. Imagine that we are in 1752, Fort La Jonquière (almost Calgary) was just established and the French Canadian also has settled Lac La Biche and Bonnyville. Imagine that there is not path and a settler wanted to go from Fort La Jonquière to Lac La Biche. He only could go straight over the close to 500 km. He starts the trip, but he made a mistake because of the imprecision of the instruments, and starts the trip over a path of 5 degree clockwise. So, if he had a critical thinking, he will arrive to his target, Lac La Biche, but if he had not critical thinking, he will arrive to Bonnyville.

In most formal terms, it is important for the leader to develop and validate critical thinking as a fundamental element in the organization. But critical thinking is something that should be

developed, it is not related with creative thinking; also is not a natural aptitude, it is a discipline, a process that could be learned and developed. Leaders must see critical thinking as a process driven by a specific purpose such as improvement, alignment, empowerment, etc. This critical thinking will establish the foundations for creating the basis on an effective decision-making process. Understanding, interpretation, inference, evaluation of the significance, value, and meaning are part of this critical thinking. All these values could be built and developed the process for improve them once again.

Evaluation and inference are tools, characteristics of the critical thinking that could lead affordable conclusions that they conduct to actions. It is common that children argue "I didn't realize" when they make a mistake; this conduct become less common for adults because to the natural learning process that we develop in our life. For a leader, it is not imaginable these words. If someone is expressing them, it means a complete lack of critical thinking. A leader has control of what is happening; the lack of control means lack of critical thinking, improvisation.

The leader should show how to proceed, the leading by example usually is chosen for most of the leaders; this requires to the leader to show and open his/her mind to the followers showing the way on how to proceed and encouraging other to do the same and better too. This requires communication skills, the leaders should clearly show the reasoning leadership behaviour and its methods in achieving the goals and articulating the premises on what his/her conclusions are based on.

Finally the leaders must create the context of encouraging the critical thinking. It must encourage the curiosity, inquisitiveness, creativity, and exploration; it should celebrate staff exploration, to raise questions, to challenge, and to address for a permanent improvement the ritual and routine in a way that addresses viability, sustainability, or need for adjustment or change.

In an evidence-based–practice world, it is becoming increasingly important that leaders enumerate and articulate the value and application of critical thinking as a normal expectation of clinical practice. At a time when the rituals and routines must be challenged by new frames, formats, technology, and processes, it is important for the leader to both model and develop critical thinking approaches that best represent effective thinking, application, and evaluation of the important work of patient care in the 21st century. As the white water of chaos and complexity shifts inexorably to new models of therapeutics, technology applications, electronic medical records, and evidence-based practice, and as they become an increasingly important influence on the role of the practitioner, developing the discipline of critical thinking is no longer optional. The leader must not only represent that value in her or his own role but also clearly articulate it as a way of doing the business of clinical practice, determining its effectiveness, and making the necessary changes as the conditions and circumstances adjust and shift.
From Bloom, Einstein, and Freud to contemporary leaders in critical thinking, strong foundations have been laid that can be adapted in any variety of clinical circumstances and adjusted to meet the unique and specific needs of clinical providers. Through the white water of dynamic and dramatic changing times for practice, the stability, strength, and discipline of good critical thinking maintains a consistency and a discipline that help make sense of contemporary challenges and bring rigor to the processes and actions necessary to respond effectively to the demand for change

Upon successful completion of this module, you will be able to recognize the value of decision-making and goal-setting to effective leadership.
Knowledge,
Comprehension
Application
Analysis
Synthesis
Evaluation, judgment
Conceptualization
Data gathered: observe, reflect, experience
Values: clarity, accuracy, precision, consistency
Examination: purpose, problem, questions
Interpretation
Logic: inductive, deductive, arguments
Reflection
Dispositions
Self-regulation
Exploration
Good thinking, illogical, irrational avoidance
Expressive, feeling