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In the Matter of....Critical Thinking

Introduction

What does it mean to think “critically”? Why do people accept a “truth” without ever examining why this truth is held truthful? To quote Steven Colbert what is the “truthiness” of any given belief?

Colbert seemed to hit an endemic problem in contemporary life…people prefer their personal concepts or facts to be accepted as true by others, rather than “concepts or facts known to be true" (American Dialect Society, January 2006). In essence, my truth is right and there is no need to question it. Unfortunately, the unexamined “truth” is the opposite of critical thought.

Definitions

First, we need to clarify critique from criticize. Generally, critique is the examination of a concept or object against a given set of accepted “intellectual standards”. But thinking critically requires one to exercise “careful judgement or judicious evaluation” (Merriam Webster 11th Collegiate Dictionary).

In contrast to critique, when one criticizes one seeks to find fault and censure the activities of another person. This is not critical thinking. Fault finding should not come before one examines the reasoning one’s fault finding is based on. Thus, critical thinking is an intentional activity; designed to challenge one’s own beliefs, biases, and standards of rational choice. By doing so, the critic earns trust sufficient to challenge others rational choices.

The term Critical Thinking (CT) was first coined by John Clark in 1928 [Reid, 2010]. Diane Halpern defined it as “…the use of those cognitive skills or strategies that increase the probability of a desired outcome” [Halpern, 1998, p. 450]. Educators embedded the concept in curricula across disciplines and today, it is seen as integral to the growth of scientific learning.

CT has also been associated with the concept of "learning how to learn" (LHTL). LHTL itself evolved into "self-directed learning" [SDL] and described by Halpern in a text titled *Thought and knowledge: An introduction to critical thinking (1984).* This work along with earlier research (Glaser, 1941) help define critical thinking as follows:

1. It is "an attitude within the range of one's experience"
2. It presupposes "knowledge of the methods of logical inquiry and reasoning"
3. It "requires a set of skills and methods for examining any belief based on the evidence at hand"
4. It recognizes that one has the ability to:
    a. Distinguish and define a problem
    b. Find workable solutions to that problem
    c. Gather and marshal pertinent information
    d. Recognize unstated assumptions and values
    e. Comprehend and us language with accuracy, clarity and discrimination
    f. Interpret data
    g. Appraised evidence and evaluate arguments
    h. Recognize the existence (or non-existence) of logical relations between propositions
    i. Draw warranted conclusions and generalizations
    j. Test conclusions
    k. Construct patterns of beliefs on the basis of wider experience
    l. Render accurate judgment about specific that and qualities in everyday life.

Attributes of Critical Thinking

One can also judge the rigor of any persons reasoning by asking a set of questions [Austin, 2010]:

1. CLARITY: Is the person communicating their thoughts and beliefs in an open, clear and unambiguous fashion?
2. PRECISION: Is the problem to be addressed understood sufficiently to be answered?
3. ACCURACY: Are the facts being used to solve a problem accurate and adequate to the task at hand?

4. RELEVANCE: Is the information gathered logically associated to the problem?
5. CONCISISTENCY: Have we sought to eliminate contradictory beliefs (I do one thing but believe another)?

In essence, the idea behind critical thinking is to fully engage in deciding what to believe or not believe!

Domains of Critical Thinking

Critical thought is dependent on understanding the context within which it occurs. For example one can think critically about the practical application of a given belief or behavior. This can take on the form of unreasonable beliefs (humans never landed on the Moon, it was a conspiracy by the government to fool the public). Practically, this erroneous belief is usually dismissed because it is not consistent with either scientific fact or accepted evidence.

Critical thoughts are also driven by theory. Theory seeks to explain the world around us. The application of theoretical tools of critical thought help evaluate the consistency and integrity of our internal mental models. We seek patterns of thought that are sufficient to solve a problem while using reliable and consistent tools that ensure data is recent, accessible and supportable with observed phenomena.

Critical thinking is also channeled by the method we choose to examine a problem. The Scientific Method is a systematic, reproducible process for implementing critical thought. This discipline is acquired through education and is designed to help focus one's ability to achieve a desired outcome.

All these domains amplify one's ability to define strengths and weaknesses of personal thought processes. They actualize one's ability of apprehend and assess the validity of one's beliefs. Another term for this is "metacognition" (thinking about one's own thinking). This entails:

- Keeping an open mind, possessing and active imagination
- Utilizing unbiased standards of criteria and observational technique
- Identifying, evaluating and using well-constructed arguments and techniques for data analysis
- Drawing reasonable conclusions based on the preponderance of tested factual information
- Reviewing points of view of other stakeholders and their motivations for holding those beliefs
- Applying solutions to problems based on logically consistent solutions

Teaching Critical Thinking

The teaching of CT has, over time, been built around varied discourses. Reid notes that one group of practitioners historically espoused using Socratic methods of argument and questioning as useful in teaching the concept. Others have suggested that group learning and peer evaluation provide useful tools for evaluating the rigor of critical thought. Reid (p. 21) also advocates Halpern's techniques that:

1. Provide a learning component that orients the learner to the cognitive work required
2. Utilize formal instruction in the skill set required of a Critical Thinker
3. Introduce structures of thought that define arguments useful in promoting transfer of information across contextual boundaries
4. Implement a metacognitive component that evaluates accuracy and progress towards an accepted goal. In essence, self-recognition of the need to think critically.

Assessing Critical Thinking

In formal education, determining the extent to which a person actually thinks critically is complex. Generally it entails both quantitative and qualitative data compilation. Qualitatively, one can question attitudes to CT. These questions include but are not limited to:

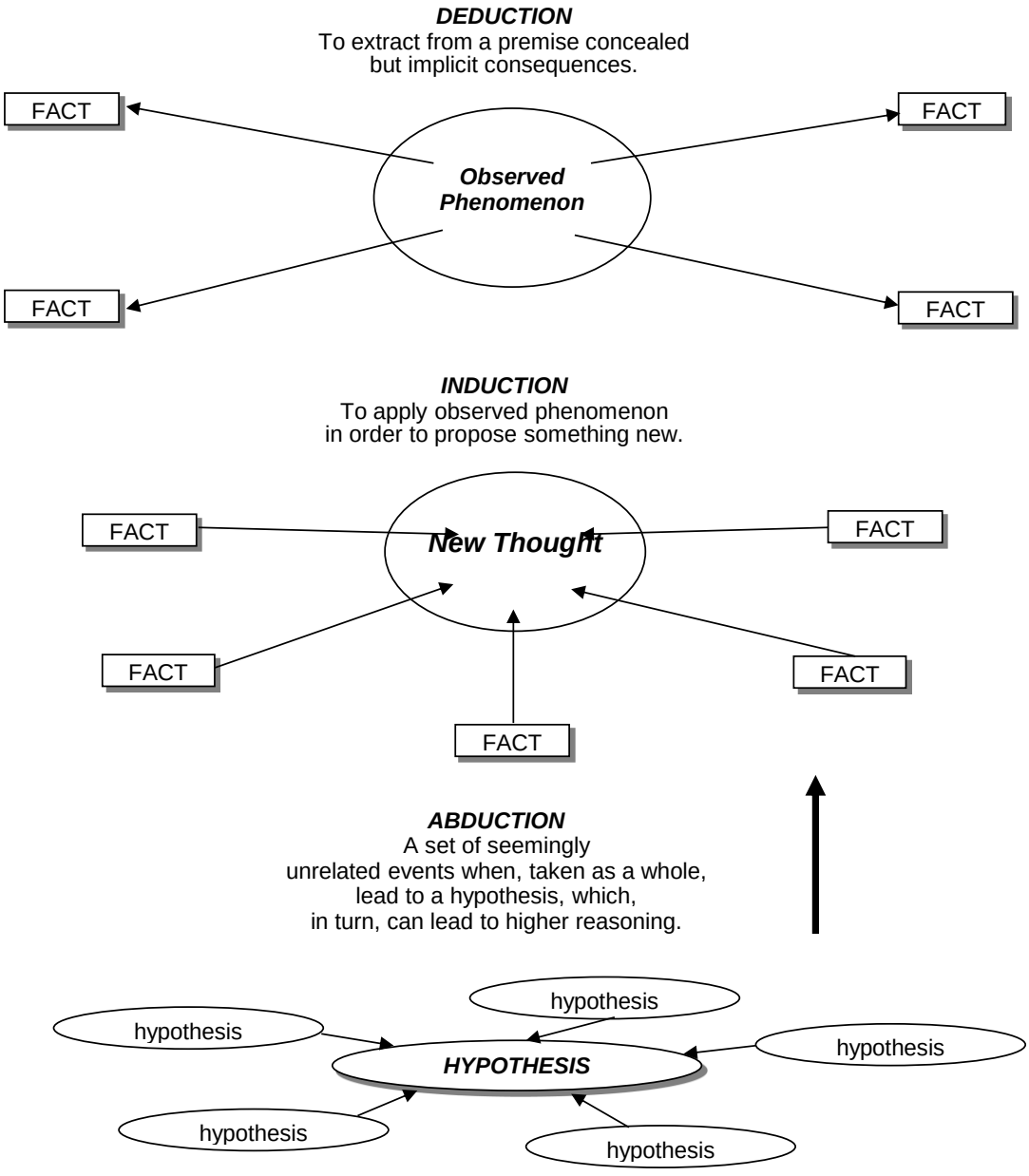
- Am I satisfied with what I learned?
- Was I impressed by the revelations CT provided me?
- Was the process (utility) of CT life enhancing?
- To what extent will I use CT as part of my profession?
- Am I committed to using CT having learned it?

One can also quantitatively test learning enhancement through the application of CT enquiry. This is usually done by reviewing the curriculum applied to learning, testing the extent to which learning occurred (pre/posttest), and reviewing the results of a comprehensive examination. A useful hierarchy for assessment is one that

- Moves from acquisition of knowledge to the interactive use of logic
- From hypothesis testing to the application of findings
- From findings to decision-making
- With a culminating critique of how creative the process of CT became (Reid, p. 74)

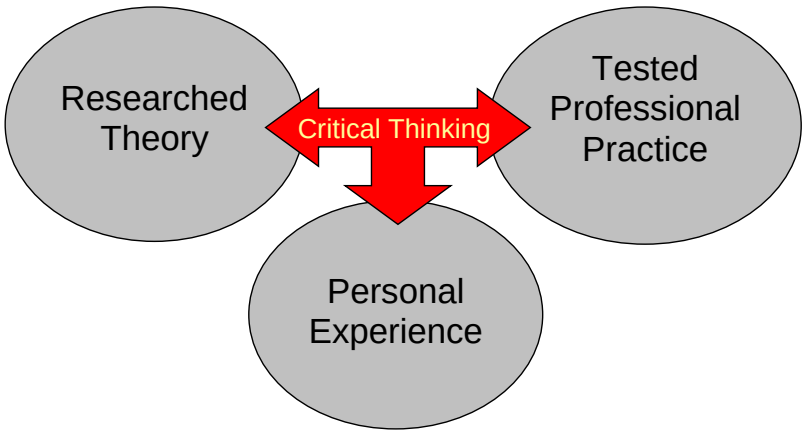
Tools of Critical Thought

Logic is the primary tool of critical thinking. It validates reasoning. It dominates the fields of Science, Philosophy, Mathematics and Aesthetics. It is studied across cultures and throughout recorded time. It can be represented by the following graphic:



Criticial Questions: Who Decides? For What Purpose? Who Benefits?

Logic and critical thought can be seen as interchangeable. The mindset of the inquirer determines the extent to which it can be applied. Humans live in a world dominated by three interactive spheres of interest. These are represented in the following graphic:



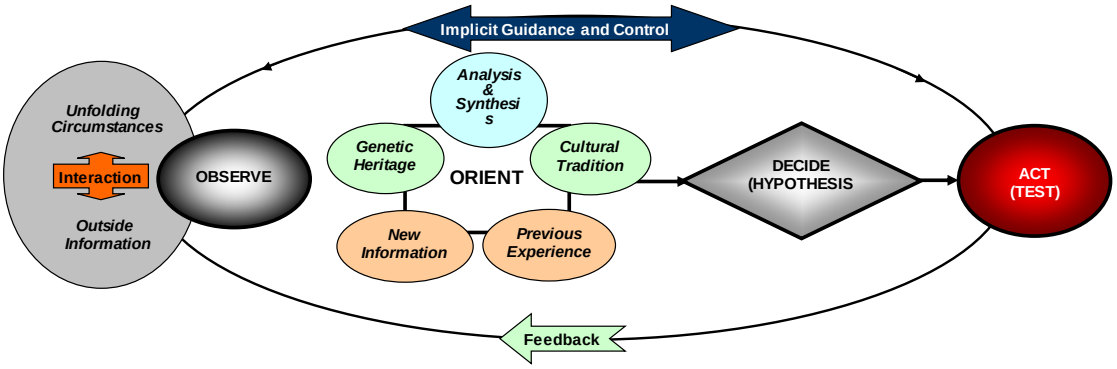
It is my belief that theory informs professional practice (the knowledge gained in one's work) and that both are modulated by the extent to which one has experienced life. The broader and deeper the experienced life, the greater the ability of the person to think critically.

A representative graphic of critical thinking follows:

https://dd1112.files.wordpress.com/2011/04/criticalthinking-lo.gif

Generally most graphic representations of critical thinking are both circular and repetitive. One never completes the cycle but one does seek to make that cycle more efficient.

Increasing Critical Thinking Efficiency



The usefulness of the above OODA Loop graphic is that it delineates a method for increasing the speed of the cycle one uses to determine problem causes and possible solutions.

Originating with the military (Coram, 2002), the OODA Loop (Observe, Orient, Decide, take Action) is a technique for enhanced efficiency. It provides a mental map that promotes creating systemic thinking that can be used throughout any organization. Although the OODA concept was created after World War II, the Loop is intellectually connected to the work done by Edward Glazer in 1941. The addition that the OODA Loop adds to the CT cycle is "intuition" (implicit guidance and control).

In this case intuition consists of tacit (unexamined) accumulated professional and personal life experience internalized sufficiently to enable the critical thinker to come to an action decision quickly. The important thing about John Boyd's work is that it challenges pre-conceived notions about the right way of doing something. It requires one to examine the speed of the decision cycle rather than just the cycle's stages. It seeks to tease out that tacit knowledge and consciously use it. One learns best when one revisits the rationale behind why some decision-making procedures are unexamined.

Critical Thinking Analogue

An "analogue" is a concept or mental construct that is "similar to something else" (Merriam Webster 11th Collegiate Dictionary). In an article in the September (2015) edition of the Atlantic authors Greg Lukinaoff and Jonathan Haidt make the argument that cognitive behavior therapy [CMT] is the modern embodiment of critical thinking (p. 46).

CMT is defined as “a poplar integrated therapy that combines cognitive therapy [changing self-defeating thinking] with behavior therapy [changing behavior]” (Myers, p. 649). For the purpose of comparison to critical thinking the foci of CMT is to make people “aware of their irrational negative thinking, and to practice more positive to replacing emotional responses [Colbert’s “truthiness”] with realistic appraisals of reality” (Myers, pp. 648-649). The therapy is focused on helping the patient find alternative behaviors for abnormal activity. This is a lifelong practice and is successful in helping people “unstick, re-label, and re-focus” their views of reality (Myers, p. 649).

Albert Ellis, the behaviorist who was crucial in creating CMT, coined the phrase “musterbate”, defined as *thinking one must do something without any choice when in all reality you have the choice to do or not do it* (Online Urban Dictionary*)*. Ellis sought to break in his patients the negative cycles induced by unchallenged beliefs…the same function critical thinking seeks to induce. CMT and its associated psychotherapy, Emotive Behavior Therapy [REBT], challenge pre-conditioned biases. Both theorize that emotional suffering is *caused primarily by un-verbalized assumptions.* Thus discussion of these assumptions creates a critical thought dynamic which promotes rational reality formation.

These NEGATIVE distortions include (Lukinaoff, 2015):

1. Assuming that you know what others think before you are told…MIND READING.
2. Predicting the future…FORTUNE-TELLING
3. Assuming the worst…CATASTROPHIZING
4. Assigning a trait without testing facts…LABELING
5. Trivializing actions of you and others…DISCOUNTING POSITIVES
6. Focusing on one aspect of action without consideration of other findings…NEGATIVE FILTERING
7. Extracting global attributes from a single incident…OVERGENERALIZING
8. Viewing reality through an all or nothing/black or white lens…DICHOTOMOUS THINKING
9. Shifting blame to others…BLAMING
10. Needless questioning…WHAT IF?
11. Linking emotion to reality interpretation…EMOTIONAL REASONING
12. Rejecting facts because they contradict your view of reality…INABILITY TO DISCONFIRM (Colbert’s “truthiness”)

Lukinaoff and Haidt believe that linking both CMT and critical thinking provides a powerful set of tools for people to "follow truth wherever it may lead, not to tolerate any error so long as reason is left free to combat it" (Jefferson, quoted in the Atlantic article, circa 1820).

Summary

It is not the intent of this essay to provide an all-encompassing overview of CT. The concept has been around too long. I wrote it to stimulate discussion. Critical thought is a skill lacking in too many people. In a world undergoing great change; it becomes crucial for people to use CT in formulating rational, pragmatic decisions. Problems do not solve themselves. They are mitigated because underlying truths needed to solve them are easier to find if one thinks critically.

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