Critical Thinking and Skepticism

by Gordon W. Brown

For the purposes of EXODUS we have described critical thinking thusly:

> Freedom from the past and the failed ways of doing things requires honest appraisal. Any appraisal of our behavior, performance, patterns, and lifestyle demands a courageous examination of all influences. Then changes can come based on evidence and truth. Critical thinking clarifies goals, examines assumptions, discerns hidden values, evaluates evidence, accomplishes actions, and assesses conclusions.[1]

At the root of critical thinking is the Scientific Method defined as:

> The principles and empirical processes of discovery and demonstration considered characteristic of or necessary for scientific investigation, generally involving the observation of phenomena, the formulation of a hypothesis concerning the phenomena, experimentation to demonstrate the truth or falseness of the hypothesis, and a conclusion that validates or modifies the hypothesis.[2]

Enrico Fermi, physicist, referenced the Scientific Method when asserting, "There are two possible outcomes: if the result confirms the hypothesis, then you have made a measurement. If the result is contrary to the hypothesis, then you have made a discovery."

While we often think that the Scientific Method is applied to learning about the physical world in which we live, (e.g. the nature of atoms, the chemical make up of blood, the history of the environment), it is also applied to our search for understanding of human behavior through psychiatry, psychology, sociology, etc. Through careful and patient examination of our own hypotheses of our own journeys using skepticism, applied psychology, attention to evidence, observation of others, and truthful exploration of history we are able to achieve more accurate

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[1] "EXODUS Concepts: Lingo and Legacy" and EXODUS Study Paper

[2] Definition from www.dictionary.com, Medical Dictionary

assessments of our situation *past and present* thereby allowing a plan for *the future* that is based in reality.

Contained within critical thinking and Scientific Method there has to be a measure of skepticism. Skepticism may be reflected in what we call common sense; "If it seems too good to be true, it probably is!" We practice skepticism every time we insist that a claim be proved, rather than accepting it on someone's word or without any reliable evidence. However, true skepticism is not just denial of a claim or assertion, but carries with it the willingness to be wrong, that is to say, to accept credible proof when delivered.

Skepticism applies somewhat differently to various fields of study, but always at the core is the cautious scrutiny of what we view as reliable:

> *Philosophical Skepticism*, or pyrrhonism, is a position that refrains from making truth claims. A philosophical skeptic does not claim that truth is impossible (which would be a truth claim)...[It is not] *Academic Skepticism*, an ancient variant of Platonism that claimed knowledge of truth was impossible.
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> *Religious Skepticism* is skepticism regarding faith-based claims. Religious skeptics may focus on the core tenets of religion, such as existence of divine beings or reports of earthly miracles. A religious skeptic is not necessarily an atheist or agnostic.
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> *Scientific Skepticism:* A scientific, or empirical, skeptic is one who questions the reliability of certain kinds of claims by subjecting them to a systematic investigation. As a result a number of claims are considered Pseudoscience if they are found to improperly apply (or else completely ignore) the scientific method.[3]

There are many beliefs that are taken as science, fact, or truth, which are really pseudoscience. In order to enhance an understanding of pseudoscience here is a definition and some examples.

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[3] Wikipedia, The Free Encyclopedia, en.wikipedia.org/wiki/Skepticism

> Pseudoscience: A system of theories or assertions about the natural world that claim or appear to be scientific but that, in fact, are not. For example, astronomy is a science, but astrology is generally viewed as a pseudoscience.[4]

Other dichotomies (science v. pseudoscience) in this area are: cosmology v. ufology; psychotherapy v. psychic reading; medicine v. homeopathy; blood tests v. applied kinesiology; evolution v. intelligent design; anthropology v. ghost hunting and crop circles; statistics v. opinion; and the list goes on. A certain level of constant vigilance is called for in a world filled with so many very convincing sounding yet utterly unsubstantiated or blatantly false claims.

In examining, evaluating or measuring our world, the pseudosciences are not the only systems we need to have awareness of. There are things we believe, that we have always believed, that we have been taught to believe, that are just not so. Again, when we are engaged in examining our own lifestyle and motivations we must be wary of getting entangled in psychological myths.

> Conversations with people of varying backgrounds often provide many examples of widespread and strongly held misunderstandings regarding psychology. For example, most people know that: 1) Students learn best when teaching methods are matched to their learning styles. 2) Persons diagnosed as schizophrenic have multiple personalities. 3) Clinicians' expert judgement and intuition constitute the best method for making clinical psychology decisions.
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> But what "most people know" is false, as Lilienfield and colleagues demonstrate for these three myths and forty others...
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> Why should we care, however, if there is widespread belief in myth about our behavior? The authors provide three reasons why we should care:
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> Psychological myths can be harmful. For example, jurors may erroneously convict a defendant on the basis of confidently presented (but

[4] Definition from www.dictionary.com, Cultural Dictionary

inaccurate) eyewitness testimony because the jurors believe mistakenly that memory operates like a videotape.

Psychological myths can also cause indirect damage due to opportunity cost, for example by ignoring effective treatments in favor of ineffective ones.

Lastly, acceptance of psychological myths can seriously hinder our critical thinking in other areas, such as genetic engineering, global warming, and crime prevention due to "spill over" effect.

...the authors describe ten causes of psychological myths after noting that all of us, including scientists, are prone to these sources of error. But scientists have also adopted a set of rules and procedures - the scientific method - designed to minimize their likelihood of committing conceptual errors that cause belief in myths.

The ten causes of myths, awareness of which constitutes a "mythbusting kit," are:

1. Word-of-mouth.
2. Desire for easy answers and quick fixes
3. Selective perception and memory
4. Inferring causation from correlation [a mutual relationship or connection between two or more things]
5. *Post hoc, ergo propter hoc* reasoning [Latin for "after this, therefore because of this," in other words, "Since that event *followed* this one, that event must have been *caused* by this one."]
6. Exposure to a biased sample.
7. Reasoning by representatives
8. Misleading film and media portrayals
9. Exaggeration of a kernel of truth
10. Terminological confusion[5]

The causes, or tools, are not listed in any order of importance, nevertheless the tools in the Mythbusting Kit are not only useful in detecting psychological myth, but are a really good set

[5] "Things We Know That Are Not So" by Peter Lamal a book review in Skeptical Inquirer Volume 34, Issue 2, pg. 58 of 50 Great Myths of Popular Psychology: Shattering Widespread Misconceptions about Human Behavior by Scott O. Lilienfield, Steven Jay Lynn, John Rusico, and Barry L. Beyerstein

of tools for examining other suspicious claims or beliefs. Our struggle within will from time to time find us at the interface between us and the world. How we perceive the world is paramount to our recovery, our relationships, our present, our future, and our ability to function in an ever increasingly complex world,.

A Sensei (teacher) of Zen Buddhism instructs, “Strong faith, strong doubt, strong determination.” Willie London, an EXODUS Veteran explains, “No matter how wholesome or criminal, our beliefs, views, and ideas are not permanent, we must continue to test them.” Therefore, it is important to note that the EXODUS member is experiencing his personal journey. The beliefs or belief systems that one adopts, that give us a handle on our interpretation of the world, will fall under scrutiny from time to time by ourselves or by others. The examination that the EXODUS system should subject them to is the question; “Is this belief life-giving?” We enjoy a vast diversity of beliefs, especially with respect to religion. “We will create a human world by deciding to live the life we have for the sake of humanity,” is the substance of our acceptance of the beliefs of others, regardless of how doctrinaire they may seem, but always with the proviso that personal humanity is strengthened and the individual’s journey is enhanced, and that a wholesome, life-giving, freedom loving, enlightenment is experienced. The world is vast and confusing, hence the need to proceed cautiously with eyes wide open.

Let’s take one more step to look at how our skepticism, our critical thinking, our intelligence, can be put to use:

> ...Radford tells the reader that his book "focuses on the practical aspects of applied skepticism...powerful, real world ideas for critically examining everything from crime scenes to psychic powers to personal decisions." These ideas have been drawn "largely from the scientific process, psychology, criminal investigation techniques, and logic."

> ...Here I will simply note that the goal of a proper investigation of the paranormal [or any other theory] is neither to prove nor disprove any particular claim. Radford puts it this way: "Good science is not about advocacy; while all scientists have their biases and pet theories, their ultimate loyalty should be to the truth." If you set out to prove or disprove the existence of a ghost at a particular location, you are not doing a scientific investigation. If the show you are watching or the book you are reading does not consider alternative hypotheses, it is not conducting scientific investigation. If an author claims that the subject of his attention or investigation is "beyond science," you're dealing with mysticism, not mysteries. Paranormal claims [and pseudoscience] may mystify us, but if they are truly beyond science then they are beyond our ability to know or understand them. A book or film on such topics would be very short, unless it contains much speculation and storytelling. Paranormal claims are investigated precisely because they both mystify us and present themselves as mysteries we can hope to solve...
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> ...Contrary to what you might see on television, an abundance of scientific gadgets is not as important as knowledge of the subject, knowledge of psychology, good logical reasoning skills, and an open mind...[6]

We affirm in the EXODUS Closing Rite that; “Our hope is in our decision to embrace all that is, as that out of which our life will come.” So let us be sure that what is, exists; guarding against belief in a ruse, a myth, pseudoscience, fantasy, fantastic claims, or those things we know we should not trust. Carl Sagan, popular astronomer, cosmologist, and astrophysicist, reminded us that, “Extraordinary claims require extraordinary evidence.”

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6 “Raising the Bar for Investigating Paranormal Claims” by Robert Carroll a review of Scientific Paranormal Investigation: How to Solve Unexplained Mysteries by Benjamin Radford in The Skeptical Inquirer Vol. 34, No.5 9/2010