

Critical Thinking, Common Fallacies, and Leadership

Judge Hal Campbell, Ph.D.

One of my all-time favorite movies was Tom Clancy's, *Hunt for Red October*. Within that movie there is a scene that I found fascinating within my capacity as a university professor teaching logic and statistics. The scene involves a meeting of top level decision makers who are gathered around a table in the basement of the Whitehouse, and after a briefing given by Jack Ryan pertaining to the design, construction, and launch of a new Russian submarine, the National Security Advisor who is chairing the meeting asks Admiral Greer (the character played by James Earl Jones) what conclusions he has made. The Admiral responded, "Sir, the data support no conclusions as of yet". I thought this statement was one of the more profound expressions that I had ever heard in any movie. What an astonishing and refreshing response I thought to myself. He was exactly right that it was premature, given the limited information available at the time, to base any decision about the Russian's intent, mission, or objectives. The data simply didn't support any conclusion, yet there at the conference table, sat a gaggle of top-level executives who were actively engage in supposition and speculation resulting in the fabrication all sorts of boogie-men, end of day's scenarios, and rationale for a first strike option that needed to be recommended to the President.

As I have pointed out in previous articles, critical thinking, logic, and reasoning are not taught as a separate academic discipline within our K-12 school system. They are also not a significant component of many collegiate curricula these days, believe it or not. Instead, within the K-12 system we rely on well-intentioned teachers who were trained in the liberal arts, single and multiple subjects, to take time out of their very busy "required" curriculum schedule in hopes that they will happen upon the notion of logic, reason, and critical thinking. We also incorrectly presume that because they have a college degree that they know something about it. This translates to a reality that the vast majority of people in the nation haven't been formally educated in how to think critically, how to evaluate information, how to formulate an argument, how to discern the accuracy of facts within an argument, how to assess the relevance of each premise within an argument as it pertains to the conclusion being articulated, and equally importantly, how to dispute the assertions made by others that are not supported by factual claims. As a collegiate professor for over thirty years, as well as a practitioner in the law and

justice profession, I am convinced that this is an ineffective approach in preparing anyone to be adequately trained in such an important aspect of life and falls well short of what is needed in order for the majority of high school and college graduates to have a degree of mastery over the subject.

Critical thinking by definition can be explained as the determination of whether we should accept, reject, or suspend judgment about a claim and the degree of confidence with which we should accept or reject it. Critical thinking helps us to formulate a judgment as to whether a position, theory, or idea is incomplete or unclear, insufficiently supported by the contentions made in its behalf, or whether the argument is unconvincing, or simply wrong. One of the principle tenants of critical thinking is that the ideas, arguments, and conclusions being offered are critiqued and not the person making them. As you can tell from the dogma and discourse going on in the media these days, this isn't a widely embraced approach amongst politicians, pundits, reporters, and the general public. It is perfectly acceptable to come to a conclusion about the person making the argument, but that comes much later and is based upon the position they took on the issue and the rationale they used to argue their point. It is also a measure of how often they are perceived as inaccurate, uninformed, or simply incorrect about an issue that they postulate, and what strategies they use routinely to manipulate the people they are endeavoring to persuade to their point of view.

By contrast, critical thinkers are willing to spend time examining the logic of an argument, the premises asserted as justification for the opinion that is being presented, the empirical evidence provided in support of the contention being argued, and equally important, the relational logic of the premises included within the argument that serve as direct evidence in support of the conclusion. This latter aspect of critical thinking often times serves as a significant pitfall to the well-intentioned efforts of people engaged in reasoning and is predicated on the notion that just because premises in an argument are proven as true, the premises themselves may not necessarily line up (logically) in support of the conclusion being made. Even in purely scientific analyses we see evidence from time to time that mathematical correlations are spurious in nature and just because it works mathematically, it doesn't mean that it fits the logic of the hypothesis being examined.

Critical thinkers obviously also need to employ an unbiased departure point that seeks to be purely logical in their examination of the issues under discussion, as well as being open to new ideas that may shed light on a factor they had not considered previously. Similarly, they need to

demand evidence and proof in support of every contention being postulated within an argument, as opposed to merely accepting someone's assertion of the relevance and pertinence of a particular premise to the conclusion they have put forward. One of the fundamental elements of logic and reason is, not surprisingly, based on the assessment of the "correctness" of each and every claim in an argument. We tend to forget that there is a mathematical foundation that goes along with logic and reason which asserts that if a truth, and a truth, and a truth, are combined with a fallacy within an argument, then the conclusion must be false, every time. In other words, anytime there is a fallacy contained within an argument, then the conclusion that is based on the logical sequence of that argument, has failed the empirical standard for correctness because a positive, and a positive, and a positive, and only one negative, results in a negative, or as applied to an argument, a false conclusion.

There are a number of fallacies common to the endeavor of thinking and reasoning that I would like to share in this article in hopes that it will engender those who happen upon and read this short narrative with a sense of empowerment. The fallacies include the Ad-Hominem fallacy which is very common and focuses criticism on the person making the argument rather than the logic of argument itself. This form of fallacy brings into question the character of the person, their credentials, reputation, the office they occupy, or position they hold. In this fallacy, the person is made to seem ridiculous in an effort to undermine the argument that is being presented and not the logic of their argument.

The next fallacy worth noting is the Argument-from-Authority. The argument from authority fallacy is created whenever we argue from some point of view and place emphasis on the recognized authority of the person or entity making the claim, rather than the logic of the claim itself. People routinely offer a weak claim and then try and hide behind their authority in an effort to thwart successful challenges to their position on an issue. We see this type of fallacy being used intentionally between government entities that try to assert that because they represent the county, the state, the federal government, or some other "higher" authority, they must be right or that their conclusions must be universally applicable to all lower jurisdictions. We also see it being used by religious leaders, collegiate professors, and businesses where the "superiority" of the person making the claim justifies the position they took on the issues.

Another form of fallacy is defined as Argument-by-Force. This fallacy substitutes an appeal to motive in place of evidence that directly supports a claim. In the appeal by force, someone attempts to get you to accept their claim because of intimidation, force of will, influence, or the

prospective consequences of disagreement should you fail to agree with their stated position. The consequences can be subtle in nature but the general understanding is evident in that should you fail to agree, then you're standing in the eyes of the person making the claim will be lessened and the favor bestowed upon you will diminish in the future.

The Appeal-to-Pity fallacy is the direct opposite to the Argument-by-Force and uses the situation to appeal to the altruistic ideals of the listener, rather than their ability to form a judgment based on factual evidence. This fallacy takes on various forms but the general notion is that you feel sorry for the person making the claim because of their appeal to your sympathy, the situation, or results, and if you choose not to accept their position, and then acquiesce to their position, claim, or proposal something bad will happen to them or their status will be lessened.

The Straw-Person fallacy is another common form of fallacious thinking and involves making the mistake of attributing a ridiculous position that the person making a claim does not hold and has never asserted, using exaggeration, distortion, or over simplification to set the stage for attack. This absurd position is then refuted instead of the argument actually being made by the person. The straw person fallacy is commonly used in political rhetoric, and seeks to evade the issues being argued by the opposition. This particular form of fallacy is closely related to another common type of fallacy referred to as Poisoning-the-Well. In this form of fallacy the opposition is placed in a position where they cannot counter a claim without discrediting themselves. For example, a politician might argue that "anyone who fails to see the logic of this situation is simple minded and so focused on their own self-interest that they summarily reject anything that doesn't fit their view of the world". Conversely the person on the receiving end of such fallacy might elect to employ it themselves by saying, "every right thinking person with a realistic view of the world and who is not self-serving sees the merit of this issue". In neither case has a logical argument been offered and the issues were never examined for the truth.

The Slippery-Slope fallacy is also described as the "domino" effect and it happens when someone rejects every aspect of an argument or counter argument despite its merit as a legitimate approach, because they feel that it will undermine their authority, or cause them to lose the argument outright, or change their position on an issue. We see evidence all-around us relative to this form of fallacy where rather than treat issues on a case by case basis, government officials take a position that an exception will "open the flood gates" of change and evaporate their ability to hide behind a generalized policy that was created as a guideline for providing services and not as gospel for service to their constituents.

Perhaps the most widely used form of fallacy rests in the category of the Fallacy-of-Generalization. This fallacy takes on a number of appearances but “generally” suggests that the person making the argument has over-extended the relative accuracy or applicability of their findings. “All people in similar situations react the same way”, or “every time this situation occurs we find ourselves faced with a problem”. We see examples of this fallacy in doctoral dissertations and theses periodically where the candidate makes the mistake of over extending the pertinence of their findings to a general population that wasn’t included within the survey where the data collected fails to be broad enough to accurately represent the entire population. Clearly there must be exceptions because “every” situation is different and we need to be careful to qualify our commentary so that it is factual and not vulnerable to critique.

Begging-the-Question is another form of fallacy that occurs quite commonly and happens when the person making the argument creates the illusion that inadequate premises provide adequate support for their position. Akin to Begging the Question, is the fallacy known as the Complex-Question-Fallacy. In this form of fallacy a statement that contains multiple points or variables is presented as a single sentence even though it contains the assertion of multiple factors that have not yet been proven. In such a fallacy the listener is presented with the complex question in hopes they will accept it as true even though it contains multiple factors, as opposed to an approach that seeks to dissect each factor independently in order to prove the truth of each variable before they are aggregated into an argument or claim.

Two of the more commonly used fallacies we see on television news today are the Circular-Argument and the Fallacy-of-Repetition. These two common forms of irrational thinking and persuasion are taking center stage today and you can see examples of them on many major news programs covering current events. Circular-Arguments suggest that something must be true because it is true, even when it's not true or hasn't been proven true. The Fallacy-of-Repetition on the other hand seeks to break down the value of truth by asserting untruthful or partially truthful statements, over and over, and over and over, until the listeners just accept that it must be true because everyone says so. They thought that of the flatness of the earth as well a few centuries ago, but it didn't make it true, but it was the common belief of the time, so it must be true. Today we are bombarded by both of these fallacies on television, on the Internet, and in conversations with other people who simply don't want to hear the truth, go to the trouble of decomposing the logic of the situation, and quite candidly are, frequently, not qualified to make judgments about the issues they feel compelled to discuss. It's more constructive for them to simply say nothing at all until they have all the facts. "Sir the data support no conclusions as of yet."

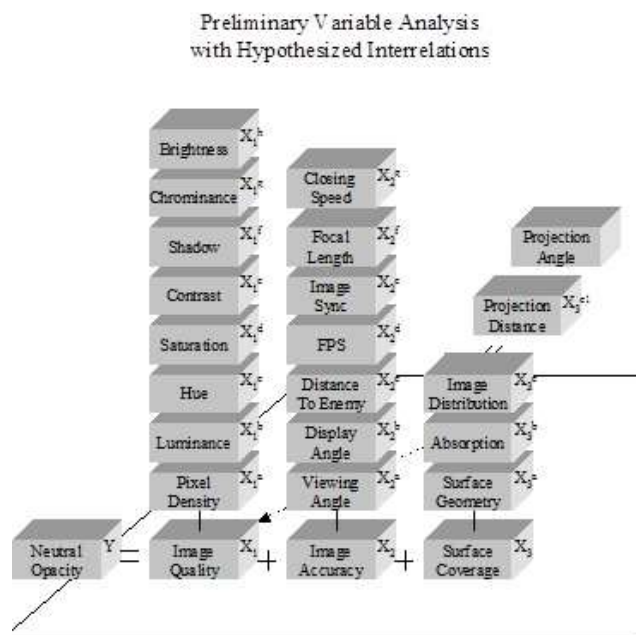
The Argument-from-Ignorance is the final fallacy that I will point out in this paper and is a common fallacy that we encounter today. It happens when the person making the claim asserts that a particular position must be true, because no one has proven it to be false or is true because they say it is true or heard someone else say it was true, even though there is no foundation for the opinion. Another form of this fallacy occurs when someone makes a claim that fails to take into consideration the vast assortment of variables commonly accepted and previously proven to be actually relevant to the issue. Having a little knowledge about the subject, as we know, can be dangerous, because it enables people to falsely assert that they must be right about an issue because of that limited knowledge, when in fact, they have overlooked or intentionally elected to exclude, the vast majority of factors that needed to be considered in order to represent a fully articulated argument. This happens quite frequently and seeks to appeal to our finite sense of time available to examine the issue, or our conscientious desire to limit the debate to only those relevant issues that we can, in a brief moment in time, get our head's around without discomfort.

As you can see by this abbreviated articulation of common fallacies (believe it or not) we are well served to remember that there are a significant number of forces at work, at all times, exerting individual pressures and collective influence on the outcome of everything. Even for the most perceptively simplistic decision to be correctly judged we must account for all the aggregated influences contributing to the outcome and withhold judgment until all the data and statements of fact are analyzed and collated. Arguments are the mechanism that we use to fashion this deconstructive process in order to isolate the variables responsible for exerting influence on the outcome. Arguments should specify the contentions and variables in our scientific equations and articulate the hypothesized relations that exist between the individual variables, as well as the eventual result. Argument decomposition is a standard approach used in our profession to "get to the truth" and is an effective mechanism in order to avoid falling victim to the fallacies that have been identified previously. I recommend to my colleagues and students alike that they not only use this form of differential diagnosis to break apart an argument or claim into its manageable elements, but do so from a multivariate perspective. From a multivariate deliberation, a decomposition diagram of the logic of an argument can be sketched out that specifies hypothesized interrelations for the multiple variables and factors involved in any phenomena. There are several steps in the process, but the end goals are to (1) visualize all of the possible influences ahead of the analysis, (2) to formulate hypotheses [i.e., premises] that support the inclusion of each factor within the equation, (3) which is followed by testing of each premise to discern their relative degree of influence. Once the truth of each individual premise is tested and confirmed, the final step is to discern the proportional influence of each factor in the

aggregate equation and then derive a conclusion keeping in mind that importance of sequential logic principals.

This approach isn't expedient, it can be painful, and it certainly isn't commonly employed by those in everyday life who elect to make a decision without exhaustive analysis, but the benefits of decomposing an issue in three or more dimensions in order to isolate the contributive and relevant factors associated with the problem is extremely effective in shutting down challenges by others who seek to employ one of the fallacies that we have talked about previously, and this approach forces everyone engaged in the debate to concentrate on the truth instead of making the debate nothing more than a contest of wills.

The diagram below shows an example of this approach that was used to discern those factors and variables associated with the concept of achieving the perception of invisibility of military equipment. The results of this analysis were later published in the Armed Forces Journal many years ago (2003) and were also presented to DARPA in support of their efforts in this field of research. As you can see within the various axis lines of the decomposition diagram, the goal seeks to break apart the logical factors associated with just one outcome (rendering something invisible to the human senses), but as seen in this example, the complexity of all the factors that have some degree of influence is extraordinary.



We used a similar approach recently in the Hostage Survival Probability Model study that was co-sponsored by the National Tactical Officers' Association, the California Association of Tactical Officers, and JusticeAcademy.org. In that study the outcome that we are attempting to model is the probability of a hostage being killed, or not, based on a number of hypothesized factors that have been asserted as being relevant to such situations. Rather than use anecdotal or qualitative interpretation of how such situations end up, a comprehensive research design was constructed that takes into account a plethora of experience, arranged in a decomposition manner to isolate individual factors that might be influential, and then using Discriminant Function Analysis (DFA) each variable is tested for presence in previous situations, pertinence, individual influence, and collective relevance within an aggregated equation. Clearly this approach isn't for the faint of heart, but as I mentioned it concentrates on the facts, eliminates the superfluous, and prioritizes the relevant into a useful model that can be applied to future events with some degree of statistical probability. You can see a decomposition graphic of the approach used by the research team by visiting:

URL: <http://www.justiceacademy.org/iShare/Campbell/HostageArray.pdf>.

I trust that this article has been helpful in your efforts to develop your personal style of leadership and adds to your knowledge of critical thinking, fallacies, and multivariate reasoning. I strongly encourage you to try the decomposition approach the next time you are faced with a difficult decision, or find it necessary to explain the rationale of your public policy, or even when you are challenged by those who fail to employ logic. It will help put the debate back on track, eliminate the focus on emotion, demonstrate the purposive nature of the variables you found relevant to the decision making process, and perhaps even change the discourse to arguing the logic of the issue as opposed to the personalities of those within the debate.

From my vantage point the most important trait of a leader is that they are right and that they can explain how it is they arrived at a particular point of view. After that, all the other stuff can be applied such as charisma, charm, sensitivity, compassion, confidence, empathy, good grooming habits, public speaking ability, posture, etc. All too often we see examples of so-called "leaders" who possess the latter characteristics, but not the fundamental ability to break down the complexity of an issue, examine it for correctness, and apply a logic sequence to assure that they are right before they attempt to lead others in a particular direction. That's not leadership, it's management, and it serves little purpose in advancing the cause of the people being lead.

Should you have any questions about these topics, I would encourage you to visit my profile page and download the free book, or visit JusticeAcademy.org, where you can find fully narrated lectures on these topics within the iShare section. Your support for JusticeAcademy.org is most appreciated and we look forward to continuing our efforts to provide free reference and training assets to the law and justice profession