How to think critically

‘Cogito, ergo sum’ – ‘I think, therefore I am’.

We all think…
Of course, I really only know for sure that one of us does, namely me—but let’s put solipsism aside and assume that we all do. The question is, how well do we think?

I will discuss the process of critical thinking; I will first go through a bit of what it is and how you apply it, then give a few examples, and finish off by giving you a couple of tools to help you to better utilize the skill.

So, what is critical thinking?

Some people associate critical thinking with negativity—that it somehow means to think criticizingly. This is not so. Critical thinking is neutral in any objective sense. It’s an unbiased process for evaluating claims or opinions, either someone else’s or your own. The word ‘critical’ refers to ‘criteria’, not ‘criticism’.

There are different definitions put forth:

- One is that critical thinking is the art of analyzing and evaluating thinking with a view to improving it
- Another, that it is the process of examining and testing propositions to determine whether or not they correspond to reality

Any way you put it, thinking critically is a good defense against delusion, deception and superstition.

Critical thinkers approach things questioningly, skeptically; with an open mind and from different angles. They know the pitfalls of the mind, and take cognitive steps not to fall into them. Here are a few examples of pitfalls to avoid:

bias, prejudice, irrelevance, euphemisms, doublespeak, distortions,
ambiguity, vagueness, obscurity, emotiveness, non-relevance,
unwarranted assumptions, false implications, meaningless comparisons,
incompleteness, omissions, misconceptions, misinterpretations,
misplaced reverence, misunderstood motivations

It’s important to be able to identify egocentric and sociocentric thinking; egocentric meaning that you think in a certain way because you are you, and sociocentric meaning that you think as you do because of the society to which you belong.

To apply critical thinking, you ask questions and gather information, both supporting and opposing the argument in question. You then process the information with logic and reason, and come to conclusions. Then again, you evaluate the conclusions, to make sure they are reliable and realistic.

Here’s a simple example:

Whenever I can, I try to infuse some critical thinking skills into my daughter. She’s only eight, but pretty good at math for her age. She can work out 12x11 on a sheet of paper. When she gets the answer, I ask her to evaluate it—even if I see that she already has the correct answer.
10x10 is simple—you know it’s 100. So, logically, 12x11 should be a bit more than 100. If the answer you got is lower than 100, you know right off the bat that something went wrong, as well as if your answer is much higher. But if your answer is somewhere between 100 and 200, you know you’re in the ball park and may have the correct answer.

So, are you a critical thinker?

All of us here are intelligent of course, and to some intelligent people, critical thinking comes naturally. But when it comes to difficult questions, we may all fall into the trap of not thinking things through.

Let's investigate our thinking on some different subjects:

There's a commercial on TV. It tells you that apples make you smart. They show pretty diagrams to prove the "science" behind the claim.

Should you believe it?

No. At least not right away. You first need to ask questions; of which a few might be:

- Who paid for the ad?
  What difference does it make if the ad is paid for by a government health agency, or if it's paid for by a seller of apples?
- Where does the data come from? How many people were surveyed and who are they? Are most apple eaters in the survey college graduated children of apple farmers? If so, the data is skewed.
- What, exactly, is the cause and what is the effect?
  Might it not be more likely that smart people know the health benefits of eating apples, and therefore tend to eat more? Meaning—they were smart to begin with.

A few other scenarios:

Who's heard the rule saying that people shouldn't swim for an hour after a meal?
Who believes it to be true?

In fact, it's a myth. People are taught this as children, and never question the validity of it. It's an example of egocentric thinking—'it's true because I have always believed it'.

Who here believes that spending time outside in cold weather can make you sick?

This is one thing I remember questioning when I was little. I had heard about viruses and bacteria—the different ways you get sick—and it seemed strange to me that cold weather could somehow infect you with an illness. And of course, there's no truth to it—it's another example of egocentric thinking.

There may be other reasons why it's more likely to get sick when it's cold, but the cold weather itself is not the cause. Taking a lone stroll a freezing winter night might make your nose run, but it won't make you sick.

Okay—how about stranger danger?
We all teach our kids to be aware of strangers. But how likely is it really that they will be abducted and murdered by a stranger?

Actually we'd do better teaching them more about being careful—and to watch out for lightning. It's about twice as likely that they will be killed by lightning as by a stranger. It's four times as likely that they'll die from a fall. It's about twenty times more likely that they will drown, and around two hundred times more likely that they'll die in a traffic accident. Really, about the only thing less likely to kill your child is a school shooting. And of course, we're scared of that too.

If you apply some critical thinking you soon realize that we actually live in the safest of times. At the same time we're more afraid than ever. You realize this is due to the fact that we also know more about everything going on than we ever did before. Media is, and has been for a long time, creating a state of fear.

Only 1 in about 1.5 million children will be killed this year by a stranger. If you live your life being scared by such odds, you'd benefit a great deal from a dose of critical thinking.

Global warming!
Everybody has an opinion. Many scientists say it's true, others say it's not.

This is a good example of a subject matter where critical thinking is utterly missing, overshadowed by emotional opinions. People believe! Good arguments or bad, for or against, most people form an, often unfounded, belief. Often that belief is based on the views of the company you keep—an example of sociocentric thinking.

We should all realize that it is in fact perfectly okay to say that we don't know.

There is much evidence that there is a warming going on, but the evidence saying it's man-made or not is missing. A little critical thinking can only yield one possible opinion—we don't know—we're not sure. We may want to rather be safe than sorry, but when it comes to facts, we just don't know!

Another very emotional topic is the question of the legalization of marijuana.
Most people are abhorred by the very notion.

I'm not an advocate for drug use (just that I have to make that reservation is a testament to the emotiveness of the issue), but I am an advocate for critical thinking. Thought about critically it makes no sense to criminalize marijuana while having alcohol being legal. Alcohol is a much more harmful and addictive drug. Thousands of people die every day from alcohol-related diseases, while it's virtually impossible to die from marijuana use. Marijuana has good medical uses, and its use has fewer side effects than alcohol. The legal system built around the criminalization costs billions—money that could be better spent. As for the argument saying that marijuana is a gateway drug to heavier ones—critical research shows there is no scientific basis for the claim.

Politicians are prime examples of people who would benefit tremendously from learning to think critically; or rather, society would benefit from their learning—and official practicing.

So, hopefully you see that thinking critically is a good skill to have.

By thinking critically, we benefit both personally and as a community. Critical thinking clears away confusion and underlies many other important skills; such as problem solving, decision making, planning and risk management, to just mention a few.

We all need to work on this ability. It doesn't matter how old you are—the brain is a muscle and can be trained. But the earlier we start the better, and we should start with our children—instead of teaching them what to think, we should teach them how to think. It's always better to be able to calculate 12x11 instead of just remembering the answer to be 132.

So, whenever you come across a subject where you want to form an opinion, follow these four simple steps:

1. Collect information, get facts
2. Evaluate that information
3. Apply logic and reasoning to the information and draw conclusions
4. Evaluate the conclusions

"It is the mark of an educated mind to be able to entertain a thought without accepting it."
- Aristotle

Sven Ola Magnusson
San Jose, CA
July 22, 2013