

CRITICAL THINKING:
YOUR GUIDE TO
EFFECTIVE
ARGUMENT
ARGUMENT,
SUCCESSFUL
ANALYSIS AND
INDEPENDENT
STUDY

by Tom Chatfield

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ABOUT:

This is a comprehensive summary of the book *Critical Thinking* by Tom Chatfield. Covering the key ideas and proposing practical ways for achieving what's mentioned in the text. Written by book fanatic and online librarian Ivaylo Durmonski. (Printable available only for supporting members.)

HIGHLIGHTS:

- Critical thinking prompts you to question everything you observe so you can reach a place of less stupidity.
- Don't make conclusions based only on past events or on what's visible. Try to find the best explanations by forming theories and experiments.
- What is necessary is never sufficient. You need a pen to write. But a pen alone won't make you a writer. Learn to distinguish the two.

ABSTRACT:

Quite boring – structured like a typical textbook – yet, extremely useful when the main points are distilled and studied deeply. *Critical Thinking* by Tom Chatfield provides a series of toolkits that aim to improve the way you think about... everything. The goal of the book is to help you understand the real arguments of others. Spot errors in your judgment. Question everything. Ask better questions. Fortify your logic. Explain theories like a scientist. Become a bit more certain about uncertainty. And a lot of other things with the underlying goal of reaching a place of less stupidity.

THE CORE IDEA:

Not just thinking. But thinking better. Indirectly, this book will help you become more skeptical about the information you read and about the arguments presented by the people around you. By taking into account our natural flaws and biases, the concepts introduced in this title will prevent you from automatically believing everything you read. Instead of accepting the first piece of information at face value, you'll confidently question it to avoid poor judgments.

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KEY LESSONS FROM CRITICAL THINKING:

- LESSON #1: THE IMPORTANCE OF CRITICAL THINKING IN OUR INFORMATION-RICH WORLD
- LESSON #2: RECONSTRUCT ARGUMENTS TO UNDERSTAND THE REAL MEANING
- LESSON #3: LEARN DEDUCTIVE, INDUCTIVE, AND ABDUCTIVE REASONING
- LESSON #4: CORRELATION DOES NOT IMPLY CAUSATION
- LESSON #5: BEING REASONABLE AS DEFAULTLY UNREASONABLE PERSON

LESSON #1:

THE IMPORTANCE OF CRITICAL THINKING IN OUR INFORMATION-RICH WORLD

What is critical thinking?

In short, the delicate process of thinking about thinking.

You might think that this is not needed. After all, our brains are praised as the dominant factor in the evolution of our world. The largest wheel in our entire body that can create concepts that no other organism can produce. Making our domination of the world unquestionable.

Turns out, that our brains are full of flawed thoughts which can be quite harmful if not considered.

To prove this to us, the author starts with the definition of uncritical thinking – the opposite of critical thinking.

When you don't think critically, you automatically believe

everything you see, read, hear.

Someone tells you that the world is flat because the ground we walk on is (mostly) flat?

Sure, I believe you!

Someone emails you and explains how he's the prince of a distant country, but he requires help – your help! – to get access to the wealth of his family, and after he does, he will handsomely repay you?

Sure, I'll send you some cash!

We know that the above statements are absurd to believe. But we also know that people in the past actually believed that the world was flat. We also know that people actually send money to distant “princes” because the term spam was defined at a later stage.

With age comes experience. And by accumulating experience we learn to spot errors – false claims – without a lot of thinking.

However, our brain is predisposed to wrong judgments. We have biases that are always trying to steer us to the easiest solution.

After all, it's easier to believe what you read and hear than to question it and try to demystify the concept. With the information around us growing every minute. We simply don't have time to fact-check everything.

To battle this inherently flawed way of thinking. Tom Chatfield suggests nurturing our inner skeptic. Questioning everything before making a decision.

The starting point is understanding the two types of biases:

- **Conscious bias:** This is when we're consciously aware of our favorites. For example, if you're a fan of a particular football team, you won't hide your preference. You always talk in a positive way about your favorite team.
- **Unconscious bias:** This means that our opinion is influenced by factors we're not fully aware of. As mentioned in the book, this happens a lot when companies are looking for new hires. The person conducting interviews is usually unconsciously leaning towards the better-looking candidate.

As you can see, the second bias is more important to get. Once you examine yourself, you can spot the type of factors that are distorting your decisions and take them into account in future situations.

“Reflecting on your own thinking is an important element of becoming a more effective thinker. It can also be extremely difficult. Even the most brilliant thinkers aren't actively engaged in critical thinking most of the time; even they suffer from the same vulnerabilities and fallibilities that affect us all. Improvement is often a matter of insight, honesty and good habits rather than sudden inspiration.” Tom Chatfield

LESSON #2:

RECONSTRUCT ARGUMENTS TO UNDERSTAND THE REAL MEANING

In the ancient Roman and Greek world, students were trained to develop a skill called rhetoric. This is the art of persuasive speaking and writing.

People skilled at rhetoric learned “mystical” tactics so they can appeal to the emotions of the crowd. Convincing them that their argument is righteous.

The words used by a person versed in rhetoric persuade in a subtle way. It doesn't matter if what you're saying is reasonable and logical as long as it *sounds* reasonable and logical.

While the concept might sound dated, we use this all the time.

People speak in a matter to present their argument as flashy and reasonable. After all, we want people to follow us and believe what we believe for various reasons – mostly narcissistic.

How does this fit critical thinking?

Simple. You don't want to be swayed by every argument. You don't want to believe every ad you see on TV or online.

It's not healthy, neither for you nor for your bank account.

People overgeneralize, exaggerate, use hyperbole to convince us that their products, arguments, ideas are the finest.

Fortunately, we can easily peek behind the curtain and spot what is left unsaid by reconstructing the argument of a person, a company, etc.

The author presents the following 4-step framework:

- **Apply the principle of charity:** The first step is to consider what the other person is saying. You begin with the assumption that what they state is correct and truthful (that's why it's called the principle of charity). If we don't do this, if we dismiss every argument coming our way, we'll have a very limiting worldview. Besides, only when we keep an open mind can we really understand the other person's point of view.
- **Identify the final conclusion:** Secondly, we identify what's the final conclusion of the other person. For instance, ask yourself something like: "What is the author of the book ultimately trying to prove? Or, "What is this product actually helpful for?" In the book *Think and Grow Rich* by Napoleon Hill, as an example, the main argument is that people can become rich by

specifically stating how much money they want to earn.

- **Identify the explicit premises:** Once we have the final conclusion, we start to work backward. We ask ourselves: “What are the key (visible) points supporting the argument?” Here, we want to ignore our emotions. We list the reasonable points. The ones that are said. In the book we’re using as an example, the argument Napoleon Hill is presenting to support his thesis is that when you remind yourself, daily, that you’re going to do X in order to get Y in return, you will push yourself and actually achieve it.
- **Identify the implicit premises:** The implicit premises are claims that are not mentioned by the person. They are simply assumed to be part of what is said. To continue with the example from above, what Hill is implicitly saying is that we all should strive towards improving ourselves and getting riches. Becoming rich in the book, however, is not used as a tool to dominate the world, but merely a step towards self-improvement.
- **Distinguish between linked and independent premises:** The final step is simple. It’s about categorizing the premises as linked and independent. For instance, in the book mentioned above, Hill provides a six-step formula that will help you become rich. All of the six steps, when linked together, support his main argument. But besides these, there are other independent arguments that support the main thesis. Think of it like this: Linked premises follow this rule: “If both X and Y are true, then Z will happen.” Independent are more like this: “If X, then probably Z; If Y, then probably Z.”

In our day-to-day conversations, the steps above happen very fast.

Our brain highlights the main argument of the person, takes into account what is said while simultaneously considering what is left unsaid, and also counts the number of supporting premises by the other part. All of this data is internally calculated so we can finally decide whether or not we'll believe the presented.

However, our brain often miscalculates. Our conclusions are often more like flipping a coin, not solving a mathematical equation.

We tend to be persuaded by the nice voice of the orator. His aura and passion. This is making us a victim of clever language instead of finding the correct argument.

“Practically speaking, careful reconstruction will often make the flaws in an argument obvious, or suggest where its weaknesses may lie.” Tom Chatfield

LESSON #3:

LEARN DEDUCTIVE, INDUCTIVE, AND ABDUCTIVE REASONING

How can you tell if something is true or not?

What type of processes do you use to find the logic behind an argument of a person?

Realistically speaking, we usually trust our gut feeling. We don't have a dedicated process that we "bring out" every time we have to decide if something is logical or not. We let our minds figure it out and then follow our internal conclusion.

This is not, however, a bulletproof strategy.

To see things as they actually are. We need to have processes in place.

The author presents 3 types of reasoning that can help us see the world better and improve our decision-making approach.

- **Deductive reasoning:** Popularized by Sherlock Holmes, this type of thought process is nothing more than a detailed observation of our surroundings, the presented information, and then deciding whether the outcome is logical based on everything we've spotted. A simple example is the following from the book: "Premise 1: All fish live in water; Premise 2: I am a fish; Conclusion: I live in water." In a way, if all the arguments are true, this means that it's logically correct.
- **Inductive reasoning:** This mental tool is a bit more sophisticated. To decide if an argument is correct or not, you take into consideration the available information, then you make a prediction – usually based on sampling. You decide how likely it is to believe that something is true or to happen. For example, if your parents have been going to a warmer place every winter for the past 20 years, it is reasonable to assume that they will do the same this year.
- **Abductive reasoning:** This form of reasoning is supposed to be the best one of the three. Abduction here means "to lead away from". The end goal is to understand why things are the way they are. Forming your conclusion starts with asking a question: "What is the best explanation for this?" Newton – at least as mentioned in one example in the book – supposedly found gravity by using this method. He asked himself, "Why do falling apples descend exactly at right angles to the ground?" The main goal in abductive reasoning is to take your time and find the best answer.

The problem with deductive reasoning is that you're making a conclusion based on the presented facts. However, this doesn't

guarantee a correct decision.

One example the author shares in the book is the following:

Premise 1: There has never been a female US president.

Premise 2: [Implicit] It is almost certain that the immediate future will repeat the same pattern as the past in this particular case.

Conclusion: The next US president will almost certainly be a man.

The two premises are currently correct, but this does not guarantee that this line of events will not change in the future.

On the other hand, the concern with inductive reasoning is that you're dealing with probabilities. Just because something happened in the past cannot guarantee that it will happen again in the future. The sun has risen every day for millions of years. However, we also know that at some point in the distant future the sun will not rise.

Is there a problem with abductive reasoning?

Yes, it takes a lot of time. To find the correct conclusion, we basically need to form a theory and try to prove it by gathering evidence, making predictions, and searching for extra evidence that can falsify our theory.

Still, it's the best way to figure out why something is the way it is.

“Deduction: *All objects that are denser than air fall directly downwards, towards the Earth. All apples are denser than air. So the apples in this tree will fall directly downwards, towards the Earth.*

Induction: *All the apples I have ever seen falling from trees have fallen directly downwards to Earth. So, these apples will also almost certainly fall directly downwards to Earth.*

Abduction: *The apples in this tree, like all other falling objects I’ve seen, are falling directly downwards to Earth. Why is this? Perhaps because the matter that makes up all objects – including apples and the Earth – itself generates a force that creates this attraction.” Tom Chatfield*

LESSON #4:

CORRELATION DOES NOT IMPLY CAUSATION

Our ability to separate cause and effect is a much-needed skill.

Quite often, we attribute the success of a project to something that is totally unrelated to the task.

We might think that just because we're eating a lot of chocolate, we're becoming smarter. After all, chocolate can boost blood flow. A positive blood flow will slow cognitive decay. So, it must be correct to assume that our thought processes are improving thanks to our habit of eating chocolate, right?

There are many absurd claims in the book that explain how correlation does not imply causation.

A graph showing that the number of people who drowned by falling into a swimming pool matches the number of films Nicolas Cage appeared in.

Ridiculous!

Given the amount of information we have access to. It's easy these days to make such twisted claims. Everyone with a computer can find some sort of match between two totally irrelevant subjects.

Your goal as a reasonable person is to spot the nonsense and find the real cause.

Here's a couple of rules to avoid falling into the trap of wrongly assuming that correlation is causation.

- **A third factor:** Also known as ignoring a common cause. This basically means that we think that X causes Y. However, in reality, X and Y are both caused by Z. For instance, you might think that just because you've purchased a new laptop you're now writing better emails. However, the above is probably caused because you decided to become a better writer in the first place – to learn more and practice more.
- **Advantage but not cause:** We do this all the time actually. We mistakenly believe that people are successful say, artists because they are born talented. This is almost never the case. At least it's not the full picture. While talent does help, it doesn't guarantee success. Becoming good in a given field requires plenty of other factors.
- **Entwined cause and effect:** Quite often, we have two things that are affecting one another. For instance, inflation and unemployment are both causes and effects. One affects the other and the other way around.

- **Statistical manipulation:** This is the most common tactic used by brands when advertising a product. They select only the positive data and present it as the *only* data. For example, a commercial about weight loss pills will share stories only from people who benefited from the medicament. However, nothing will be mentioned about the people who had troubles with the pills.
- **Confusing cause and effect:** Consider this, you might skip working out today, again, because you're feeling tired for more than a month. But you're probably feeling tired because you've been skipping workouts for more than a month.

“It’s very common to fall into the trap of equating causation with correlation: of seeing two variables that follow each other closely, or one thing following immediately on from another, and deciding that one must thus be the other’s cause.” Tom Chatfield

LESSON #5:

BEING REASONABLE AS DEFAULTLY UNREASONABLE PERSON

Descending into emotional pitfalls and jumping to wrong conclusions is not an isolated act. It's sadly the norm for us.

We act unreasonably most of the time. Motivated by the wrong incentives, we tend to avoid logic. We feel, and only then do we think.

Basically, we are betraying ourselves all the time.

All of this can lead to some nasty complications.

We don't do it because we're deliberately trying to destroy our lives. It's simply the way we are.

As the author writes, "We are creatures first and thinkers second – and rationally self-critical thinkers last of all."

How can we overcome these seemingly embedded flaws in us and move closer to the truth?

It's hard. But not impossible.

The first action step is to fully acknowledge that there is a lot you don't know. To wake up, spot your own blindness, and stop trying to pretend that you don't have problems.

Only when we realize that we have weaknesses, we can improve ourselves. This first step is of extreme importance. If you can't accurately assess your lack of skills, you can accurately make improvements.

Next, the author talks in length about behavioral economics and about our biases. Most of these things are actually from the book *Thinking, Fast and Slow* by Daniel Kahneman. So I'm not going to mention them again.

What's more interesting in the book is Buster Benson's cognitive bias cheat sheet.

It's a tool that categorizes our biases into four categories presented as problems. The goal is to reflect and re-think before you decide on something:

- **Problem 1: There is too much information out there:** We tackle this by paying attention to things that confirm our existing beliefs. We pay attention only to bizarre and funny things. We notice repetitive thoughts and totally neglect such that occur

once.

- **Problem 2: There is not enough meaning out there:** Generally speaking, the world is quite confusing. To avoid falling into despair, our brains fill the gaps in order to make sense of what's happening in order to survive. We use patterns, assumptions, simplifications based on our current mindset.
- **Problem 3: We don't have enough time:** We're constrained by time and information, and at the same time we want to feel like what we do is important. So, we assume that our actions are rightful. That we're competent and that we should finish everything we've started even if we find reasons to give up.
- **Problem 4: We can't remember or track everything:** Since the amount of information is insanely huge, we are constantly trying to figure out what to remember and what to forget. The things we decide to keep, later influence the way we make decisions.

While we can't completely resolve these problems. We can frequently remind ourselves that these issues exist. Revisit them and think about them when we're trying to figure out the best path forward.

The huge amount of data, the lack of meaning, and time slowly slipping by, make us act fast without pausing for a moment to assess, regroup, and probably decide something else.

Don't let the noise become a signal. Don't be guided by quick conclusions.

Since you're now aware of our natural flaws. Take them into

consideration the next time you need to make an important decision.

“In other words, people who know very little about something have little capacity to accurately assess their own lack of skill, because they don’t have much of a sense of just how much they do not know. It takes some knowledge to realize how much you do not know.” Tom Chatfield

ACTIONABLE NOTES:

- **Beware of samples:** We're introduced to samples all the time. We watch ads where it's stated that 9 out of 10 doctors recommend this toothpaste. Of course, this is done very deliberately. The information is self-selected to fit the goal of the company – to sell you that toothpaste. If we look at the general picture, though, we can easily spot the flaw. For example, the company might have asked 100 doctors about their opinion. But if 50 of them don't find the product good, they simply don't present this. Another common thing we're all exposed to is online testimonials. The websites we visit are, of course, only sharing positive reviews. But do you really think that everyone using the product is that amazed? Absolutely not. When we add this lens to our bag of mental tools, we'll stop believing everything we hear and watch.
- **Verifying and organizing information:** Thanks to the internet, we have all the data in the world at our fingertips. Does this make us better decision-makers? Does this mean that we are unquestionably smart? Not exactly. We have more, but we understand less. To get the most out of this ocean of content, the author suggests two things: Acquire information, think about the source (is it trustworthy?), and organize it. Fragmented information from untrustworthy sources is not only unhelpful. It will also hurt you. Access to information doesn't mean knowledge. Knowledge requires studying the information and ensuring that the resources are legitimate.
- **Creating echo chambers:** An echo chamber is our tendency to pay attention only to information that confirms our beliefs. It's

kind of creating our own world where everything supports our way of thinking. On top of that, we avoid any sources that try to dismiss our point of view. As a result, we don't see everything. We selectively filter to feel good, but this filtration doesn't make our life better in the long term. It's the opposite. This forceful neglect of facts that can break our theory can keep us occupied doing the wrong tasks. To get out, you just have to realize that the world is neither white nor black. It's nuanced.

- **Focus on feedback and conversations:** One of the chapters in the book is about better writing. Personally, I don't think that this fits the overall theme of the title but there is one tip that can be applied to a broader frame. The gist is this: When you write – or do something else – don't do it for the grade. Do it to be resourceful. To spark conversations, engagements, and help others improve. Furthermore, use the feedback you will eventually receive to improve yourself – don't get crippled by it. We either skip the feedback or we take it too personally. Ask yourself this: “What I can learn from this feedback? What is my strategy for improving my thinking and writing? Above all, how do I plan to get better at the work I do?”
- **Study rhetoric:** We are always seeking to influence others' behaviors or beliefs. With words and expressions, we try to convince people that trusting our argument is the best for them. Surely there are many variables about whether someone will trust us or not. But there is one thing you can do – study rhetoric more deeply. Rhetoric is the act of persuasion through means other than reasoning. Simply put, you pick your words in a way to appeal to the emotions of the other party. Usually, we do this by default. Without even realizing it. But we can do better. Understanding the most persuasive tactics of rhetoric will

help you deflect unreasonable messages from infiltrating your mind – because others are also trying to make you believe their arguments – and also to become a better persuader. These tactics are: an intensity of emotional appeal, elements of mystery and surprise, using memorable or uncommon language.

- **Necessary and sufficient conditions:** Understanding these two concepts can quickly change the way you see things. A necessary condition is something you need for something else to be true. However, it doesn't guarantee that this other thing will be true as well. For example, you absolutely need a piano to learn how to play. As you can imagine, though, owning a piano is not enough to become a great pianist. In this case, the piano is a necessary thing, but it's not sufficient. Marketing campaigns try to present the necessary things as sufficient to sell us more stuff. After watching a commercial, we start to believe that owning an expensive laptop is enough to become a great writer. After all, the keyboard is “magical”. The momentum created in the ad prompts us to buy the machine. Only at a later stage, however, do we realize that more is needed to write words. Not just a good-looking keyboard.

COMMENTARY

No one teaches us how to think.

It's assumed that we should know how to think. Even more, that we should know how to think well.

But this is not something that happens so easily. For some people

even, it never happens. They accept everything that comes their way and never question the norms. Never try to figure out why things are the way they are or why you shouldn't believe everything your doctor is saying.

Critical Thinking by Tom Chatfield will level up your brain skills. Help you see things as they actually are. Convince you that you should ask questions and answer these questions by using even more questions.

We need critical thinking in our lives. We need it not only because we'll find better answers. But also because our brains are full of flaws. Biases and misconceptions are commonly trying to steer us to harmful conclusions.

Critical thinking will unlock the attic of your mind and with this, help you see what was previously out of sight.

When it comes down to the actual book, though, it's ridiculously boring. The text is so dense with facts, explanations of different concepts, and prompts to engage with the text that it's hard to think deeply and actually get the main point.

Key takeaway:

Becoming a better critical thinker requires two opposing techniques. First, consider what the other person is saying. For a moment, even believe that it's true. Secondly, use logic and questioning to falsify the statement and see the flaws. Your end goal should be to find the best explanation for everything.

NOTABLE QUOTES:

“We need to be equipped to think as critically as possible about thinking itself if we are to succeed in this context – and we need strategies for taking full advantage of our unprecedented interconnectivity through technology, rather than simply finding ourselves swept along by its momentum.” Tom Chatfield

“Critical thinking skills usually involve trying to grasp a situation as objectively as possible: setting aside our own immediate feelings and preferences, and trying to identify the relevant facts.” Tom Chatfield

“You can think of active reading as a conversation with a text. For the results to be meaningful, you must ask questions, tease out meanings and explore your own assumptions. One of the greatest mistakes many students make is to be too passive in their reading: taking in information without reflecting on it and failing to develop their own understanding and interests at the same time as engaging with others’ work.” Tom Chatfield

WORKSHEET

Reading alone won't help you understand the actionable notes. You need to engage with the content. Answer the question below to plan your next steps:

1/ Do you trust the testimonials on websites or do you do a deeper research?

2/ How do you check if what you're reading is trustworthy?

3/ Are you living inside an echo chamber, or do you expose yourself to other opinions?

4/ What is your strategy to improve your thinking and get better at the work you do?

5/ What are the necessary conditions? What are the sufficient conditions?

THANKS FOR READING!

Ivaylo Durmonski

