

# WHAT IS CRITICAL THINKING (AND WHY DOES IT MATTER)?

## FIVE THINGS YOU'LL LEARN IN THIS CHAPTER

- 1 The difference between *critical* and *uncritical thinking*
- 2 Practical advice for applying *scepticism* in your work
- 3 Smart *study tips* on managing your time and attention
- 4 Why you need to watch out for *confirmation bias*
- 5 Five key techniques for your *critical thinking toolkit*

## THE OPPOSITE OF UNCRITICAL THINKING

The word ‘critical’ isn’t the friendliest of terms. If I’m being critical of you, you may say: Why can’t you be more supportive? Why are you criticizing me? People don’t tend to like being criticized, or react to it well.

Critical thinking is different. It doesn’t mean being critical in the sense of being negative or offering criticism. It’s much more interesting (and positive) than this. As a starting point, let’s approach it as the opposite of something we are all guilty of sometimes – **uncritical thinking** – in which we take things at face value without pausing to consider whether this is sensible or justified.

Take a look at this email, which arrived in my inbox on 9 July 2013:

Hello,

I'm writing this with tears in my eyes, My family and I came down here in Manila, Philippines on a short holiday unfortunately we got mugged at the hotel park where we stayed, all cash, wallet, credit card and phones were taken away, but luckily for us we still have our passport back in our hotel room... We've been to the consulate here and the Police but they're not helping issues at all... Our flight is leaving in a couple hours time from now but we're having problems settling our hotel bills.

We're very sorry if we are inconveniencing you, but we have only few people to run to now. We will be indeed very grateful if we can get a quick loan of (£2,450 GBP) from you. this will enable us sort our bills and get our sorry self back home. We will appreciate whatever you can afford in assisting us with via western union. We promise to refund it in full as soon as we return. let us know if you can be of any assistance. Please, let us know soonest. Thanks so much.

Thanks

David

**Uncritical thinking**: automatically believing what you read or are told without pausing to ask whether it is accurate, true or reasonable



IF WE ARE  
**UNCRITICAL**  
WE SHALL ALWAYS  
FIND WHAT WE  
WANT: WE SHALL  
LOOK FOR, AND FIND,

CONFIRMATIONS, AND WE  
SHALL LOOK AWAY FROM,  
AND NOT SEE, WHATEVER  
MIGHT BE DANGEROUS  
TO OUR PET THEORIES.  
KARL POPPER

#TALKCRITICALTHINKING

## WHAT IS CRITICAL THINKING?

An uncritical reading of this email would simply accept all of its claims. It was sent from my friend David's personal email address. It was July. Perhaps he was on holiday with his family; perhaps he had got into trouble and desperately needed my help. I must help him at once!

This kind of instant, uncritical response would almost certainly get me into trouble. What I needed to do was to pause, step back and think critically for a moment.

First, I read the email again, carefully. Did this sound like my friend: a writer, editor, experienced traveller, someone unlikely to panic? No. The message didn't really read like something written by him. It had odd turns of phrase – 'get our sorry self back home' – and mistakes in punctuation, spacing, grammar and capitalization that David wouldn't have made even if he were upset: 'at the hotel park where we stayed, all cash, wallet, credit card and phones were taken away, but luckily...'.

Also, would he really have emailed me and asked for money like this, even in an emergency? Again, not likely. He would have put things differently, provided more context and concrete details; he would have been in touch with family and closer friends than me.

How could I check? If this was a fake message, it suggested his email had been hacked or spoofed: that someone else was behind it. I launched Google and copied the first line of the email into inverted commas – 'I'm writing this with tears in my eyes' – looking for other examples of the precise phrase online.

Sure enough, plenty came up. Try it yourself: it's a genuine scam email. At the time of writing this chapter, in 2017, I found 21,500 results, the earliest dating back to 2010. One of the top results was a September 2012 news story from Forbes, exploring what I discovered was known as 'the grandparent scam' – because it's most likely to fool older, inexperienced computer users.

'The scam works because it has urgency', noted the article's author, finance expert John Wasik: 'It's an emotional appeal that preys upon lonely moments in which we feel totally vulnerable.'<sup>1</sup> In other words, it's a scam deliberately designed to provoke uncritical thinking: an instant, urgent reaction driven by strong emotion.

Having explored the scam email to my satisfaction online, I quickly sent a text message to my friend, David, explaining that I thought his email address had been compromised, and double-checking that he and his family were OK. He replied, slightly wearily, to say that they were fine – and that I was the tenth person to text him in the last hour to check he wasn't in trouble in the Philippines. In fact, he was at home in Surrey.

The kind of critical thinking I engaged in after receiving this email comes easily to most people, so long as they have some experience of the internet and email. It's a vital survival mechanism for a world in which things aren't always as they seem. Without even noticing it, most of us apply a series of critical filters to our thinking about things like unusual emails. They go something like this:

- Is this somehow unusual, out of the ordinary, unexpected or odd?
- If so, it's time to pause, pay attention and ask a few careful questions.
- Who and where did this message come from?
- Why was it sent?
- Is the person sending it who they claim to be?
- Do I believe what the message is saying?

*This really did happen – although it's targeted 'phishing' that gets most people today.*

- If I don't believe it, what might be the hidden intentions behind it?
- What reliable sources can I use to check what is really going on?
- Finally – once I've done all this – what actions should I take?

Of course, most people with any experience of email or technology don't need to go through these steps when looking at a suspicious message. Instead, they simply ask:

- Does this look like a legitimate message – or is it just spam?

This is because, at least when it comes to spam email, most of us are old hands at critical engagement. We've seen hundreds, if not thousands, of spam messages. We know what's going on. We've developed some useful habits and assumptions and short cuts. We're hardened spam critics without even knowing it. This is an important point that we'll return to: if you've handled similar situations many times, and they're not dominated by random noise, you're likely to have developed some meaningful expertise and intuitions. It's when things are strange and new – when you don't have any expertise or information to contextualize them – that your instant reactions are most likely to be misguided.

We engage in critical thinking, or benefit from the lessons of previous critical thought, all the time without being aware of it. If we took everything at face value, we wouldn't get very far in life: we would be deceived, bewildered, manipulated, confused. Imagine if you believed everything you were told by everyone, everything that you saw and heard and read in every advert, every politician's claim.

The art of critical thinking isn't about changing human nature, or pretending we can or should act entirely rationally all the time. It's about learning to recognize our own – and others' – limitations; and knowing when to pause, think again and reach for the right questions in order to work out what is really going on.

**Critical thinking:**  
setting out actively  
to understand what  
is really going on  
by using reasoning,  
evaluating evidence  
and thinking  
carefully about the  
process of thinking  
itself

Here, then, is my definition of the kind of **critical thinking** we are going to be working towards. When we are thinking critically, we are setting out actively to understand what is going on by using reasoning, evaluating evidence and thinking carefully about the process of thinking itself.

## SCEPTICISM AND OBJECTIVITY

Now that we've introduced the idea of critical thinking, try to think critically about each of the eight claims below. Are they reasonable and reliable, or should you think twice before accepting them? Why?

- 1 They say it's probably the best beer in the world? .....  
It must be great: I'll buy some. ....
- 2 She wrote the world's leading psychology textbook: her views on psychology must be worth taking seriously. ....
- 3 She wrote the world's leading psychology textbook: her views on the PlayStation 4 must be worth taking seriously. ....

The TROUBLE With having  
an OPEN MIND.  
OF COURSE.  
is that PEOPLE  
WILL INSIST ON  
COMING ALONG AND  
TRYING TO PUT  
things IN it.

TERRY  
PRATCHETT

#TALKCRITICALTHINKING

- 4 French fries are delicious. I'm going to eat them all the time. ....
- 5 My friend has hurt his leg and is lying close to me, in pain: I must rush and help him right now. ....
- 6 My friend has hurt his leg and is lying on the other side of that busy road, in pain: I must rush and help him right now. ....
- 7 The video my friend posted on Facebook is really funny. I'm going to click 'like'. ....
- 8 The video my friend posted on Facebook is pathetic. I'm going to post an insulting personal comment. ....

**Scepticism:** not automatically accepting something you hear, read or see as true

Statement (1) – that I should buy something which claims to be the best beer in the world – is a piece of uncritical thinking that needs to be viewed with **scepticism**. Scepticism means refusing to take something at face value, and instead asking questions about its reliability. In this case, sceptical reflection should lead us to realize that this is an advertising slogan, and thus unlikely to embody an expert assessment of every beer in the world.

Statement (2) – in which I suggest that a leading psychologist is likely to know about psychology – is not so suspicious. It seems reasonable to take an expert psychologist's views on psychology seriously, although there may be a follow-up question I need to ask about her particular areas of expertise. When it comes to statement (3) and the same psychologist's views on the PlayStation 4, however, being an expert in one field doesn't necessarily mean she knows anything about games consoles. We should think twice before accepting this.

As for the other four statements, from (5) to (8), you'll notice that what they have in common is that they express rapid judgements about something I am planning to do. I'm going to eat French fries all the time, help a friend, click a 'like' button, make a rude comment. Rapid judgements are sometimes necessary. But they also reflect instant emotional responses that may turn out, upon reflection, to be a bad idea. Rushing out into traffic to help our friend may simply end up hurting both of us; posting an offensive comment online may cause lasting offence to someone else – or give us a bad reputation.

**Objectivity:** trying to understand something from a more neutral perspective, rather than relying on a single opinion or the first piece of information that comes to hand

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. Objectivity and scepticism are related ideas. Both of them involve a commitment to finding out as best you can what is actually going on, rather than automatically accepting the first piece of information you encounter.

Both objectivity and scepticism are also possible only to a degree. You can never be entirely objective, and you can never distrust absolutely everything you think you know. Thinking is always rooted in who you are, what you have experienced and what you feel. The trick is reaching an accommodation with this: knowing yourself better and practising techniques that help you understand the world as carefully and realistically as possible.

The eight examples I gave above don't divide neatly into two categories of 'yes, this is reasonable and reliable' or 'no, this is completely unreasonable and unreliable'. Instead, they exist on a spectrum of reliability, ranging from highly unreliable to pretty trustworthy. Most of the claims that we encounter in real life are like this. It's not a question of simply accepting or rejecting them – it's about *how* we should judge them.

'Don't let the perfect be the enemy of the good.'  
A great saying to remember

## WHAT IS CRITICAL THINKING?

In the case of both professional and academic work, it's also about asking about the ways in which different materials may or may not be useful or important. Much like a police investigation, if we are trying to find out what is really going on we need to consider a number of possibilities and use a range of different sources, rather than relying on our immediate feelings or what is in front of us.

This advice might sound so obvious that it's barely worth putting in a textbook, yet you would be amazed at how often all of us – and I include myself in this – form a judgement based on a quick reaction to whatever information is instantly available, or what we feel, rather than even trying to find out whether there is more we need to know.

## SMART STUDY: Becoming a better sceptic in four questions

Scepticism entails refusing to take things at face value. You can start practising it in life, work and study by asking four simple questions whenever you need to think twice:

- Why should I trust this claim?
- Why does the person making this claim believe it – or want me to believe it?
- What else has been said, written or reported about this?
- Do I know enough to answer all of the above questions confidently?

If the answer to this final question is ‘no’, you need to face the fact that you don’t know enough to make an informed decision, and you must go in search of more information.

## THE BATTLE AGAINST BIAS

If objectivity and scepticism entail trying to understand things as they actually are, then **bias** represents their opposite – looking at things in a way that is entirely dominated by a particular prejudice or perspective. There are many different kinds of bias, and we will explore them in detail later in the book, but all of them fall under the same general definition: approaching something in a one-sided way that distorts your understanding.

If, for example, I am madly in love with you, I may be biased in my assessment of your skills as a conversationalist or the quality of your jokes. Even if I’m not in love with you, the fact that you’re really ridiculously good-looking may bias me towards giving you a job or claiming you sang beautifully in an amateur production of *Phantom of the Opera*. Similarly, if I’m trying to sell you a car, I may emphasize the car’s good points and try to cover up its bad ones.

At this point, it’s worth making a distinction between two categories of bias: **conscious bias** and **unconscious bias**. Here are a couple of examples; see if you can tell them apart:

- 1 The prime minister’s spokesperson insisted that the prime minister had acted in good faith and from the best of intentions – unlike his cowardly critics.
- 2 Voters across the country tended to prefer the taller and the more conventionally good-looking of two candidates when they compared both photographs.

Example (1) is a case of conscious bias: the prime minister’s spokesperson is knowingly and deliberately trying to present the prime minister in the best possible way while implying that his critics are cowardly. Example (2) is a case of unconscious bias. Voters tended to prefer the taller



**Bias:** approaching something in a one-sided way that creates a distorted account of the way things actually are

**Conscious bias:** when someone deliberately presents a one-sided view of something, or explicitly holds a one-sided opinion about something

**Unconscious bias:** when someone’s opinions or decisions are distorted by factors that they are not even aware of

and better-looking of two candidates when shown photographs, but they may not even be aware that this is a factor in their preferences – it can affect their judgement without them consciously noticing what is going on.

Unconscious biases can be harder to deal with than conscious biases. If someone actively expresses a biased perspective – arguing, for example, that they would never choose to vote for a woman over a man – then it is relatively easy to identify and to challenge this bias (changing their minds is quite another thing). If, however, a bias is unconscious, it can be extremely difficult even to identify, let alone to challenge, it. For example, someone may not think of themselves as sexist in any way, yet still frequently act in accordance with sexist assumptions they don't even acknowledge.

Just as total objectivity is impossible, none of us can ever be entirely without biases – and we wouldn't wish to get rid of them all. The challenge is to become more aware of them, and to find ways of minimizing the distortions caused by the more troubling ones. We'll be exploring this in more detail in the second half of this book.

**THINK ABOUT THIS:** What unconscious biases do you most often see in the people around you? Might any of these also affect your own judgement? .....

.....  
.....  
.....  
.....  
.....

**Slow down:** critical thinking cannot happen in a rush.

Before you do anything else, you need to take the time to engage your slow, considering mind rather than relying on instinct

**What You See Is All There Is:** a phrase used by psychologist Daniel Kahneman to describe the human tendency to pay attention only to what is immediately obvious, and to neglect the hidden complexities that exist in most situations

### FAST AND SLOW THINKING

Most of the time, we rely on general intuitions about what to do, say and think. We wouldn't be able to function if we had to think hard about every single action and decision in our daily lives. We do, however, have the ability to pause and to think more deliberately about some things – and it's this 'slow', considered thinking that we develop when we improve our critical thinking skills (and that we can then use as the basis for making better rapid decisions). That's why the first and most important rule of critical thinking is about speed: **slow down**.

In his book *Thinking, Fast and Slow*,<sup>2</sup> the psychologist Daniel Kahneman offers a useful phrase to describe the problem of relying too much on first impressions, feelings and the information we happen to have in front of us. He calls this problem WYSIATI, a not-so-snappy acronym that stands for **What You See Is All There Is**.

This phrase describes something that almost all of us do all the time in everyday life: we form a judgement based on what we know, without pausing to consider whether we actually know enough to justify such a judgement.

If you develop a deep dislike of someone you work with because they have one unpleasant habit – picking their nose constantly, say – this may be a case of assuming that one thing you happen to have noticed means you understand what kind of a person they are. Similarly, if you only read just one article about a particular subject and then assume you can confidently analyse it – if, for

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example, you write an essay about Daniel Kahneman based on a single Wikipedia entry – you are using the most easily available information as if it were all you needed to know.

Do the above errors sound obvious and easy to avoid? Have a think about this:

How meaningful do you think it is to study a couple of hugely successful technology companies, like Apple and Google, in order to find out what makes technology companies successful?

The answer is: it's not necessarily very meaningful. You might find this surprising. Many people would think that looking at the world's most successful organizations is a perfect approach to understanding success. Indeed, plenty of people have indeed made successful careers precisely out of this kind of business analysis. Yet there is a problem with this kind of thinking. When you look only at successful companies, you are looking at a tiny and extremely lucky fraction of all the companies that exist or that once existed.

*Literally thousands!*

For every giant like Apple, there are thousands of smaller and less successful companies. For each of these, there are thousands of companies that no longer exist because they failed. For each of these, there are thousands of potential companies that never even made it to day one. For almost any 'principle for success' you come up with, based on looking at Apple and Google, it's likely that thousands of unsuccessful companies also adhered to exactly the same principle. It's just that you don't see these companies, because you are only aware of the tiny percentage of companies that happen to be hugely successful.

This is known as **survivorship bias** – one of a host of unconscious biases that can distort almost everyone's thinking and decision-making. As the name suggests, this bias involves forming a general judgement by looking only at successful outcomes, and completely ignoring failures. Successes are rare, but striking; failures are numerous, but almost invisible. People thus tend to act as though a small number of famous successes are all that matters – when in fact they represent a mere fraction of cases.

**Survivorship bias:**  
the tendency only to think about successful examples of something, failing to consider the bigger picture in which the vast majority of all cases are failures

When conducting experiments and assessing research, being able to minimize bias of all kinds is a vital skill. When reading, writing and speaking critically, it's equally vital to be as aware as possible of potential sources of bias in both other people's and your own thinking.

There are many forms of unconscious bias, but perhaps the most important form it takes as an obstacle to critical thinking is **confirmation bias**. Confirmation bias describes the near-universal human tendency to use new information only to confirm existing beliefs, rather than to challenge them. If you only remember one kind of bias to watch out for, make it this.

Confirmation bias is the enemy of objectivity and scepticism. It's the kind of thinking in which someone treats their existing assumptions as sacred, rather than as something to be tested, improved and, if necessary, abandoned in the face of new evidence. Confirmation bias is the difference between looking at fossilized dinosaur bones and saying 'I know that the world was created 6,000 years ago by God; He obviously created these to test us' and saying 'Here is something that cannot satisfactorily be explained if the world was created 6,000 years ago; I wonder what a better explanation might be'<sup>3</sup>

**Confirmation bias:**  
the universal human tendency to use new information only to confirm existing beliefs, rather than seeking to improve and clarify your understanding

It is also impossible to entirely avoid this kind of bias. We all bring assumptions with us wherever we go; we cannot be sceptical of everything. We can, however, train ourselves to be more alert. Here is an example for you to explore. Try to think sceptically and to identify how confirmation bias may be getting in the way of critical engagement in this scenario, taken from a fictional student research project:

An extended macro-economic investigation brings some fascinating news that bears upon my research project exploring weather conditions and economic output: in two leading global economies, rain in one summer month appears to have successfully predicted increased productivity over the last two years!

Although the result may sound impressive, someone who is combing through large amounts of information looking for any kind of relationship between weather and the economy is likely to eventually find something – especially if they pluck out one particular month in just two countries. This is the nature of looking for confirmation: you allow yourself to ignore all those occasions on which there is no evidence. Think of the person who points to a particular piece of good luck as evidence that they are blessed – ignoring all those other occasions on which they were not lucky (not to mention all the other people just like them who have been unlucky).

Critical thinking does not argue that there is no place for tradition or belief, or that we can understand or explain everything. But it does demand that we set out to test what we think we know, and the boundaries of what we do not. It is, in other words, opposed to **dogmatism** – the laying down of certain principles as both absolutely true and immune to scrutiny – whether this dogmatism is practised by priests, scientists or politicians.

**Dogmatism:** the claim that certain principles or ideas are both absolutely true and immune to any form of critical scrutiny or discussion

## ALLOCATING YOUR ATTENTION

The phrase ‘pay attention’ is surprisingly accurate. Our attention is a limited resource: not just because there are only so many hours in the day, but also because it takes a great deal of effort (and practice) to pay focused attention to something. Truly paying attention doesn’t just mean concentrating – it means noticing, engaging, grasping something with your mind. Slow, focused thinking is difficult. It’s tiring. It involves using up a resource that is in limited supply.

Being honest with yourself about when and whether your mind is wandering is an important skill – as is knowing what kind of working conditions and preparation put you in the best frame of mind for attending effectively. When I was an undergraduate, I worked mostly from the desk in my room. By the time I was a postgraduate, I had started to use libraries far more – not so much for the books as for the effect that the space had on my level of attention and commitment to my work. It helped me shut out distractions.

**Attention vs distraction:** the art of allocating not just time but focused engagement to the task in front of you, while shutting out other tasks and irrelevant information

The enemy of attention is **distraction**, and this is a word you’ll surely have heard a great deal about in the context of technology. Perhaps you have checked social media or your email inbox already while reading this book, or have them open in a browser tab or on your device? How long can you manage to pay careful attention to a single text or idea?

Dealing with distraction and spending time wisely is one of the single greatest challenges for anyone studying today – and that’s before you get to the question of what materials deserve your precious attention in the first place. What should you read, watch, listen to and do, given just how much is out there – and how little time you have?

As with everything else in this book, the answer isn’t superhuman willpower: it’s about strategy, planning and habits. You’ll need to decide in advance which materials deserve close reading in order to grasp the key ideas – and which simply need scanning. Having a strategy for how best to spend your precious time and energy is one of the most important practical steps you can take towards better thinking.

*Really does matter —  
when, how, where you work.*

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### SMART STUDY: Ten tips for managing your time and attention

Taking control of your time and attention is more important than ever in the context of always-on technologies and the sheer volume of information that's out there. Here is a top-ten list of study techniques to help lessen distraction in your working life:

- 1 Create a calm, uncluttered workspace – and log out of social media
- 2 Put your phone into ‘do not disturb’ mode (or turn it off) for an hour of focus
- 3 Write out memory cards with the key points and terms summarized
- 4 Make mind maps on paper – scribble and scrawl by hand to help open up ideas
- 5 Use digital tools like MindView to map your thinking too
- 6 Use browser extensions like Concentrate to shut out distractions
- 7 Set up study groups with friends to bring multiple perspectives together
- 8 Look into mentoring and being mentored by other students
- 9 Buy at least one core textbook to keep and to annotate as you work through it
- 10 Experiment: try to find what space and setup best suits your own work style

### YOUR TOOLKIT FOR CRITICAL THINKING

Now that we have introduced it in some detail, how confident are you in your abilities to think critically? Try these five questions, scoring yourself in each case out of ten, where ten represents total confidence and zero represents no confidence at all.

- |  |           |
|--|-----------|
| 1 I am able to pay close, detailed attention to information and ideas          | _____ /10 |
| 2 I can summarize and explain information I've come across                     | _____ /10 |
| 3 I easily understand others' points of view and why they believe what they do | _____ /10 |
| 4 I can clearly express my own point of view                                   | _____ /10 |
| 5 I am willing to change my mind and modify my beliefs when I learn new things | _____ /10 |

**Total score:**

\_\_\_\_\_ /50

If your total is over 40, congratulations: you're either very confident, very critically adept in your thinking already, or both. If you scored below 20, never mind – you may lack confidence now, but practice and focus have the ability to transform your attitude. Now try these five questions, exploring your thinking in the context of study and research:

- |   |           |
|---|-----------|
| 1 I am able to compare and to evaluate multiple sources of information            | _____ /10 |
| 2 I can locate and research sources of relevant information by myself             | _____ /10 |
| 3 I can clearly summarize and explain others' work, including its limitations     | _____ /10 |
| 4 I am able to justify my own conclusions and to outline the evidence behind them | _____ /10 |
| 5 I am aware of and able to explain to others the limitations of my knowledge     | _____ /10 |

**Total score:**

\_\_\_\_\_ /50

Again, you should end up with a total score out of 50. For most people, this second score will be lower than the first. My first five questions were about thinking skills in general; the second five relate more specifically to study, reading and writing – turning general skills into something specifically related to work.

If you scored over 40 in total this second time, I'm impressed. If you scored below ten – well, that's what this book is all about. I'll ask you to do this same self-assessment again during the course of this book. If you've worked through it carefully, you should see a huge improvement.

**THINK ABOUT THIS:** Look back over your answers above. Where are your own particular strengths and weaknesses? Take a few minutes to interrogate yourself honestly. ....

.....  
.....  
.....  
.....

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.

This is why critical thinking is best thought of as a set of techniques rather than something you either can or cannot do. What we need is to develop and keep practising a particular set of skills: a toolkit for critical engagement. There are five key techniques that we will be developing during the course of this book, all related in their way to the art of **reasoning** – thinking about things in a sensible or logical way, and then presenting this thinking to others in a way that permits meaningful debate, disagreement, comparison and collaboration.

*You still need knowledge & a context to train your thinking within, though.*

**Reasoning:** thinking about things in a sensible or logical way, and then presenting this thinking so as to permit meaningful debate, disagreement and collaboration

### **SMART STUDY: Five key techniques for critical thinking**

**Learning to understand and to evaluate reasoning** (Chapters 1–4): reasoning entails providing convincing, rigorous support for a claim or belief, or offering a convincing explanation for something. It's this business of providing, comparing and criticizing chains of reasoning that allows us to test different arguments and ideas meaningfully, rather than simply accepting or rejecting them based on how we feel. Confidently evaluating reasoning is a vital study skill, and means ensuring that we understand precisely what someone is claiming – and why. Throughout any process of critical thinking, you will find yourself returning to a deceptively simple question: 'Is this a reasonable thing to say or to believe?'

**Learning to understand and to evaluate evidence** (Chapters 5 and 6): evidence is information gathered to support a point of view or to offer a particular account of the way things are. It comes in many forms, and sifting through these is one of the greatest challenges of most programmes of study. Understanding evidence involves: finding useful and relevant materials; recognizing the conventions of the many different kinds of source you'll encounter; and knowing how to extract from them the information you need. It also involves assessing just how far any source is reliable and relevant.

**Learning to understand and to account for bias** (Chapters 7–10): people and sources are all biased in their own ways – as are you. There's no such thing as a perfectly objective perspective, but understanding the ways in which you bring particular biases to your work is just as important as accounting for others' biases. You'll learn how to spot them, how to make allowances for them, and how to reframe concepts and questions in order to make them less vulnerable to distortion.

**Becoming a critically engaged user of technology** (Chapter 11): from reading and writing to researching, discussing and collaborating, digital information systems touch almost every part of our personal and professional lives. Chapter 11 deals with what it means to be a confident, critically engaged user of technology. Throughout the other chapters, you will find opportunities to explore ideas online, and reflections on the particular significance of topics and themes in a digital age. You

*I will be checking & responding  
— I promise.*

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can also use the hashtag #TalkCriticalThinking at any time to share thoughts and comment with other readers and the author.

**Developing a clear, confident approach to reading and writing** (Chapters 6 and 12): reading others' writing closely and critically is closely connected to developing clarity and confidence in your own work. The final chapter in each half of the book looks at what it means to read and to write well – and how you can develop effective structures, habits and practices to support this. By the end of this book, you will have gained skills that allow you to explain your ideas with precision and force; to engage with others' work clearly and helpfully; and to keep on improving and clarifying your own thinking.

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Consider these rival accounts of the Earth's position in the universe. Tick off the account you think is best, and jot down why.

- The Earth is a flat disc carried on the back of a giant tortoise.....

.....



- The Earth is a giant egg laid long ago by a massive bird.....

.....



- The Earth is a sphere located at the centre of the universe.....

.....



- The Earth is a rocky planet orbiting our sun, Sol, in the Milky Way galaxy.....

.....



Obviously, the last account is the best. But why? Because none of the first three accounts can satisfactorily explain many of the things we know about the Earth. We have plenty of images taken from aircraft and satellites clearly showing the planet's curvature; we have amassed huge amounts of information about the movement of the planets and stars in the universe around us. Stories about flat discs, tortoises and giant eggs may once have been sufficient to explain what people knew – but they are no longer the best account we have for addressing the sum total of our knowledge.

The last account, however – that the Earth is a rocky planet orbiting our sun – fits in with the best current information we have. It does not require us to deny what we know or to make special excuses. Moreover, it is precise enough that we can test it rigorously.

This doesn't mean we now know everything or that we are entirely correct in a way that nobody has ever been before. Quite the opposite. Our understanding will continue to change as we learn new things, and it is the task of critical thinking to keep challenging us to come up with better explanations.

This is an important point: rigorous critical thinking means not only explaining why we believe something to be the case, but also being obliged to change our minds when our knowledge about the world changes. In this sense, it is related to a **purpose** that it shares with all scientific and philosophical investigations: searching for the best account we can currently offer of the way things actually are.

This is how progress works, if and when it works: we attempt to find a clear and precise account of the way things are, then we test our thinking not by seeking confirmation, but by looking for things

**The purpose of critical thinking:**  
critical thinking helps us to search for the best account we can find of the way things actually are

we still cannot explain. It is those things we cannot explain that point the way forward; that sketch the outlines of new theories and ideas which may, in their turn, push back the frontier of human ignorance a little further.

*hunger for confirmation at any cost that holds us back  
— in study & politics alike.*

## SUMMARY

**Uncritical thinking** entails automatically believing what you read or are told without pausing to ask whether it is accurate, true or reasonable.

**Critical thinking** means actively setting out to understand what is really going on, by carefully evaluating information, ideas and arguments – and thinking carefully about the process of thinking itself.

Underlying critical thinking are the connected principles of scepticism and objectivity:

- **Scepticism** entails not automatically accepting that something you hear, read or see should be taken at face value.
- **Objectivity** means trying to identify the facts of a situation as seen from the outside, rather than relying only on your own – or someone else's – particular feelings or point of view.

There is no such thing as perfect objectivity – you will always bring your experiences and perspective with you – but it is possible to know yourself better, and to practise using tools and techniques for seeing things more clearly. This includes dealing with the difficulties of **bias**, which comes in two general forms:

- **Conscious bias** is when someone deliberately presents a very one-sided view of something, or explicitly holds a one-sided opinion about something.
- **Unconscious bias** is when someone's opinions or decisions are distorted by factors that they are not even aware of.

In particular, it's important to be alert to the problem of **confirmation bias**: the universal human tendency to use new information only to confirm what you already believe, rather than seeking to improve and clarify your understanding.

It's vital to **allocate your attention** effectively if you want to think critically – and to remember that the first rule of critical engagement is to **slow down**, and to set aside your first impressions and prejudices.

Critical thinking is best thought of as a set of techniques rather than something you either can or cannot do. Improving your critical thinking means developing and practising a particular set of skills: your **toolkit** for critical engagement. These tools will help you:

- understand and evaluate reasoning.
- understand and evaluate evidence.
- understand and account for bias.
- develop clear, confident, critical writing.
- become a critically engaged user of technology.

When we think critically, we are searching for the **best account** we can currently offer of the way things actually are – and this means being obliged to change our minds when facts and reason demand that we do.

*Remember I told you  
there would be digital goodies?*

*Whenever you see this, it's a  
reminder to take a break &  
watch a video.*

*Also — try my  
critical thinking  
Buzzfeed  
quizzes!*

