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4th edition

# CRITICAL THINKING SKILLS

effective analysis, argument and reflection

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**STELLA COTTRELL**

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# Critical Thinking Skills

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# Critical Thinking Skills

Effective analysis, argument and reflection

Fourth edition

**Stella Cottrell**

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Secondly, I am grateful to all those lecturers and teachers who took the trouble to point out to their students that they needed to improve their critical and analytical abilities and pointed them in the direction of help.

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I have drawn in general terms on the research from a wide range of disciplines in developing examples that have relevance to readers from different backgrounds. Where this has been used as background reading, it is acknowledged in the references.

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# Introducing *Critical Thinking Skills*

## Is this book for you?

Critical thinking involves the exercise of many skills, such as focusing attention, analytical dissection, evaluation, selection, judgement and construction of a reasoned case. To be able to exercise these skills well also requires attributes such as being persistent, systematic, curious, honest, open-minded, fair and flexible.

Critical thinking skills are essential at higher levels of academic study, whether at advanced or degree level. However, the underlying concepts are useful to anyone who wishes to:

- develop clearer thinking;
- produce effective arguments;
- be more observant of what they see and hear;
- understand concepts used in critical thinking.

This book focuses on aspects of critical thinking that can be applied to work and study, mostly using everyday language. It helps you to think about how you think. It is not intended to be an advanced study of abstract reasoning or logic using artificial, or algebraic, language. For these, see Allen and Hand (2022) *Logic Primer* or Sainsbury (2009) *Paradoxes*.

## For students

Students will find the book particularly useful in developing the ability to:

- recognise the arguments of specialist authors;
- locate arguments in key texts with greater speed;
- engage in dialogue with the arguments used by both experts and their peers;
- produce better critical, analytical writing of their own for marked assignments.



## Aims of *Critical Thinking Skills*

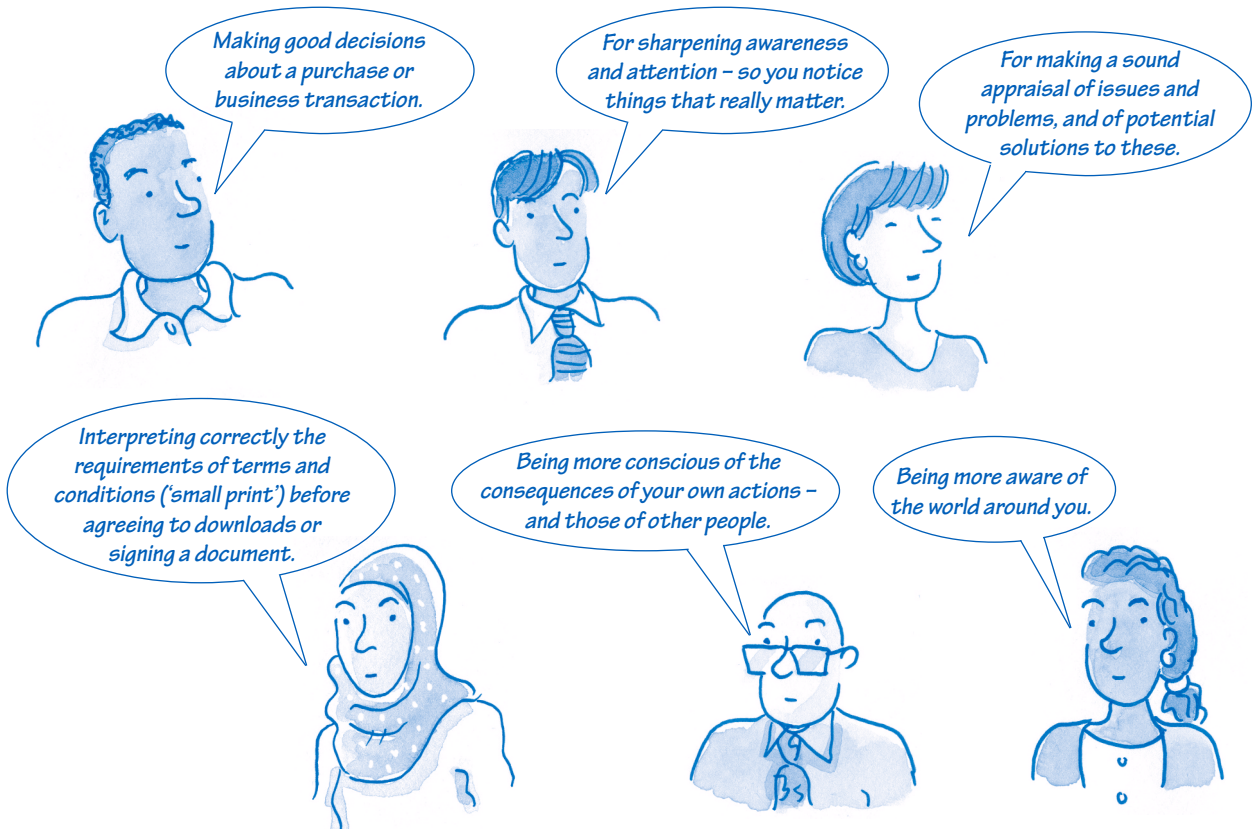
*Critical Thinking Skills* aims to help you gain an understanding of what is meant by critical thinking, to develop your own reasoning skills, and make use of these. This includes being able to:

- recognise and understand technical terms used in critical thinking, so you know what other people are referring to when they mention these, and so you can apply them yourself as relevant;
- build confidence in your own ability to apply critical thinking techniques;
- examine closely the opinions, views and arguments presented by other people;
- accept or challenge other people's views from an informed perspective;
- reflect on your own performance with constructive criticality;
- apply critical thinking, such as when using resources, writing assignments, or applying for jobs.

# Do critical thinking skills matter?

## The value of critical thinking skills

Critical thinking abilities are essential – at every age, for everyone, in all contexts, in every aspect of life. Applying critical thinking skills even in everyday situations reaps all kinds of benefits.



It is rewarding to refine your thinking skills – and the benefits can be unexpected. For example, you may find you are:

- absorbing more when watching videos or reading;
- better at telling when other people are being inconsistent or jumping to conclusions;
- quicker at spotting scams and alternative interpretations to issues, stories and case histories;
- faster and clearer in forming an opinion on issues, and making decisions.

Success in most professions requires good critical thinking skills. Academic study also requires increasingly sophisticated levels of critical analysis at every level of study. Whether for work or for study, you may be expected to apply critical thinking to:

- what you hear, see, and do;
- the material you read;
- how you interpret new situations and events;
- what you write, say or present to other people;
- your own learning and professional practice.

# Building 'critical muscle'

## Everyday use

Nobody is an absolute beginner when it comes to critical thinking. We employ critical thinking skills in everyday situations, such as:

- considering whether someone is telling the truth, a half-truth or is being deceptive;
- considering whether a claim that a purchase would be a 'bargain' really is so;
- checking whether a notification or email is a scam;
- taking steps to find out whether what appears to be a true story is really 'fake news';
- arguing our case for something we want to have or to happen;
- defending ourselves with evidence if someone doesn't believe what we tell them.

However, just because we can think critically at times, it doesn't mean we always do, nor that we do it well. This is to be expected, as we don't need to apply advanced skills to everything we do.

## Degrees of trust

For everyday activities, we take a certain amount on trust, and this saves us from having to recheck every detail. We have to decide how much information is really required and what level of doubt is acceptable for each new circumstance.

The levels and types of knowledge we need vary depending on the task, such as whether we are lending a small amount of money to a close relative, investing in a company or responding to requests for money to someone we have only met online. Similarly, we don't need to understand the theoretical background just to switch on a light but we need accurate, reliable information, and to apply greater awareness, if we are designing an electrical product or wiring a building. In the same way, critical thinking involves:

- identifying correctly when we need to know more in order to make sound judgements and the best decisions;

- selecting effectively the right type and level of information for the purpose;
- applying an appropriate level of critical analysis to the specific circumstances.

## Developing our critical powers

Like any other ability, critical thinking develops through practice. Several stages are involved in learning and refining a skill. The starting point is in orientating ourselves so we are ready to learn it. This involves:

- 1 Understanding what the skill is (see pages 2–3 and 6–9).
- 2 Believing that it matters – that there is some point to learning it (see page 6).
- 3 Bringing the right attitudes (page 7).
- 4 Identifying any personal barriers to developing the skills and addressing these (pages 12–14).
- 5 Recognising underlying sub-skills and where we have weaknesses in these that we could develop further (pages 13–15 and Chapter 2).
- 6 Understanding the components of the skill, so that we can practise these until we grasp them. The early chapters of the book provide that opportunity.

The other way to develop critical thinking skills is to apply them, such as when producing assignments, deciding on a career or applying for jobs. These are considered in later chapters. Above all, you can flex your critical muscles whenever you are in a new situation or considering new information.

### Want to know more?



If you are on a programme of study, check its learning outcomes and grading criteria to help determine how important critical thinking skills are to gaining good grades. Alternatively, discuss this with the teaching staff.

# Using the book

## Activities

Critical thinking is an activity. It isn't sufficient to read about it: it has to be practised.

This book offers many short activities to apply the concepts it introduces and so you can practise new skills.

It may be that, after completing one or two of the activities that accompany each new concept, you find that aspect very easy. If so, move on to the next aspect.

However, many people find some or all aspects of critical thinking to be difficult at first. If this is true of you, be reassured that you are not alone and that this way of thinking becomes easier with practice.

## Answers pages

Answers to activities are provided at the end of the book. These pages do not simply provide a correct answer: they also explain the reasons behind the answers so as to further develop understanding of the concept that has been practised. Reading through these should help you to clarify your comprehension of that aspect of critical thinking.

## Topics

A wide range of topics is used as examples and as practice material. They draw on a range of different academic disciplines but are written in such a way that you do not need to be an expert in the subject or bring any background knowledge to understand the material. It is possible to do all the activities no matter what your subject discipline or area of interest. The activities require you only to apply critical thinking to the material provided.

## Texts used in the book

### *Designed for this book*

All of the passages in the book, short and longer texts, have been specially written to illustrate key

points in each chapter and to provide appropriate practice material. They are not 'real' in the sense of being written for factual accuracy; they are not reproduced from any other text and the author names are fictional.

However, many passages draw on the writing of others as sources or for background information. The sources cited within the texts on pages 243–8 are actual. Details of the original sources are provided in the references section of the book (pages 319–328).

## *Purpose*

For the main body of the book, especially the early chapters, the passages are short in order to introduce new learning points and to give you the opportunity for quick practice in applying these. Usually, at least three examples of each learning point are provided. That is regarded as the minimum number of practice attempts required to anchor new learning into memory.

When you are using articles, books and other source material, the learning points will not always be as apparent as in the short passages provided here in the early chapters. Longer practice passages are provided on pages 251–64 and 276–98. These enable you to work on several aspects of critical thinking simultaneously. A further practice example using longer texts is available on the companion site (see 'About the Companion Site', page xx).

It is important to develop the ability to apply critical awareness when reading longer texts. For these, you will need to balance different perspectives and weigh up material from a range of sources, synthesising the material to form your own judgements. Guidance on how to do this is provided.

## Critical reflection

As with all academic work and professional good practice, you will benefit from reflecting upon the points raised in each chapter and, in particular, your own current ways of approaching these. Some chapters provide prompts to assist such reflection.

You are likely to gain more from using the book if, as you work through a section, you pause to consider from time to time how that aspect of critical awareness would benefit your own study, writing or professional work.

It is worth taking such time to pause and consider the implications of the key points in order to help you see the significance and relevance of the materials and critical strategies to your own work or study.

You can also benefit from observing and noting your responses to particular aspects of critical thinking, such as whether you feel resistance to any of these and why that might be the case, and what might be the potential consequences.

For guidance on critical reflection, see Chapter 12, pages 203–224.

## Using critical reflection



At various points in the text, this icon is used to indicate time to pause and reflect on a particular point. You may find it is beneficial to jot down your thoughts on the issues raised, to help you formulate and clarify your thinking.

It is useful to have a light notebook for your reflective activity, or set up a folder or a notes page for this purpose on your device.

## Terminology used

The different aspects of critical thinking covered in this book can be applied to material in varied media, whether written, audio or televisual. However, in order to simplify the text, the terms ‘author’ and ‘audience’ are used throughout, irrespective of the type of media.

### Author

This refers to the person who creates the message, whether this is written, spoken or delivered through another medium. It doesn’t necessarily mean the ‘author’ of a book.

### Audience

This refers to whoever receives the message, whether through conversation, books, television, video downloads and/or podcasts, or other medium. The audience, in this respect, may be a viewer, a reader, a listener, or an observer.

### Glossary of terms

A glossary of technical terms used in critical thinking is provided on pages xviii–xix.

## Icons used in the book



Activity



Observation



Want to know more?



Useful tips and sources



Companion site



## Overview of the chapters

The book is organised to help you build your skills in critical thinking, starting from a basic understanding of what critical thinking is, through to applying techniques and strategies when reading and producing your own critical writing or applying for jobs.

**Chapter 1** introduces critical thinking, looking at the range of underlying skills and attitudes associated with critical thinking, and why it is beneficial to develop critical thinking skills. It emphasises the importance of self-awareness as an aspect of making accurate judgements and bringing suitable objectivity to critical reasoning.

Many people find critical thinking to be a challenging activity when they first begin. The chapter looks at the barriers that might prevent you from developing critical thinking skills, and ways of overcoming these. You are invited to evaluate your current skills in order to focus on those aspects of the book that are the most useful for you.

**Chapter 2** looks at important sub-skills of critical thinking skills such as focusing your attention, identifying similarities and differences, sequencing, categorising, and close reading. These are skills that underlie more advanced critical thinking as well as personal management skills, so improving these can benefit many aspects of academic work and personal and working life. The chapter provides an opportunity for you to evaluate your skills and then to practise those aspects which need further development.

**Chapter 3** ‘What’s their point?’ introduces argument as a central aspect of critical reading. It identifies the main features and components of arguments within critical thinking, and provides practice in identifying these different elements. This is useful in helping you to find the most significant passages in your specialist texts, and to do so more quickly.

**Chapter 4** builds on the previous chapter, looking at the differences between critical arguments and other types of writing that may appear to be arguments, such as disagreements. It also looks at how to distinguish critical argument from summaries, explanations and descriptions.

As arguments can become lost within other details, this chapter gives practice in identifying more easily the material relevant to the main argument. Such skills are also useful for improving reading speed and accuracy and in helping you to identify whether your own writing has a sufficiently critical focus.

**Chapter 5** focuses on the quality of reasoning. It gives you practice in evaluating how well authors present their arguments in terms of structure, logical order, internal consistency, the way in which reasons are used to support each other, and the use of interim conclusions.

Understanding the structure of an argument is beneficial both in making reading faster and more effective, and in structuring your own arguments.

**Chapters 6 and 7** develop skills in analysing the details of an argument. These skills help you to read texts and interpret arguments at a deeper rather than a superficial level. This is especially important for evaluating academic arguments or, for example, checking that you understand the implications of contracts in the workplace or the nuances of political arguments used at election time. As you develop these skills, you will be better able to engage in debating the issues raised by experts or by specialist authors, checking whether they are consistent in what they are saying and whether their arguments contain flaws that are not immediately obvious.

**Chapter 6** focuses on ‘reading between the lines’, identifying aspects of the author’s position and argument that are not directly stated. These

include underlying assumptions and ‘implicit arguments’. The chapter also looks at what is meant by the ‘premises’ on which arguments are predicated and at identifying ‘false premises’. Finally, it examines what is meant by denoted and connoted meanings, and the importance of identifying hidden connotations within an argument.

**Chapter 7** provides a different perspective on evaluating an argument, this time focusing on flaws within the reasoning. It looks at confusions that are made between cause and effect, and introduces the concept of ‘meeting necessary and sufficient conditions’. It also introduces common fallacies such as false analogies, unfair use of emotive language, smokescreens, tautology, and misrepresentation.

**Chapter 8** focuses on finding and evaluating good quality sources of evidence to support an argument. It examines the difference between primary and secondary sources, looks at how to conduct a literature search, and provides criteria for evaluating and selecting different kinds of evidence. Concepts such as authenticity, validity, currency and reliability are introduced. It also looks at a range of methods used to ensure the evidence is robust, such as checking for representative sample sizes and levels of probability, and triangulating evidence.

**Chapter 9** looks at specific ways of applying critical thinking to using source materials and making notes from them. It includes orientating to the task of critical reading, making accurate interpretations, and categorising and selecting material in order to make the process more effective. It examines the relationship of theory to argument, and looks at ways of categorising and noting theories in order to ease comparison between different arguments.

**Chapter 10** looks at characteristics of critical writing, and especially the importance of maintaining a focus on your potential readers, setting the scene for them. It gives details about

how to use language to structure and signpost arguments so that your audience is clear about which stage of the argument is being presented and the direction of your line of reasoning. Critical writing uses tentative language to express conclusions and this is also examined. The chapter looks specifically at how students can apply what they have learnt about critical thinking to each stage of writing their own essays.

**Chapter 11** looks at different ways of analysing arguments of different lengths and levels of complexity, by using argument maps, tabulating their structure or making a critical evaluation using given criteria. It provides the opportunity to evaluate extended pieces of writing, two sample essays, using a set of criteria. This can help you to recognise the characteristics of good critical writing, and to apply these to your own work. An additional practice activity is provided on the companion site (see page xx).

**Chapter 12** Critical reflection is used, increasingly, within professional practice and for student assignments. The chapter provides practical means of addressing this challenging form of critical activity, taking you through the steps of planning your reflection, relating personal experience to theory and practice in a critical way, and presenting these skilfully for assessment.

**Chapter 13** is about applying critical thinking skills when looking for work and applying for jobs. It looks at the different ways that critical thinking is relevant to your career path, from the way you consider your options, through to making a critical evaluation of your own job applications so that these give you the best chance of success. The chapter looks at employers’ need for employees who can apply critical abilities, and at where job applicants go wrong in failing to demonstrate such skills so you can make stronger job applications yourself.

# Glossary

**Argument** Using reasons to support a point of view, so that known or unknown audiences may be persuaded to agree. An argument may include disagreement, but is more than simply disagreement if it is based on reasons.

**Argument – the overall argument** The overall argument presents the author’s position. It is composed of contributing arguments, or reasons. The term ‘line of reasoning’ is used to refer to a set of reasons, or contributing arguments, structured to support the overall argument.

**Arguments – contributing arguments** Individual reasons are referred to as arguments or ‘contributing arguments’.

**Assertions** Statements which are made without providing any supporting evidence or justification. These may turn out to be true or untrue.

**Conclusion** Reasoning should lead towards an end point, which is the conclusion. The conclusion should normally relate closely to the author’s main position. In critical thinking, a conclusion is usually a deduction drawn from the reasons, or evidence. The final section of an essay is also referred to as the conclusion. See page 170.

**Conclusion – intermediate conclusions** The author may draw interim conclusions during the course of an argument, before arriving at final conclusions. Each interim conclusion is based on only some of the evidence or a particular set of reasons. These intermediate conclusions may be used to provide evidence, or to serve as reasons, in the next stage of the argument.

**Consistency – internal consistency** An argument is *internally consistent* when all parts of the line of reasoning contribute to the conclusion. Nothing then contradicts or undermines the main message. An argument may be internally consistent but still be inconsistent in other respects, such as not being consistent with the evidence or with relevant expert opinion.

**Consistency – logical consistency** An argument is logically consistent when the reasons are provided in a logical manner – that is, in the best order, with each linked to previous or

following arguments so as to build up a case. A logically consistent argument will be internally consistent. In a logically consistent argument, the reasons support the conclusion.

**Deductive arguments** These aim (at least implicitly) to prove that their conclusions are true – that the argument is valid. See ‘Inductive argument’.

**Deductive logic** Where intervening steps in an argument are not made explicit, then a valid inference links true premises to a conclusion.

**Discursive** Discursive writing develops and elaborates an argument, moving successively from one point to the next in a given direction, towards conclusions. It does this in a thoughtful way that engages critically with the evidence base and the theories and arguments of others, drawing out implications and significance.

**Fallacies** Flawed argumentation, where the logic or validity of an argument is undermined by faulty reasoning. There are many different kinds of fallacy. See Chapter 7.

**Inductive arguments** These aim to show that a conclusion is ‘probable’ or ‘strong’ (rather than ‘valid’). See ‘Deductive arguments’.

**Inference** Drawing a conclusion based on evidence or previous steps in an argument, in order to fill the gaps left where some intervening steps have not been made explicit. See page 81.

**Line of reasoning** This is established through the order in which reasons and evidence are presented. This order should make it clear to the reader how the argument is to be interpreted and what the structure of the argument is. The line of reasoning should lead forwards with a clear direction, with one piece of reasoning leading in an obvious way to the next, rather than hopping from one point to another in a random way, or leading the audience round in circles.

**Logical order** Good arguments present reasons and evidence in a structured way, so that information builds on what has already been said. See ‘Line of reasoning’.

**Position** A point of view, supported by reasoning.

**Predicate** The foundation of the argument; the aims of the argument; an underlying point of view; the assumption that underlies the argument. For example: *the argument was predicated on a Marxist interpretation of wealth; the programme was predicated on the assumption that the prisoner was innocent.*

**Premises** Propositions believed to be true and used as the bases for the argument; the basic building blocks for the argument – that is, the reasons for believing that the conclusion is true. Premises that are not well founded are referred to as *false premises*.

**Propositions** Statements believed to be true and presented as arguments or reasons for consideration by the audience. A proposition may turn out to be true or false.

**Reasons** Contributing arguments put forward to support the overall argument or line of reasoning.

**Reasons – independent reasons** The author may use several reasons to support the conclusion, each of which may be valid in its own right but may have nothing to do with the other reasons given.

**Reasons – joint reasons** Reasons provided to support an argument, which are connected in some way and mutually reinforce each other.

**Rhetorical ploys** These attempt to persuade by using words in a way that sounds good, but which does not stand up to scrutiny. (see page 100).

**Salience** This means ‘relevant to the argument’.

**Substantive point** The central point that is being made, or the core of the argument. This expression is used to focus attention on the main point, especially if an argument has been diverted towards more minor issues and when the key message is becoming obscured.

**Syllogism** A process of reasoning where all steps in the argument are explicit, such that no other conclusion is possible (assuming that one accepts the premises underlying each step to be true). See page 81.

**Tautology** Unnecessary repetition, when the author makes the same point but in different words. For example, in poor arguments, a tautology may be used to make it appear as if there are two reasons to support a conclusion, when the first reason has merely been reproduced in a different way.

### Example of key terms used together

- *Proposition 1:* One of the expedition team is suspected of having pneumonia.
- *Proposition 2:* A serious storm has been predicted in the area.
- *Proposition 3:* The mountainside can be dangerous during some storms.
- *Proposition 4:* Some members of the team are not familiar with the area or with mountaineering.
- *Conclusion:* It isn't a good moment to launch an expedition into the mountains.

#### *Premises*

It is not a good time for the expedition to go into the mountains as a storm is expected and some of the team may not have the health or experience to cope with this.

#### *False premises*

The argument against launching the expedition sounds convincing. However,

it could be based on false premises: a storm may not be due, the dangers might be exaggerated, or the team may be more experienced than described, or the team member may have only a minor cold. In that case, the argument against launching the expedition would be based on false premises.

#### *Predicate*

The argument against the expedition is predicated on an assumption that the safety of the team should take priority over the requirements of the expedition.

#### *Salience*

The question of safety is salient to the debate about whether to launch the expedition. Other things may not be salient to that argument. For example, the facts that a team member was good at sports at school 20 years ago, or had hiccups yesterday, are probably not salient to the discussion.

## About the Companion site



### The companion site for *Critical Thinking Skills*

A companion site has been created to assist your personal use of this book. It contains resources such as:

- Self-evaluation questionnaires referred to in the book, such as those on pages 15, 16–17, 228–9, 230 and 240–1.
- Scoring sheet (see page 24)
- Templates for making notes from different kinds of source materials and for different purposes (see pages 137–41, 146 and 186–8)
- Checklists for evaluating essays (see pages 199–200, 250, 260 and 281)
- Structured reflections (see pages 16–17)
- Prompts for structuring your reflection (see pages 217–8; 220)
- Planning tools, such as for structuring arguments for assignments (see pages 136 and 185–200)
- A longer practice activity, *The Great Chain of Being*
- Links to resources referred to in the 'Want to know more?' boxes.



When you see this icon in the book, it indicates that the source or relevant material is available on the companion site.

Visit the companion site at <https://www.bloomsburyonlineresources.com/critical-thinking-skills>

**Enjoy the  
book!**

I hope you enjoy using  
the book and seeing  
your skills develop!

**Stella Cottrell**

## Learning outcomes

This chapter gives you opportunities to:

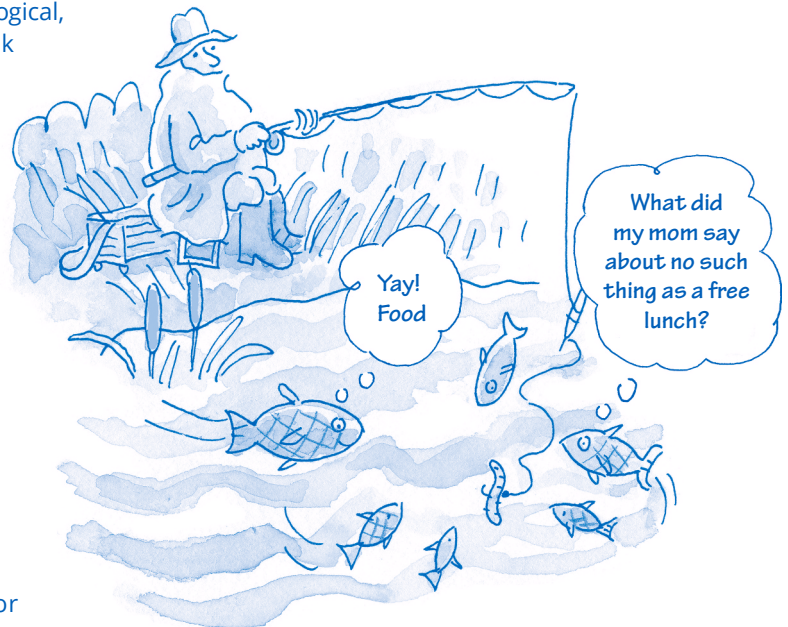
- ✓ understand what critical thinking is
- ✓ find out about the early roots, and later developments, of critical thinking, to better understand its characteristics and use
- ✓ recognise some of the benefits associated with critical thinking skills
- ✓ recognise the personal qualities associated with critical thinking
- ✓ recognise barriers to the development of good critical thinking skills
- ✓ assess your current understanding of critical thinking and identify your priorities for improvement.

## Introduction

This chapter provides a general orientation to critical thinking. It examines what is meant by 'critical thinking', the skills associated with it, and the barriers that can hinder effective development of critical approaches. Many people can find it difficult to order their thoughts in a logical, consistent and reasoned way. This book starts from the premise that skills in reasoning can be developed through a better understanding of what critical thinking entails, and by practice.

Critical thinking is a cognitive activity, associated with using the mind. Learning to think in critically analytical and evaluative ways means using mental processes such as attention, categorisation, selection and judgement. However, many people who have the potential to develop more effective critical thinking can be prevented from doing so for a variety of reasons apart from a lack of ability. In particular, personal and emotional, or 'affective', reasons can create barriers.

You are invited to consider, in this chapter, how far such barriers could be affecting your own thinking abilities and how you will manage these.



# What is critical thinking?

## Critical thinking as a process

Critical thinking is a complex process of deliberation which involves a wide range of skills and attitudes. These include:

- 1 *identifying your own and other people's positions*, arguments and conclusions;
- 2 *evaluating the evidence* for alternative points of view;
- 3 *weighing up opposing arguments* and evidence fairly;
- 4 *selecting judiciously* from sources, evidence and examples to support your case;
- 5 *being able to read between the lines*, seeing behind surfaces, and identifying false or unfair assumptions;
- 6 *recognising techniques* used to make certain positions more appealing than others, such as false logic and persuasive devices;
- 7 *reflecting on issues* in a structured way, bringing logic and insight to bear;
- 8 *drawing conclusions* (including decisions, judgements or recommendations) based on logically acceptable reasons and evidence, and valid inference;
- 9 *synthesising information*: drawing together your judgements of the evidence, synthesising these to form your own new position;
- 10 *presenting a point of view* in a structured, clear, well-reasoned way that convinces others.

Critical thinking is NOT ...

just opinion, nor lists of facts, nor discussion, talking about a topic, 'thoughts on', nor what we want to be true, nor giving just 'any' reason to support a decision.

## Scepticism and trust

Ennis (1987) identified a range of dispositions and abilities associated with critical thinking. These focused on:

- the ability to reflect sceptically;
- the ability to think in a reasoned way.

Scepticism in critical thinking means bringing an element of polite doubt. In this context, scepticism doesn't mean you must go through life never believing anything you hear and see. That would not be helpful. It does mean holding open the possibility that what you know at a given time may be only part of the picture.

Critical thinking gives you the tools to use scepticism and doubt constructively so that you can analyse what is before you. It helps you to make better and more informed decisions about whether something is likely to be true, effective or productive. Ultimately, in order to function in the world, we have to accept the probability that at least some things are as they seem. This requires trust. If we can analyse clearly the basis of what we take as true, we are more able to discern when it is reasonable to be trusting and where it is useful to be sceptical.

## Method rather than personality trait

Some people seem to be more naturally sceptical whilst others find it easier to be trusting. These differences may be because of past experiences or personality traits. However, critical thinking is not about natural traits or personality; it is about a certain set of methods aimed at exploring evidence in a particular way. Sceptical people can require structured approaches that help them to trust in the probability of an outcome, just as those who are more trusting require methods to help them use doubt constructively.

## Critical thinking and argument

The focus of critical thinking is often referred to as the 'argument'. Chapter 3 identifies the features of an argument in critical thinking. The argument can be thought of as the message that is being conveyed, whether through speech, writing, performance or other media. Critical thinking helps you to identify the obvious and the hidden messages more accurately, and to understand the process by which an argument is constructed.

# Reasoning

## Knowing our own reasons

Critical thinking is associated with *reasoning* or with our capacity for *rational* thought. The word 'rational' means 'using reasons' to solve problems. Reasoning starts with ourselves. It includes:

- having reasons for what we believe and do, and being aware of what these are;
- critically evaluating our own beliefs and actions;
- checking that our reasons are logically acceptable – not simply opinion or what we want to be true or to happen;
- being able to present to others the reasons for our beliefs actions and reasoning.

This may sound easy, as we all assume we know what we believe and why. However, sometimes, when we are challenged on why we believe that something is true, it becomes obvious to us that we haven't really thought through whether what we have seen or heard is the whole story or is just one point of view. There are also likely to be occasions when we find we are not sure what we consider to be the right course of action or a correct interpretation.

It is important to examine the basis of our own beliefs and reasoning, as these will be the main vantage points from which we begin any critical analysis.

## Challenging our own assumptions

Our brains like to assume that they are right. Research has shown that we are wired to make quick assumptions – to take the easiest route to jump to the most likely conclusion rather than to slow down and examine our reasoning (Kahneman, 2011). This means we can easily miss essential information and omit relevant considerations.

Focusing on our reasons, and examining the foundations of these systematically, can help us uncover our assumptions. When we are more aware of these, we can test them out, too, in a systematic way.

## Critical analysis of other people's reasoning

Critical reasoning usually involves considering other people's reasoning. This requires the skill of grasping an overall argument, but also skills in analysing and evaluating it in detail.

### Critical analysis of other people's reasons can involve:

- identifying their reasons and conclusions;
- analysing how they select, combine and order reasons to construct a line of reasoning;
- evaluating whether their reasons support the conclusions they draw;
- evaluating whether their reasons are well founded, based on good evidence;
- identifying flaws in their reasoning.

## Constructing and presenting reasons

Reasoning involves analysing evidence and drawing conclusions from it. The evidence may then be presented to support the conclusion. For example, we may consider that it is a cold day. Someone who disagrees may ask why we believe this. We may use evidence such as a thermometer reading and observation of weather conditions. Our reasons may be that the temperature is low and there is ice on the ground.

We use basic examples of reasoning such as this every day. For professional and academic work, we are usually required to present our reasoning using formal structures such as essays, or reports with recommendations. This requires additional skills such as knowing how to:

- select and structure reasons to support a conclusion;
- present an argument in a consistent way;
- use logical order;
- use language effectively to present the line of reasoning.



# Critical thinking: Where does it come from?

## Early beginnings

### *Dialectics*

Although the term 'Critical Thinking' was not in general use before the twentieth century, its practice has roots in disciplines that date back thousands of years. The historical record for its earliest use is, itself, disputed.

Whatever its origins, critical thinking as used today developed from disciplines such as philosophy, logic and rhetoric. These drew heavily on ancient Greeks' interest in enhancing skills in argumentation, to reach philosophical 'truths' through formal discussion. Plato (c.427–347 BCE) referred to this process as 'dialectics'.

In Plato's work, the philosopher Socrates is presented in discussion with one or more people who present arguments to him, and continually refine these depending on his challenges and comments. The structure of such debates used a question-and-answer format – sometimes now referred to as the 'Socratic' form of teaching.

### *Argument strategy*

In order to help participants to refine their reasoning skills and gain an advantage in dialectical debates, Aristotle (384–322 BCE) outlined systematic methods of planning an argument and using an argument strategy. He also detailed 22 kinds of false argument, or fallacy, used as persuasive strategies to 'win' arguments, but which did not follow the rules of clear, irrefutable reasoning. These are pertinent to analysing arguments today. See Chapter 7.

### *Skills of argument*

Two skills regarded as essential to studying argumentation were:

- 1 Formulating an argument that can withstand challenge, *and*
- 2 Judging whether an argument is valid.

Obviously, skills in the second help with the first, giving a person tools to evaluate and refine their own arguments before proposing them to others.

## Modern developments

Over time, there have been many new ways of looking at the skills involved in reasoning, and at the relative importance of formal logic and rhetoric. Increasingly, all students have been expected to develop their critical thinking skills, especially argument, analysis and, to some extent, synthesis, though few are now expected to study formal logic and rhetoric. Below are some key developments.

### *Hegelian dialectics*

Hegel (1770–1831) advocated a structure similar to Plato's dialectics in order to advance philosophical arguments. Where Plato used a back-and-forth conversation between characters, Hegel set up contradictory sets of logical claims: reasoning challenging reasoning. A synthesis of the original idea and its contradictions brought one closer to truth. Hegel did not use the terms 'thesis' or antithesis. A much simplified variation of his dialectics, positing a first position, identifying contradictions and looking for synthesis, is often expected as a structure for argument in student arguments. The synthesis can become the basis of a new argument, when contradictions are raised against it. See p. 186.

### *Personal responsibility*

At the turn of the twentieth century, the educationalist, Dewey (1859–1952), was concerned that in both education and society, there is a tendency for people simply to pass on 'ready-made' ideas in a passive way without taking personal responsibility for checking their validity. Dewey advocated training students in clearer thinking as a means of increasing personal engagement and responsible democracy. He argued that students should be able to follow a process that enabled them to work out for themselves whether opinions and arguments were reasonable, rather than just reciting what they heard or read.

During the twentieth century, there was an increased emphasis on clear thinking, reasoning, or 'critical thinking' as an outcome of education. This drew on the traditions outlined above.

## Attitude, knowledge, skill

Edward Glaser (1929–2020) was influential in arguing that formal analysis could be applied to any context, and that logic was central to good thinking. He also added to developments in the field by arguing that critical thinking involved a combination of attitude, knowledge and skill:

- (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience, (2) knowledge of the methods of logical inquiry and reasoning, and (3) some skill in applying those methods.

'Attitude' is often omitted from the teaching of critical thinking, although it could be considered an essential first step. See pages 7–18.

## Context, goals, sub-categories

Robert Ennis has worked to clarify thinking about critical thinking itself. He emphasises the importance of context, goal, precision, authority, reliable observation and both deductive and inductive reasoning. He isolated three sub-categories of critical thinking:

- 1 the 'logical': being able to identify the relationships between propositions
- 2 the 'criterial': being able to evaluate claims
- 3 the 'pragmatic': being able to defend one's beliefs, and judge how precise or concise one needs to be, depending on the context and purpose or goal of the argument.

These are important concepts to critical thinking as addressed in this book.

## Everyday reasoning

The application of formal logic can seem rather rigid or confusing for those not studying logic or philosophy. In the 1970s, educators and thinkers looked at ways of teaching critical thinking in ways that helped students consider problems relevant to modern life, such as pollution, poverty and the arms race. Kahane, for example, advocated a return to focusing on analysing fallacies (see Aristotle above, and Chapter 7). He applied this to analyses of persuasion within the media and advertisements.

Others such as Thomas (1973) promoted practice in mapping the structure of complex arguments, making

use of everyday language rather than that of formal logic; argument mapping is considered in Chapter 11. Johnson and Blair (1994) contended that an argument should be accepted as logically good if it met just the general criteria of acceptability, relevance and sufficiency. That is, acceptable reasons (relevant to the conclusion and likely to be true), can be considered sufficient for constituting a good argument.

These extensions in informal logic helped to make critical analysis of argument more accessible to students and employees from diverse fields. The critical thinking processes expected of most students today, and as outlined in this book, are in this relatively informal tradition – even if they appear rather exacting when first introduced.

## Criticality and social justice

bell hooks (1952–2021) argued that critical thinking is important for everyone, and especially in enabling those who are less privileged in terms of power and material wealth to examine their situation and question taken-for-granted inequalities. hooks asks us to question whose voices are heard or silenced, and how narratives are constructed, such as when Hollywood films marginalise people for their class, sex or colour.

Critical race theory (CRT), a term coined by Kimberlé Crenshaw, highlights how racial inequalities are underpinned by legal systems, institutions and policies. Such social justice approaches use critical theory to argue for greater equalities. In effect, CRT challenges us to examine the premises on which many arguments, and the 'status quo', are based (Delgado and Stefancic, 2001). See also page 105.

### Want to know more?



For background on Plato and Hegelian dialectics, see:

<https://plato.stanford.edu/entries/hegel-dialectics/>

For a short, illustrated video introduction:

<https://www.youtube.com/watch?v=BaRUZ81K8bk>

For Critical race theory generally, see Masiga, J. (2022).

<https://www.weforum.org/agenda/2022/02/what-is-critical-race-theory/>

# Benefits of critical thinking skills

## Sharpening our minds

As we have seen, we often assume that we have the full story, the right answer, or the best solution when that is not the case. It is easy to slip into simply repeating something we have heard, or describing what we have read, without much thought. We may consider that we are using critical skills when we are merely stating what we believe to be self-obviously true.

Such thinking leads to mistakes, weak understandings, unconscious bias, unfairness, and errors of judgement. Most of these won't be significant, but some could have serious consequences. Critical awareness sharpens our minds so that we are better able to identify where we need to slow down and apply more systematic critiques of our thinking processes and actions.

## For academic and professional life

Advances in knowledge and professional practice are made through recognising where improvements can be made to what has gone before. This involves being able to break down existing understandings and practice into their component parts, such as what are assumed to be facts, or good evidence, or sound methods, or the assumptions made about how different pieces of information are connected.

Academic study and research-based enquiry require us to slow down our processing of information. The methodologies used for conducting research, and the feedback received from peers, help in identifying flaws in the way we arrive at conclusions. That has an impact on the speed, accuracy, efficiency, and fairness of our thoughts and actions.

## Realistic self-appraisal

Good critical thinking skills, if applied well, can help us to make much more realistic and accurate appraisals of our own abilities, interests and thinking processes. This is useful in helping us to make decisions about where to focus our energies when looking for work, pursuing further training, or making life choices.



## Benefits of good critical abilities

- 1 Ability to spot your own and other people's assumptions.
- 2 Ability to spot inconsistencies and potential errors that merit further investigation.
- 3 Ability to make fair, sound decisions.
- 4 Less likelihood of being misled or cheated.
- 5 Ability to notice what is relevant and significant – so saving time and effort.
- 6 Ability to bring greater accuracy and precision to different parts of a task.
- 7 Clearer thinking and communication.
- 8 Better problem-solving skills, such as in identifying where improvements could be made and evaluating potential solutions.
- 9 Ability to take a systematic approach, to ensure essentials are not overlooked.
- 10 Greater speed and accuracy in analysing complex information.
- 11 Confidence in taking on more complex problems and challenges.
- 12 Possibility of seeing the world through different eyes – with sharper awareness.

## Underlying skills and attitudes

Critical thinking rarely takes place in a vacuum. Higher-level critical thinking skills usually require some or all of the skills and attitudes listed below.

### Underlying thinking skills

Critical thinking assumes abilities in a range of skills such as categorising, selection and differentiation, comparing and contrasting. These skills are examined in Chapter 2.

### Knowledge and research

Good critical thinkers can often detect a poor argument without a good knowledge of the subject. However, critical thinking usually benefits from background research. Finding out more about a subject helps you to make a more informed judgement about whether relevant facts, alternative explanations and options have been covered sufficiently.

### Emotional self-management

Critical thinking sounds like a dispassionate process but it can engage emotions and even passionate responses. This should not surprise us when we consider that reasoning requires us to decide between opposing points of view. In particular, we may not like evidence that contradicts our own opinions or beliefs. If the evidence points in a direction that is unexpected and challenging, that can rouse unexpected feelings of anger, frustration or anxiety.

The academic world traditionally likes to consider itself as logical and immune to emotions, so if feelings do emerge, this can be especially difficult. Being able to manage your emotions under such circumstances is a useful skill. If you can remain calm, and present your reasons logically, you will be better able to argue your point of view in a convincing way.

### Perseverance, accuracy and precision

Critical thinking involves accuracy and precision and this can require dedication to finding the right answer. It includes the following:

- *Attention to detail*: taking the time to note small clues that throw greater light on the overall issue.
- *Identifying trends and patterns*: this may be through careful mapping of information, analysis of data, or identifying repetition and similarity.
- *Repetition*: going back over the same ground several times to check that nothing has been missed.
- *Taking different perspectives*: looking at the same information from several points of view.
- *Objectivity*: putting your own likes, beliefs and interests to one side with the aim of gaining the most accurate outcome or a deeper understanding.
- *Considering implications and distant consequences*: what appears to be a good idea in the short term, for example, might have long-term effects that are less desirable.

### Reflection



#### Emotional self-management

- Consider which emotions arise for you when others disagree with you strongly – especially if you might lose the argument or be unable to prove your point.
- How do you deal with those emotions? Do you need to develop a different emotional response?

For guidance and tips on emotional self-management, see Stella Cottrell, *Skills for Success* (2021).

# Self-awareness for accurate judgement

## Influences on our thinking

Good critical thinking involves making accurate judgements. We noted above that our thinking might not be accurate if we are not fully aware of the influences that affect it. These can include such things as our own assumptions, preconceptions, bias, dislikes, beliefs, things we take for granted as normal and acceptable, and all those things about our selves and our world that we have never questioned.

People who are outstanding at critical thinking tend to be particularly self-aware. They reflect upon and evaluate their personal motivations, interests, prejudices, expertise and gaps in their knowledge. They question their own point of view and check the evidence used to support it.

For each of us, those influences will be different. Our views will be affected by all we have experienced and all those with whom we have come into contact. Some of those influences will be more significant for us, either in general terms or in specific contexts or for particular issues. Early influences, the opinions of parents and carers, teachers, employers, people we respect, peer groups, recurrent images, popular media, what we read – all these influence us. These can be helpful. They also shape what we notice, how we interpret things, how we react, and so on.

### Reflection

#### Influences on my thinking

Note down your thoughts on the following.

For me, the influences on my own thinking that I need to be most aware of so they don't prejudice my thinking are:

I will deal with these by:

## Taking on the challenge

Becoming more self-aware takes courage. It can be unsettling to find out things about ourselves we didn't know, as most of us like to think we know ourselves very well. It is also challenging to question our belief systems. We think of these as part of our identity and it can be unsettling if we feel our identity is called into question.

Furthermore, the result of your critical thinking might place you in a minority amongst your friends, family or colleagues. Nobody else might interpret the evidence in the same way as you. It takes courage to argue an alternative point of view, especially when it is possible that you might be wrong.

The reward for this is that we are better able to make sound judgements. This can benefit assignments and grades. It helps in everyday discussions or disputes. It is of value when choosing a political party, career or future that suits us best, rather than simply following a trend, doing what others do, or relying on others' opinions.

### Reflection

#### Challenging others' opinions

Note down your thoughts on the following.

For me, the things I find most difficult about challenging the opinions of other people are:

I deal with these by:

### Want to know more?

For a more in-depth consideration of your self-awareness, whether for study, your career or for working with others, see Stella Cottrell, *Skills for Success* (2021).

# Personal strategies for critical thinking

Below, three lecturers describe how they view critical thinking.

## Lecturer 1

- I may make a quick first reading to get the overall picture and check my initial response. I see whether it rings true or contradicts what I believe to be true.
- I compare what I read with what I already know about the topic and with my experience.
- I summarise as I go along, and hold the overall argument in my head to make sense of what comes next.
- I look for the author's position or point of view, asking 'What are they trying to "sell me"?'
- As I read, I check each section and ask myself if I know what it means. If not, I check again – sometimes it is clearer when I read the second time. If it is still unclear, I remind myself to come back to it later as the rest of the passage may make it clearer.
- I then read more carefully, seeing what reasons the writers present and checking whether I am persuaded by these.
- If I am persuaded, I consider why. Is it because they make use of experts in the field? Is there research evidence that looks thorough and convincing?
- If I am not persuaded, then why not? I check whether this is a 'gut level' thing or whether I have good reasons for not being convinced. If I have relied on a gut response, I check for hard evidence such as whether I have read other material that contradicts it.
- I then create my own position, and check that my own point of view is convincing. Could I support it if I was challenged?

Here the lecturer is describing an overall strategy for reading and analysing the text in a critically analytical way. The final point refers to 'creating' a personal position by synthesising the available material – and then submitting this to critical analysis too.

This second example indicates that, as well as the words on the page or material being critiqued, there are wider contextual and other considerations to be taken into account.

## Lecturer 2

I put my energy into looking for the heart of the issue: what is really being said, and why? The answers may not be on the page; they may be in the wider history of a debate, a cultural clash, or conflicting bids for project money. It is surprising how often the wider context, popular debates, even a desire to be seen to be saying what is currently in fashion, have a bearing on what a given passage is really saying.

The third lecturer wouldn't disagree with what has gone before, but adds another dimension. Analysis encourages a focus on the detail, and on considering many different angles. This can generate a large body of evidence or a long list of points for consideration. An important aspect of your critical analysis is to sift through this wealth of information, and make good judgements about what is the most significant.

## Lecturer 3

The trick is being able to see the wood for the trees; identifying what is relevant amongst a mass of less relevant information. It isn't enough just to understand; you have to be constantly evaluating whether something is accurate, whether it gets to the heart of the issue, whether it is the most important aspect on which to focus, whether it is the best example to use – and whether what you are saying about it is a fair representation of it.

All three examples illustrate different aspects of the critical thinking process:

- an analytical strategy for the material;
- understanding of the wider context;
- an evaluative and selective approach;
- being self-critical about your own understanding, interpretation and evaluation.