

Chapter 1

What is critical thinking?

Learning outcomes

This chapter gives you opportunities to:

- understand what critical thinking is
- 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. It includes:

- identifying other people's positions, arguments and conclusions;
- evaluating the evidence for alternative points of view;
- weighing up opposing arguments and evidence fairly;
- being able to read between the lines, seeing behind surfaces, and identifying false or unfair assumptions;
- recognising techniques used to make certain positions more appealing than others, such as false logic and persuasive devices;
- reflecting on issues in a structured way, bringing logic and insight to bear;
- drawing conclusions about whether arguments are valid and justifiable, based on good evidence and sensible assumptions;
- presenting a point of view in a structured, clear, well-reasoned way that convinces others.

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.

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 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;
- being able to present to others the reasons for our beliefs and actions.

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.

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 such 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.

Why develop critical thinking skills?

Benefits of critical thinking skills

Good critical thinking skills bring numerous benefits such as:

- improved attention and observation
- more focused reading
- improved ability to identify the key points in a text or other message rather than becoming distracted by less important material
- improved ability to respond to the appropriate points in a message
- knowledge of how to get your own point across more easily
- skills of analysis that you can choose to apply in a variety of situations.

Benefits in professional and everyday life

Skills in critical thinking bring precision to the way you think and work. You will find that practice in critical thinking helps you to be more accurate and specific in noting what is relevant and what is not. The skills listed above are useful to problem-solving and to project management, bringing greater precision and accuracy to different parts of a task.

Although critical thinking can seem like a slow process because it is precise, once you have acquired good skills, they save you time because you learn to identify the most relevant information more quickly and accurately.

Ancillary skills

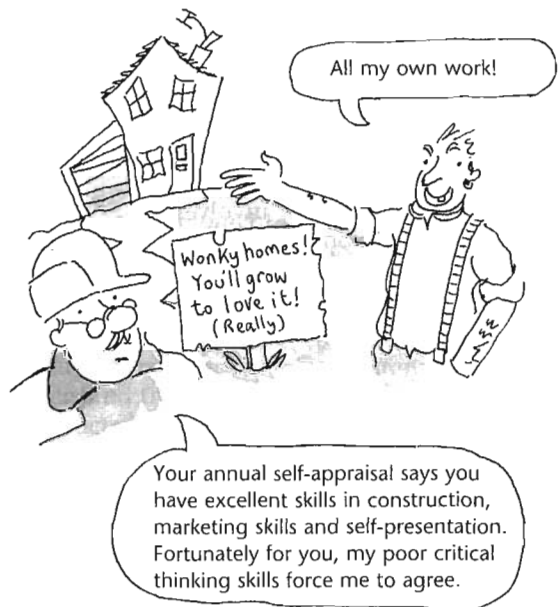
Critical thinking involves the development of a range of ancillary skills such as:

- | | |
|-------------------|--------------|
| ● observation | ● analysis |
| ● reasoning | ● judgement |
| ● decision-making | ● persuasion |

Realistic self-appraisal

It is likely that you already possess some or all of these skills in order to cope with everyday life, work or previous study. However, the more advanced the level of study or the professional area, the more refined these skills need to be. The better these skills are, the more able you are to take on complex problems and projects with confidence of a successful outcome.

It is likely that many people over-estimate the quality of the critical thinking they bring to activities such as reading, watching television, using the internet, or to work and study. It is not unusual to assume our point of view is well-founded, that we know best, and that we are logical and reasonable. Other people observing us may not share this view. A lack of self-awareness and weak reasoning skills can result in unsatisfactory appraisals at work or poor marks for academic work. Certainly, comments from lecturers indicate that many students are prevented from gaining better marks because their work lacks evidence of rigorous critical thinking.



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:

- *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

For me, the emotions that are most difficult to manage when others disagree with me are:

I deal with these by:

Self-awareness for accurate judgement

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.

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.



Reflection: influences on my thinking

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 this by:



Reflection: challenging opinions

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

I deal with these by:

Personal strategies for critical thinking

Below, three lecturers describe how they view critical thinking.

Example 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 if 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?
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Here the lecturer is describing an overall critical thinking strategy for reading and analysing the text. The example below indicates that, as well as the words on the page or other material being critiqued, there are wider considerations to be taken into account.

Example 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.

Example 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.

Critical thinking in academic contexts

Development of understanding

Students are expected to develop critical thinking skills so that they can dig deeper below the surface of the subjects they are studying and engage in critical dialogue with its main theories and arguments. This is usually through engaging in critical debate in seminars, presentations or writing produced for assessment or publication.

One of the best ways of arriving at a point where we really understand something is by doing, or replicating, the underlying research for ourselves. However, as undergraduates, and indeed in everyday life, there simply isn't the time to research everything we encounter. The depth of understanding that comes through direct experience, practice and experimentation has to be replaced, at times, by critical analysis of the work of other people.

Students need to develop the ability to critically evaluate the work of others. Whilst some find this easy, others tend to accept or apply the results of other people's research too readily, without analysing it sufficiently to check that the evidence and the reasoning really support the main points being made. Bodner (1988), for example, describes chemistry students as being unable to 'apply their knowledge outside the narrow domain in which it was learnt. They "know" without understanding.' Bodner suggests that, instead of focusing primarily on standard chemical calculations in books, students should be looking for answers to questions such as 'How do we know . . . ?' and 'Why do we believe . . . ?'

Bodner's description is likely to be just as true of students in other subjects. It is not unusual for students, and for people generally, to rely unquestioningly on research that is based on a small sample of the population, or that is based on faulty reasoning, or that is now out of date. Evidence from small or isolated projects is often treated as if it were irrefutable proof of a general principle, and is sometimes quoted year after year as if it were an absolute truth. Chapter 8 looks further at critically examining and evaluating evidence.



Reflection

Do you recognise anything of yourself in Bodner's description of students? What effect would the approach he suggests have on your learning and understanding?

Both positives and negatives

In academic contexts, 'criticism' refers to an analysis of positive features as well as negative ones. It is important to identify strengths and satisfactory aspects rather than just weaknesses, to evaluate what works as well as what does not. Good critical analysis accounts for *why* something is good or poor, why it works or fails. It is not enough merely to list good and bad points.

Comprehensive: nothing is excluded

At most English-speaking universities, students are expected to take a critical approach to what they hear, see and read, even when considering the theories of respected academics. Normally, any theory, perspective, data, area of research or approach to a discipline could be subjected to critical analysis. Some colleges, such as religious foundations, may consider certain subjects to be out of bounds, but this is not typical.

The idea or the action, not the person

A distinction is usually drawn between the idea, work, text, theory or behaviour, on the one hand and, on the other, the person associated with these. This is also true when making critical analyses of other students' work, if this is a requirement of your course. Even so, it is worth remembering that people identify closely with their work and may take criticism of it personally. Tact and a constructive approach are needed. Giving difficult messages in a way other people can accept is an important aspect of critical evaluation.



Non-dualistic

In our day-to-day lives, we can slip into thinking everything is right or wrong, black or white. In the academic world, answers may occur at a point on a continuum of possibilities. One of the purposes of higher-level thinking is to address questions which are more

complicated and sophisticated, and which do not lend themselves to straightforward responses. You may have noticed yourself that the more you know about a subject, the more difficult it becomes to give simple answers.

Dealing with ambiguity and doubt

With the internet at our fingertips, we are more used to obtaining answers within minutes of formulating a question. However, in the academic world, questions are raised in new areas and answers may not be found for years, or even lifetimes. This can feel uncomfortable if you are used to ready answers.

This does not mean, though, that vague answers are acceptable. If you look at articles in academic journals, you will see that they are very closely argued, often focusing on a minute aspect of the subject in great detail and with precision. Students, too, are expected to develop skills in using evidence, even if drawn from other people's research, to support a detailed line of reasoning.

It is worth remembering that in academic work, including professional research for business and industry, researchers often need to pursue lines of enquiry knowing that:

- no clear answers may emerge;
- it may take decades to gain an answer;
- they may contribute only a very small part to a much larger picture.

Critical thinking as a student means:

- finding out where the best evidence lies for the subject you are discussing;
- evaluating the strength of the evidence to support different arguments;
- coming to an interim conclusion about where the available evidence appears to lead;
- constructing a line of reasoning to guide your audience through the evidence and lead them towards your conclusion;
- selecting the best examples;
- and providing evidence to illustrate your argument.

Barriers to critical thinking (1)

Critical thinking does not come easily to everyone. Barriers vary from person to person, but can usually be overcome. This section looks at some key barriers to critical thinking and encourages you to consider whether these might be having an impact on you.

Misunderstanding of what is meant by criticism

Some people assume that 'criticism' means making negative comments. As a result, they refer only to negative aspects when making an analysis. This is a misunderstanding of the term. As we saw above, critical evaluation means identifying positive as well as negative aspects, what works as well as what does not.



Others feel that it is not good to engage in criticism because it is an intrinsically negative activity. Some worry that they will be regarded as an unpleasant sort of person if they are good at criticism. As a result, they avoid making any comments they feel are negative and make only positive comments. They may not provide feedback on what can be improved. This is often an unhelpful approach, as constructive criticism can clarify a situation and help people to excel.



Over-estimating our own reasoning abilities

Most of us like to think of ourselves as rational beings. We tend to believe our own belief systems are the best (otherwise we wouldn't hold those beliefs) and that we have good reasons for what we do and think.

Although this is true of most of us for some of the time, it isn't an accurate picture of how humans behave. Most of the time our thinking runs on automatic. This makes us more efficient in our everyday lives: we don't have to doubt the safety of a tooth-brush every time we brush our teeth.

However, it is easy to fall into poor thinking habits. People who get their own way, or simply get by, with poor reasoning, may believe their reasoning must be good as nobody has said it isn't. Those who are good at winning arguments can mistake this for good reasoning ability. Winning an argument does not necessarily mean that you have the best case. It may simply mean that your opponents didn't recognise a poor argument, or chose to yield the point for their own reasons, such as to avoid conflict. Imprecise, inaccurate and illogical thinking does not help to develop the mental abilities required for higher-level academic and professional work.

Barriers to critical thinking (2)

Lack of methods, strategies or practice

Although willing to be more critical, some people don't know which steps to take next in order to improve their critical thinking skills. Others are unaware that strategies used for study at school and in everyday situations are not sufficiently rigorous for higher-level academic thinking and professional work. With practice, most people can develop their skills in critical thinking.

Reluctance to critique experts

There can be a natural anxiety about critically analysing texts or other works by people that you respect. It can seem strange for students who know little about their subject, to be asked to critique works by those who are clearly more experienced. Some students can find it alien, rude or nonsensical to offer criticism of practitioners they know to be more expert than themselves.

If this is true of you, it may help to bear in mind that this is part of the way teaching works in most English-speaking universities. Critical analysis is a typical and expected activity. Researchers and lecturers expect students to question and challenge even published material. It can take time to adapt to this way of thinking.

If you are confident about critical thinking, bear in mind that there are others who find this difficult. In many parts of the world, students are expected to demonstrate respect for known experts by behaviours such as learning text off by heart, repeating the exact words used by an expert, copying images precisely, or imitating movements as closely as possible. Students of martial arts such as tai chi or karate may be familiar with this approach to teaching and learning.

Affective reasons

We saw above that emotional self-management can play an important part in critical thinking. To be able to critique means being able to acknowledge that there is more than one way of looking at an issue. In academic contexts, the implications of a theory can challenge deeply held beliefs and long-held assumptions. This can be difficult to accept, irrespective of how intelligent a student might be.



This is especially so if 'common-sense' or 'normality' appears to be challenged by other intelligent people or by academic research. It can be hard to hear deeply held religious, political and ideological beliefs challenged in any way at all. Other sensitive issues include views on bringing up children, criminal justice, genetic modification, and sexuality.

When we are distressed by what we are learning, the emotional response may help to focus our thinking but very often it can inhibit our capacity to think clearly. Emotional content can add power to an argument, but it can also undermine an argument, especially if emotions seem to take the place of the reasoning and evidence that could convince others. Critical thinking does not mean that you must abandon beliefs that are important to you. It may mean giving more consideration to the evidence that supports the arguments based on those beliefs, so that you do justice to your point of view.

Barriers to critical thinking (3)

Mistaking information for understanding

Learning is a process that develops understanding and insight. Many lecturers set activities to develop expertise in methods used within the discipline. However, students can misunderstand the purpose of such teaching methods, preferring facts and answers rather than learning the skills that help them to make well-founded judgements for themselves.

Cowell, Keeley, Shemberg and Zinnbauer (1995) write about 'students' natural resistance to learning to think critically', which can mean acquiring new learning behaviours. Cowell et al. outline the problem through the following dialogue:

Student: *'I want you (the expert) to give me answers to the questions; I want to know the right answer.'*

Teachers: *'I want you to become critical thinkers, which means I want you to challenge experts' answers and pursue your own answers through active questioning. This means lots of hard work.'*

If you feel that critical thinking is hard work at times, then you are right. There are lecturers who would agree with you. However, if it wasn't difficult, you would not be developing your thinking skills into new areas. In effect, you are developing your 'mental muscle' when you improve your critical thinking skills.

Insufficient focus and attention to detail

Critical thinking involves precision and accuracy and this, in turn, requires good attention to detail. Poor criticism can result from making judgements based on too general an overview of the subject matter. Critical thinking activities require focus on the exact task in hand, rather than becoming distracted by other interesting tangents.

When critically evaluating arguments, it is important to remember that you can find an argument to be good or effective even if you don't agree with it.

Which barriers have an effect upon you?

On the table below, tick all those barriers that you consider might be affecting your critical thinking abilities.

Barrier	Has an effect?
Misunderstanding what is meant by criticism	
Lack of methods and strategies	
Lack of practice	
Reluctance to criticise those with more expertise	
Affective reasons	
Mistaking information for understanding	
Insufficient focus and attention to detail	



Reflection

Consider what you could do to manage these barriers in the next few months.