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CRITICAL THINKING SKILLS

effective analysis, argument and reflection

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.

Thirdly, I thank the readers of the first three editions and early drafts of each edition for their excellent suggestions. Any remaining weaknesses and errors are my own.

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.

I am grateful to students who have given permission for their work to be used, especially Charlotte French and Sophie Kahn for extracts from their reflective journals, project summaries and project rationales whilst students at the University of Leeds. I also thank Jacqui Ambler for her work on student projects and the reflections she brought to my attention.

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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*

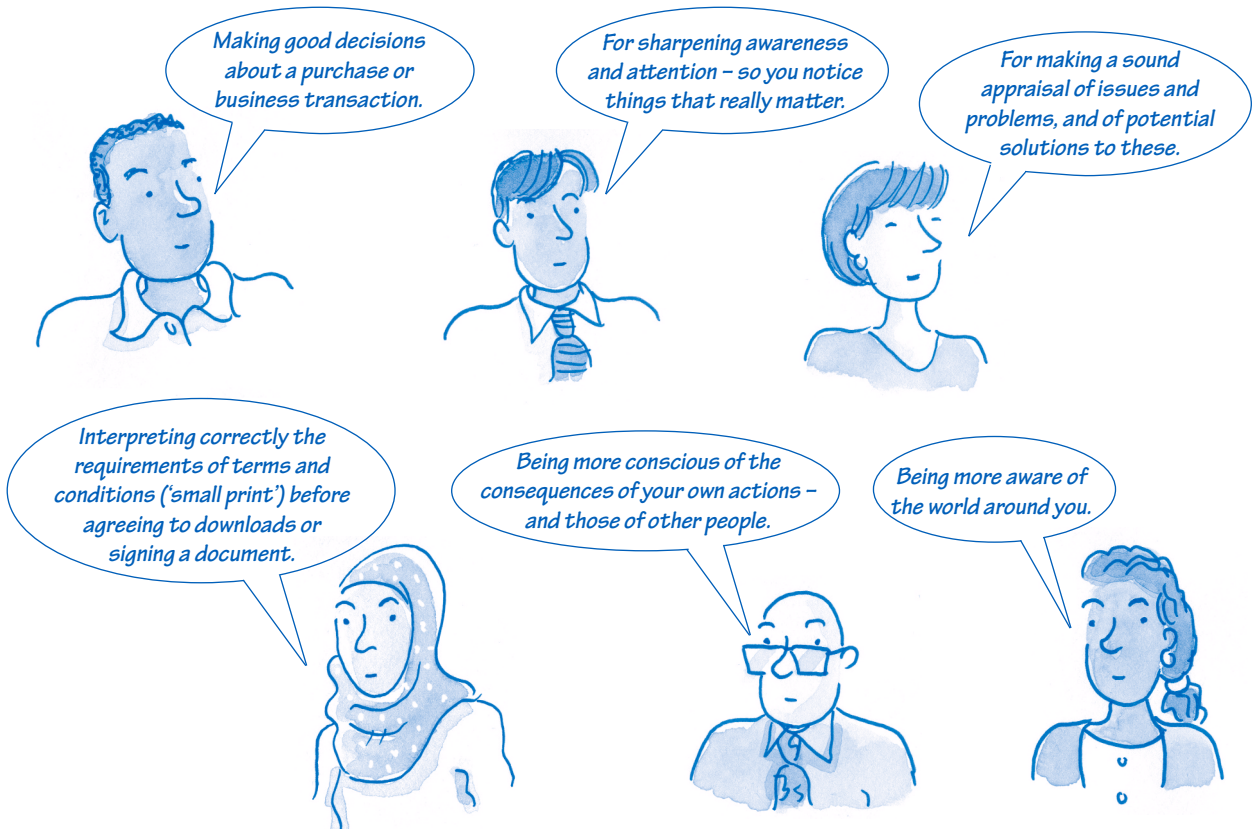
Critical Thinking Skills aims to help you gain an understanding of what is meant by critical thinking, to develop your own reasoning skills, and make use of these. This includes being able to:

- 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:

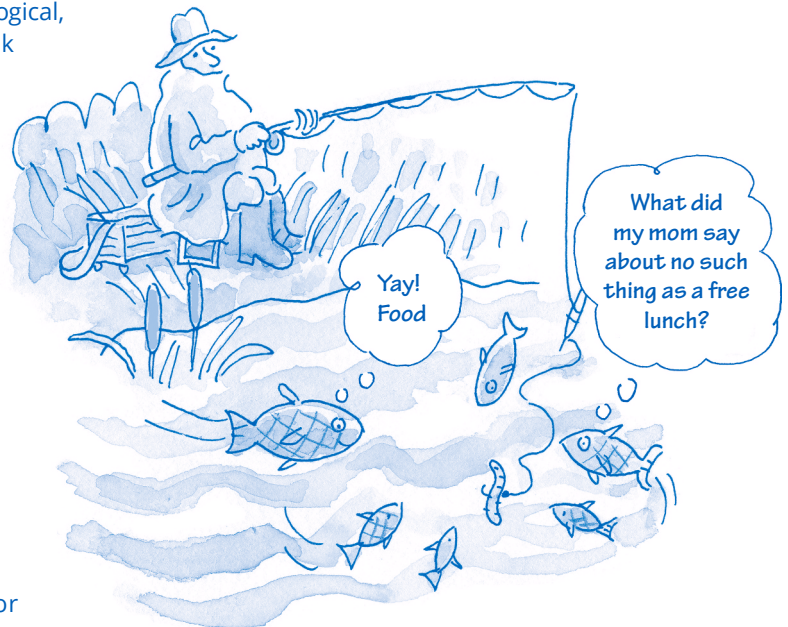
- ✓ understand what critical thinking is
- ✓ find out about the early roots, and later developments, of critical thinking, to better understand its characteristics and use
- ✓ recognise some of the benefits associated with critical thinking skills
- ✓ recognise the personal qualities associated with 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.

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 subject 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 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 evaluate critically 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



'Knowing without understanding?'

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.

Observation



Positives and weaknesses

Over a period of about a week, take notice of whether you tend to focus more on positives or negatives when making a critique (such as when judging what someone else has said or done, or when considering an event you have attended). Repeat this observation from time to time.

Use your insight to guide you in developing a more even-handed approach, so that your judgements are fair and balanced.

Comprehensive: Nothing is excluded

For most academic programmes, students are expected to take a well-reasoned, evidence-based, critical approach to what they hear, see, read, and learn. That is the case even when considering the work 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 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;
- providing evidence to illustrate your argument.

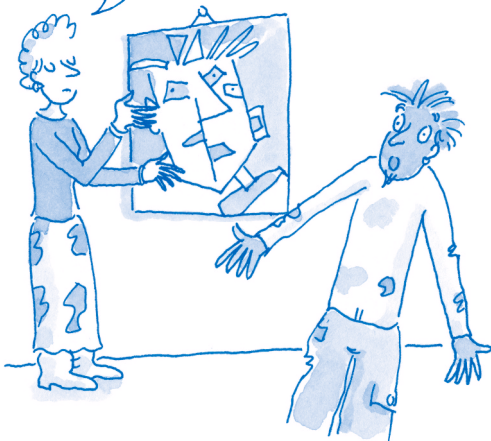
Barriers to critical thinking (1)

Critical thinking does not come easily to everyone. Barriers vary from person to person, but can usually be overcome. Consider whether the barriers described below (pages 12–14) are having an impact on you.

Misunderstanding 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.

Your art lacks any real sense of line, tone, colour, emotion, conceptual development, originality – it's lop-sided and hasn't got a frame.



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.

And in your essay, Angela, you refer to Napoleon as 'she' throughout. What a marvellously unique and creative approach!



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 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' appear 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 it, 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.

- Misunderstanding what is meant by criticism (page 12)
- Over-estimating my reasoning abilities (page 12)
- Lack of methods and strategies (page 13)
- Lack of practice (page 13)
- Reluctance to criticise those with more expertise (page 13)
- Affective reasons (page 13)
- Mistaking information for understanding (page 14)
- Insufficient focus and attention to detail (page 14)

List any other barriers you have identified that affect your own critical thinking.

Reflection



Managing barriers

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

Critical thinking: Knowledge, skills and attitudes



Self-evaluation

For each of the following statements, rate your responses as outlined below. Note that 'strongly disagree' carries no score.

4 = 'strongly agree' 3 = 'agree' 2 = 'sort of agree' 1 = 'disagree' 0 = 'strongly disagree'

Rating 4–0

| | | |
|-------------------------|--|--|
| 1 | I feel comfortable pointing out potential weaknesses in the work of experts. | |
| 2 | I can remain focused on the exact requirements of an activity. | |
| 3 | I know the different meanings of the word 'argument' in critical thinking. | |
| 4 | I can analyse the structure of an argument. | |
| 5 | I can offer criticism without feeling this makes me a bad person. | |
| 6 | I know what is meant by a line of reasoning. | |
| 7 | I am aware of how my current beliefs might prejudice fair consideration of an issue. | |
| 8 | I am patient in identifying the line of reasoning in an argument. | |
| 9 | I am good at recognising the signals used to indicate stages in an argument. | |
| 10 | I find it easy to separate key points from other material. | |
| 11 | I am very patient in going over the facts in order to reach an accurate view. | |
| 12 | I am good at identifying unfair techniques used to persuade readers. | |
| 13 | I am good at reading between the lines. | |
| 14 | I find it easy to evaluate the evidence to support a point of view. | |
| 15 | I usually pay attention to small details. | |
| 16 | I find it easy to weigh up different points of view fairly. | |
| 17 | If I am not sure about something, I will investigate to find out more. | |
| 18 | I can present my own arguments clearly. | |
| 19 | I understand how to structure an argument. | |
| 20 | I can tell descriptive writing from analytical writing. | |
| 21 | I can spot inconsistencies in an argument easily. | |
| 22 | I am good at identifying patterns. | |
| 23 | I am aware of how my own up-bringing might prejudice fair consideration of an issue. | |
| 24 | I know how to evaluate source materials. | |
| 25 | I understand why ambiguous language is often used in research papers. | |
| Score out of 100 | | |

Interpreting your score

Going through the questionnaire may have raised some questions about what you know or don't know about critical thinking. The lower the score, the more likely you are to need to develop your critical thinking skills. A score over 75 suggests you are very confident about your critical thinking ability. It is worth checking this against objective feedback from your tutors or colleagues. For example, if your score is less than 100, there is still room for improvement! If your score is under 45 and remains so after completing the book, you may find it helpful to speak to an academic counsellor, your tutor or a supervisor to root out the difficulty.

Priorities: Developing critical thinking abilities

- In column A, identify which aspects of critical thinking you want to know more about. Give a rating between 5 and 0, giving 5 for 'very important' and 0 for 'not important at all'.
- In column B, consider how essential it is that you develop this aspect soon. Give a rating between 5 and 0, where 5 is 'very essential' and 0 is 'not essential at all'.
- Add the scores in columns A and B to gain an idea of where your priorities are likely to lie.
- Column D directs you where to look for more information on that point.
- Use your findings to set your priorities (page 18).



| Aspects I want to develop further | A Want to know more? Rate from 0 to 5 5 = 'very important' | B How essential to develop it now? Rate from 0 to 5 5 = 'essential' | C Priority score Add scores for columns A and B | D See Chapter |
|--|---|--|---|------------------|
| I want to: | | | | |
| 1 understand the benefits of critical thinking | | | | 1 |
| 2 remain focused on the exact requirements of an activity | | | | 2 |
| 3 pay better attention to small details | | | | 2 |
| 4 know what is meant by a 'line of reasoning' | | | | 3 |
| 5 identify the component parts of an argument for critical thinking | | | | 3 |
| 6 recognise the words used to signal stages in an argument | | | | 3, 10 |
| 7 distinguish argument from disagreement | | | | 4 |
| 8 distinguish argument from summaries, descriptions and explanations | | | | 4 |
| 9 pick out the key points from background information | | | | 4 |
| 10 be able to analyse the structure of an argument | | | | 5, 10, 11 |
| 11 evaluate whether arguments are internally consistent | | | | 5 |
| 12 understand what is meant by an intermediate conclusion | | | | 5 |
| 13 be able to structure an argument | | | | 5, 10, 11 |
| 14 be better at reading between the lines | | | | 6 |

| Aspects I want to develop further | A Want to know more? Rate from 0 to 5 5 = 'very important' | B How essential to develop it now? Rate from 0 to 5 5 = 'essential' | C Priority score Add scores for columns A and B | D See Chapter |
|---|---|--|---|------------------|
| I want to: | | | | |
| 15 recognise underlying assumptions | | | | 6 |
| 16 recognise when an argument is based on false premises | | | | 6 |
| 17 recognise implicit arguments | | | | 6 |
| 18 understand what is meant by denoted and connoted meanings | | | | 6 |
| 19 be aware of how cause, effect, correlation and coincidence can be confused | | | | 7 |
| 20 be able to check for 'necessary and sufficient conditions' | | | | 7 |
| 21 identify unfair techniques used to persuade readers | | | | 6, 7 |
| 22 recognise tautology | | | | 7 |
| 23 recognise flawed reasoning | | | | 6, 7 |
| 24 be able to evaluate source materials | | | | 1, 8 |
| 25 understand what is meant by authenticity, validity, and reliability | | | | 8 |
| 26 evaluate when samples are representative | | | | 8 |
| 27 understand what is meant by 'triangulation' | | | | 8 |
| 28 check for levels of probability | | | | 8 |
| 29 apply critical thinking when making notes | | | | 9, 10 |
| 30 use language more effectively to structure argument | | | | 3, 10, 11 |
| 31 present my own arguments clearly in writing/for essays | | | | 10, 11 |
| 32 apply critical reflection to my study/ assignments | | | | 12 |
| 33 apply reflection in my professional life | | | | 12, 13 |
| 34 apply critical thinking to career/life planning | | | | 12, 13 |

Priorities for action



- Look back over the priorities table. Identify the three aspects to which you gave the highest scores. If more than three have the highest score, select three to start with.
- Write the three priorities here as actions starting with 'I will ...', using words that are meaningful to you – e.g. 'I will find out what tautology means.'

1. I will

2. I will

3. I will

Summary: What is critical thinking?

1 Critical thinking is a complex process.

It involves many sub-skills and calls for an attitude of mind. It requires an open mind, system, perseverance, accuracy and precision.

2 Critical thinking is about 'reasoning'.

It involves being able to construct and analyse arguments, based on reason and evidence. That requires decision-making and judgement.

3 Critical thinking helps us to challenge hidden assumptions. That includes our own assumptions and biases, as well as those of other people and the sources we use.

4 Developing critical ability confers many benefits. These include better problem-solving, less likelihood of being cheated or misled, greater confidence, speed and accuracy in analysing complex information.

5 It involves emotional self-management and courage: It can be challenging to question ourselves and others.

6 Self-awareness supports critical ability. It is not always easy to detect our own bias, so it is important to be alert to influences on our thinking and decision-making.

7 Academic study requires criticality. Students need to be able to critique the work of others, including source materials, experts and peers, in a systematic, even-handed way.

8 Critical abilities can be obstructed unnecessarily by barriers such as insufficient focus, strategy or attention to detail, as well as misunderstandings. These can all be tackled.

9 Identify your strengths and priorities. Use these to develop your critical abilities.

Learning outcomes

This chapter offers you opportunities to:

- ✓ recognise the underlying sub-skills that contribute to critical abilities, such as directing attention, systematic comparison, sequencing, categorising, and close reading
- ✓ check for yourself how well you perform when using these sub-skills
- ✓ practise these sub-skills
- ✓ enhance your conscious competence in using these sub-skills.

Introduction

We use critical thinking skills automatically in everyday life, usually without being conscious of doing so. However, it isn't then easy to apply those skills to complex or unfamiliar information, problems and situations. Our attention wanders. We lose focus. We do not recognise that we need to pause and be more systematic in our analysis. We miss small details. Even the smartest people make mistakes and get scammed.

This is partly because, to be critically alert, we have to pay attention, and that can become tiring. It requires system, and system can feel onerous. However, skills can be nurtured. With practice, you can extend the amount of time you can spend on mentally demanding tasks just as you can with physical ones. You can take on mental marathons and be more effective in how you approach the task. And – you can do so with 'conscious competence', awareness of what you are doing and why.

Develop underlying skills

Critical thinking skills draw on underlying sets of thinking skills, or 'sub-skills'. These include:

- focusing attention so as to recognise the significance of fine details;
- using attention to fine detail in order to recognise patterns, such as similarities and differences, absence and presence, order and sequence;

- using recognition of pattern in order to compare and contrast items and to predict possible outcomes;
- sorting and labelling items into groups, so that they form categories;
- using an understanding of categories to identify the characteristics of new phenomena and make judgements about them.

These skills are not only useful for critical thinking in academic and professional life, but are tested as part of the procedures for selecting job applicants for interviews. Student critical writing is often weakened by a lack of sustained and close attention to detail in one or more stages of the critical process. Improving your ability to pay attention to detail, selectively and at speed, is likely to have benefits for your study and assignments. Developing these sub-skills can help with your general 'employability'.

Assess your skills

The next few pages provide several short self-assessment activities for you to assess how good you are already at these skills. In particular, these give you practice in attending to fine detail, and the level of mental discipline that critical analysis involves.

If you find the assessment easy, then progress to a chapter that is more useful for you. Otherwise, use the rest of this chapter to practise these skills further and develop your conscious competence for applying them.

Assess your thinking skills (1)

Comparison

The following activity enables you to check how good you are at identifying similarity and difference, an essential sub-skill for critical thinking. For each set of boxes below, identify which box is the odd one out. An example is given first.

Example

| 1 | 2 | 3 | 4 | 5 | 6 |
|----------|----------|----------|----------|----------|----------|
| ←← ←← | →→ →→ | ←← ←← | ←← ←← | ←← ←← | ←← ←← |

Here, box 2 is the odd one out as the arrows point in a different direction from those in the other boxes. Now try the following.

A

| 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| ○○○ ○○○ ○○○ ○○○ | ○○○ ○○○ ○○○ ○○○ | ○○○ ○○○ ○○○ ○○○ | ○○○ ○○○ ○○○ ○○○ | ○○○ ○○○ ○○○ ○○○ | ○○○ ○○○ ○○○ ○○○ |

B

| 1 | 2 | 3 | 4 | 5 | 6 |
|----------------|----------------|----------------|----------------|----------------|----------------|
| ✂✂ ✂✂ ✂✂ | ✂✂ ✂✂ ✂✂ | ✂✂ ✂✂ ✂✂ | ✂✂ ✂✂ ✂✂ | ✂✂ ✂✂ ✂✂ | ✂✂ ✂✂ ✂✂ |

C

| 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| ☪ ✧ ★ ♻ ☯ ★ | ☪ ✧ ★ ♻ ☯ ★ | ☪ ✧ ★ ♻ ☯ ★ | ☪ ✧ ★ ♻ ☯ ★ | ☪ ✧ ★ ♻ ☯ ★ | ☪ ✧ ★ ♻ ☯ ★ |

D

| 1 | 2 | 3 | 4 | 5 | 6 |
|-------------|-------------|-------------|-------------|-------------|-------------|
| ⌘ 👉 🕒 | ⌘ 👉 🕒 | ⌘ 👉 🕒 | ⌘ 👉 🕒 | ⌘ 👉 🕒 | ⌘ 👉 🕒 |

Sequence

This activity assesses your ability to recognise how a sequence is structured. Each set of boxes forms a sequence. Below each sequence is a set of options. Choose one option to replace the question mark and complete the sequence.

Example sequence

| | | | | | |
|---|---|---|---|---|---|
| ◆ | ★ | ◆ | ★ | ◆ | ? |
|---|---|---|---|---|---|

Options for the example sequence

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| 📁 | ☾ | ◆ | 💬 | ★ | ✉ |

The answer is 5, as the sequence in the example is one of alternating diamonds and stars. Now complete the following sequences.

Sequence A

| | | | | | |
|---|---|---|---|---|---|
| ☀ | ☀ | ☀ | ☀ | ☀ | ? |
|---|---|---|---|---|---|

Options for sequence A

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| ☀ | ☀ | 🛡 | 💬 | ☀ | ☀ |

Sequence B

| | | | | | |
|-------------|-------------|-------------|-------------|-------------|---|
| ⬇ ♥ ⊖ | ⊖ ♥ ⬇ | ⬇ ♥ ⊖ | ⊖ ♥ ⬇ | ⬇ ♥ ⊖ | ? |
|-------------|-------------|-------------|-------------|-------------|---|

Options for sequence B

| 1 | 2 | 3 | 4 | 5 | 6 |
|-------------|-------------|-------------|-------------|-------------|-------------|
| ⬇ ♥ ⊖ | ♥ ⊖ ⬇ | ♥ ⬇ ⊖ | ⊖ ♥ ⬇ | ⬇ ⊖ ♥ | ⊖ ⬇ ♥ |

Answers: see p. 291.

Assess your thinking skills (2)

Sequence C

| | | | | | | |
|-----|-----|-----|-----|-----|-----|---|
| ⊖ ■ | ■ ◇ | ◇ ■ | ⊖ ■ | ■ ◇ | ◇ ■ | ? |
| ■ ◇ | ◇ ■ | ⊖ ■ | ■ ◇ | ◇ ■ | ⊖ ■ | |
| ◇ ■ | ⊖ ■ | ■ ◇ | ◇ ■ | ⊖ ■ | ■ ◇ | |

Options for sequence C

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 |
| ⊖ ■ | ■ ◇ | ■ ◇ | ■ ■ | ◇ ■ | ◇ ■ |
| ■ ◇ | ■ ◇ | ◇ ■ | ◇ ◇ | ⊖ ■ | ■ ⊖ |
| ◇ ■ | ⊖ ■ | ⊖ ■ | ⊖ ■ | ■ ◇ | ■ ◇ |

Sequence D

| | | | | | |
|---|----|----|---|----|---|
| * | ≤ | ** | ≡ | ** | ? |
| ≡ | ** | * | * | ≤ | |

Options for sequence D

| | | | | | |
|---|----|----|----|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 |
| * | ≥ | ** | ≤ | * | ** |
| ≡ | ** | ≥ | ** | * | * |
| | * | | ** | ≤ | ≥ |

Categorising

This activity enables you to check your ability to categorise information. For each box, organise the set of items into two groups. Each group should be distinct, with its own particular characteristic. Identify the characteristic of each group. It is possible that there might not be the same number of items in each group.

| | | | |
|---|---------|-----------|---------|
| A | mouse | typing | drive |
| | printer | talking | monitor |
| | screen | scrolling | eating |

| | | | | |
|---|-----------|------|--------|----------|
| B | pyramid | vast | oasis | gigantic |
| | palm-tree | | desert | massive |
| | enormous | Nile | | immense |

| | | | | |
|---|-------|-------|----------|------|
| C | topaz | agate | silver | ruby |
| | gold | opal | platinum | |

| | | | | | |
|---|-------|-------|-------|-------|-------|
| D | Empty | Gate | Shoal | Divan | burst |
| | chops | Kenya | hertz | micro | Pound |

Following directions

Answer the following questions as directed.

- A Use the multiple-choice responses to answer the question: How many legs has a cow?
- 1 A cow has three legs.
 - 2 A cow has two legs and two tails.
 - 3 A cow has four legs and a tail.
 - 4 A cow has four legs.

- B Use the multiple-choice responses to answer the question: Of which atoms is water comprised?
- 1 Water is comprised of oxygen and hydrogen.
 - 2 Water can exist as a solid, fluid or gas.
 - 3 Water is comprised of oxygen and hydrogen, and is rarely, if ever, found on any planet except earth.
 - 4 Water forms ice when it is frozen and is then considered to be a solid.

Answers: see p. 291.

Assess your thinking skills (3)

Close reading

This activity enables you to check your close reading skills. Each passage is followed by a series of questions about the text. For each question, circle:

- A If the statement follows logically from the information given in the passage.
- B If the statement is untrue or it does not follow logically from the information given in the passage.
- C If the passage does not give enough information for you to say whether it is true or follows logically from the information that is given. Consider what other information you would need.

Passage 2.1

The Arctic

The Arctic region at the top of the northern hemisphere forms a broad cold band that encompasses both Greenland and Siberia. Conditions in the Arctic are harsh. Vegetation is sparse and temperatures are low for most of the year. Inhabitants of the region enjoy three months of continual daylight in the summer. However, in winter the sun never appears. For three months of the year there is perpetual night, the only natural light coming from the moon, the stars and the northern lights.

- 7 The main argument is that summers in the Arctic are very short.
A B C
- 8 The vegetation of the Arctic is not good to eat.
A B C
- 9 The sun never appears.
A B C

- 1 There is daylight for some or all of the day during nine months of the year.
A B C
- 2 There is no electricity in the Arctic.
A B C

Passage 2.2

George Washington Carver

George Washington Carver Jr. (1865–1943) was an agricultural scientist of repute (McMurray, 1981). His research contributed to the development of over 300 products from peanuts alone. Amongst over 100 industrial applications he helped to develop from agricultural products such as soybeans, were rubber substitutes, paints and textile dyes. His work was celebrated by President Franklin D. Roosevelt with a national monument in 1943. Carver became a symbol to many different groups. As the first black student to attend his college, he was proof of what a former slave could achieve through education. Given Carver's claim that God was his inspiration, religious groups embraced his discoveries as a sign of God's blessing for materialism. Southern businessmen saw in him a living example of New South Philosophy and materialism. Through him, the South was transformed from being a one-crop cotton-based producer to a multi-crop economy with industrial outlets. As with many great men, the stories surrounding Carver's life have taken on mythic aspects, which are now hard to disentangle from the truth.

- 3 Franklin D. Roosevelt succeeded George Washington Carver as President of the USA.
A B C
- 4 Roosevelt constructed a monument to Carver after his death in 1943.
A B C

Answers: see p. 292.

Assess your thinking skills (4)

- 8 Carver was not really a great man as his story is based on myths.
A B C
- 9 Religious groups thought God favoured materialism.
A B C
- 10 Before Carver, no black students had attended college in the USA.
A B C
- 11 Before Carver, the Southern USA was a multi-crop economy with industrial outlets.
A B C
- 12 Carver helped to invent over 100 industrial applications from soybeans.
A B C

Recognising similarities

Which of the following two passages, Option 1 or Option 2, is closest in meaning to Passage 2.1, *The Arctic* (p. 22)?

Option 1

As you move further north, the environment deteriorates to one of icy climatic conditions for much of the year, with few plants, and months without any daylight at all.

Option 2

The Arctic region in the northern hemisphere is best avoided as conditions are so harsh, and yet the inhabitants enjoy living there. They like the continual daylight in the summer and the natural light of the moon and the stars.

Which of the following three passages, Option 3, 4 or 5, is closest in meaning to Passage 2.2, *George Washington Carver* (p. 22)?

Option 3

Carver claimed that he owed his success to God's inspiration. This shows that if you put your faith in God, he will help you to be successful as an inventor and as a materialist.

Option 4

Carver was an important symbol for black groups in the South. He was born a slave and was the first black student to go to his college. Southern businessmen and religious groups would not have expected that education would have such an effect upon people they had regarded as slaves. Carver's celebration by a President of the United States was given in recognition that the economy of the Southern states no longer relied on cotton.

Option 5

The economy of the South was diversified by Carver's discoveries in agricultural science, resulting in Carver becoming something of a symbol and mythic figure for Southern groups.

Answers: see p. 292.

Use the scoring sheet on the next page to add up your score and evaluate your performance.

Scoring sheet

Work out your score

Check the answers on pages 291–2. Use the scoring sheet to add up your score.



| Item | Possible score | Your score |
|---|----------------|------------|
| Comparison | 4 | |
| A | 1 | |
| B | 1 | |
| C | 1 | |
| D | 1 | |
| Sequence | 9 | |
| A | 2 | |
| B | 2 | |
| C | 2 | |
| D | 3 | |
| Categorising | 14 | |
| A | 3 | |
| B | 4 | |
| C | 4 | |
| D | 3 | |
| Following directions | 4 | |
| A | 2 | |
| B | 2 | |
| Close reading | 15 | |
| 1 | 1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 1 | |
| 5 | 1 | |
| 6 | 1 | |
| 7 | 2 | |
| 8 | 1 | |
| 9 | 1 | |
| 10 | 2 | |
| 11 | 1 | |
| 12 | 2 | |
| Recognising similarities | 4 | |
| Arctic | 2 | |
| Carver | 2 | |
| Total | 50 | |
| Double your total to find your percentage score | 100 | |

Evaluate your score

This is only a rough test for you to see for yourself how easily you performed some of the underlying skills associated with critical thinking. People who find critical thinking hard often have difficulty in one or more of these skills. However, this is not always the case. There can be many reasons why people do well at one task and not another, so do not be discouraged if you found this difficult or gained a low score.

86–100 Excellent! This score suggests that you already have very good overall basic sub-skills to apply to critical thinking skills.

60–85 Good! If this is distributed evenly across all the items in the assessment, then you are likely to have a good basis for developing critical thinking skills. Note whether there were any areas where your score was lower than others, or which you found more difficult. You might benefit from more practice in those areas before proceeding or if you find critical thinking difficult.

30–60 Well done! You have obviously already gained a basis for developing your critical thinking skills. Some people find critical thinking easier when it applies to real situations rather than in abstract activities, and that might be true of you. However, you are likely to benefit from practising these skills further, both through the activities in the rest of this chapter and taking more time on tasks which require close attention to detail.

Less than 30 Well done for sticking with the task. It may be that today wasn't your day for this kind of activity. Have a go with the activities in this chapter and see if you develop some strategies for improving these skills. If not, and if you find critical thinking to be difficult, it is worth speaking to a tutor or lecturer to discuss the assessment. Your college or university is likely to have academic skills support staff who can help.

The scoring sheet is also available on the companion site. See page xx.

Focusing attention

Attentional processes

Attention isn't the same as concentration. Concentration is associated with maintaining a focus on a task, even when it is difficult to do this. Attentional processes may include such concentration, but do not necessarily do so. Attentional processes that are important to critical thinking include:

- knowing where to look, where to focus the attention;
- being aware of when we are unable to maintain attention, and when to rest, so that we are able to maintain a sharp focus;
- becoming used to conventions, whether for reading, writing, tests or exams, so that we can use these to help us to focus attention efficiently;
- being aware of the conventions or rules for jokes, puzzles, television programmes, videos, different types of text or spoken information, so that we can use that knowledge to direct our attention efficiently;
- being aware of where there may be tricks, false impressions or illusions;
- remembering previous experience so that we can use it to direct our attention.

Automatic thinking and frames of reference

We can train our attention so that we are better able to notice relevant information. Much of the time, our mind operates 'on automatic pilot'. This makes it efficient for a range of activities other than critical thinking. Our brain tends to be effective at finding ways of saving us mental energy. Where it can, it takes short cuts and uses what it already knows to make sense of anything new it encounters. It tends to do this on an approximate basis, so it isn't always accurate.

Our mind uses its previous experiences to provide frameworks, known as 'frames of reference', to help categorise incoming information. When the brain thinks it knows what it is looking at, it will

naturally stop trying to categorise the experience. That is how optical illusions or magical tricks work: our brain thinks it knows what it is seeing even though it is being tricked, so it stops looking for further explanations.

Our frames of reference can be more or less sophisticated. At a basic level, we sort situations into safe/not safe, as this helps our survival. We can usually pick out our name from background noise, even when we are not paying attention, as that also helps our survival. We sort other information according to our vocabulary, knowledge and experiences. The more experience we have of consciously thinking through how our experiences are interconnected, and labelling those experiences, the more likely it is that we can organise our thoughts and direct our attention in particular ways when we want to.

Activity

Find the 't'

Read the following text. Read it a second time, and identify how many times the letter 't' occurs.

Terrifying torrents and long dark tunnels are used to create the excitement of the thrilling train ride at the park.

Answer: see p. 292.

The activities in the self-assessment on pages 20–3 focus on some attentional processes that underlie critical thinking. To complete these activities, we need to pay attention to detail so as to notice patterns within the 'bigger picture'. If we can recognise patterns, we can compare items, drawing out similarities and differences. If we can recognise a sequence, we are in a better position to identify trends, predict the next step and distinguish between cause and effect.

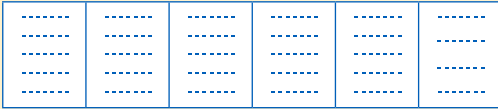
The following pages give more practice in developing attentional skills.

Focusing attention: Identifying difference

This activity gives you further practice in comparing different patterns in order to identify which item does not belong to the set. For each set of boxes, identify which box is the odd one out.

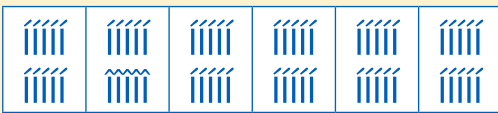
1

a b c d e f



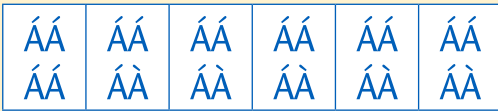
2

a b c d e f



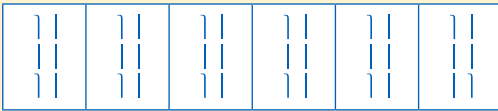
3

a b c d e f



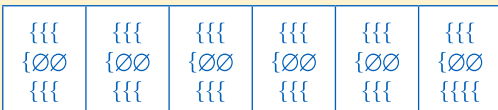
4

a b c d e f



5

a b c d e f



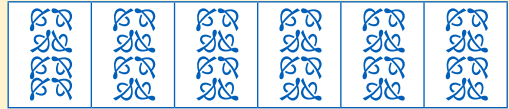
6

a b c d e f



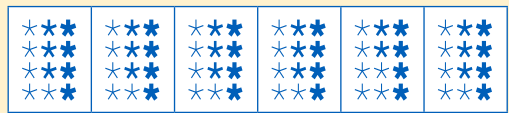
7

a b c d e f



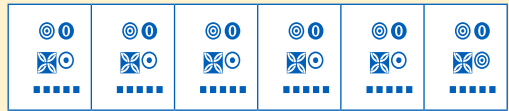
8

a b c d e f



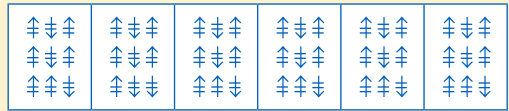
9

a b c d e f



10

a b c d e f



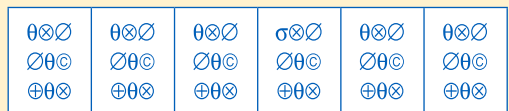
11

a b c d e f



12

a b c d e f



Answers: see p. 293.

Focusing attention: Recognising sequence (1)

The following activity gives you further practice in recognising sequence. As in the previous assessment exercise (page 20), work out what the sequence is. Select an answer from the choice below, to replace the question mark and complete the sequence in each case.

1

| a | b | c | d | e | f |
|---|---|---|----|----|---|
| # | # | # | ## | ## | ? |
| | # | # | # | ## | |
| | | # | # | # | |

Options for sequence 1

| 1a | 1b | 1c | 1d | 1e | 1f |
|----|----|----|----|----|----|
| # | ## | # | # | ## | ## |
| # | ## | | # | ## | # |
| # | ## | | | # | |

2

| a | b | c | d | e | f |
|----|----|----|----|----|---|
| ωξ | ωξ | ωξ | ωξ | ωξ | ? |

Options for sequence 2

| 2a | 2b | 2c | 2d | 2e | 2f |
|----|----|----|----|----|----|
| ωξ | ωξ | ωξ | ω | ωξ | ωξ |
| | ω | ωξ | | | ξ |

3

| a | b | c | d | e | f |
|-----|-----|-----|-----|-----|---|
| XχX | χXχ | XχX | χXχ | XχX | ? |
| χXχ | XχX | χXχ | XχX | χXχ | |
| XχX | χXχ | XχX | χXχ | XχX | |

Options for sequence 3

| 3a | 3b | 3c | 3d | 3e | 3f |
|-----|-----|-----|-----|-----|-----|
| XχX | χXχ | χXχ | χXχ | XχX | XχX |
| χXχ | χXχ | XχX | XχX | XχX | χXχ |
| | χXχ | χXχ | XχX | XχX | XχX |

4

| a | b | c | d | e | f |
|---|---|---|----|----|---|
| ⊃ | ⊃ | ⊃ | ⊃⊃ | ⊃⊃ | ? |
| | ⊃ | ⊃ | ⊃ | ⊃⊃ | |
| | | ⊃ | ⊃ | ⊃ | |

Options for sequence 4

| 4a | 4b | 4c | 4d | 4e | 4f |
|----|----|----|----|----|----|
| ⊃⊃ | ⊃⊃ | ⊃ | ⊃⊃ | ⊃⊃ | ⊃ |
| ⊃ | ⊃⊃ | | ⊃⊃ | ⊃⊃ | ⊃ |
| ⊃ | ⊃ | ⊃ | ⊃⊃ | ⊃ | |

5

| a | b | c | d | e | f |
|----|----|----|----|----|---|
| ←Ψ | Ψ↓ | ↓↓ | ↓↔ | ↔→ | ? |
| →↓ | ←↓ | Ψ↔ | ↓→ | ↓← | |
| ↔↓ | →↔ | ←→ | Ψ← | ↓Ψ | |

Options for sequence 5

| 5a | 5b | 5c | 5d | 5e | 5f |
|----|----|----|----|----|----|
| ←← | ΨΨ | Ψ← | ↔Ψ | →← | ←← |
| Ψ↔ | →↔ | ↔↓ | →↓ | ↔Ψ | ↔↓ |
| ↓↓ | ↓↓ | ↓↓ | ↓↓ | ↓↓ | Ψ↓ |

6

| a | b | c | d | e | f |
|----|----|----|----|----|---|
| □○ | □○ | ■○ | ■○ | ■● | ? |
| □○ | □○ | □○ | □○ | *○ | |

Options for sequence 6

| 6a | 6b | 6c | 6d | 6e | 6f |
|----|----|----|----|----|----|
| ■○ | ■● | ■○ | ■○ | ■● | □○ |
| □○ | *○ | □□ | ■○ | *● | □○ |

Answers: see p. 293.

Focusing attention: Recognising sequence (2)

7

| a | b | c | d | e | f | |
|---|---|---|---|---|---|--|
| | | | | | | |

Options for sequence 7

| 7a | 7b | 7c | 7d | 7e | 7f | |
|----|----|----|----|----|----|--|
| | | | | | | |

8

| a | b | c | d | e | f | |
|---|---|---|---|---|---|--|
| | | | | | | |

Options for sequence 8

| 8a | 8b | 8c | 8d | 8e | 8f | |
|----|----|----|----|----|----|--|
| | | | | | | |

9

| a | b | c | d | e | f | |
|---|---|---|---|---|---|--|
| | | | | | | |

Options for sequence 9

| 9a | 9b | 9c | 9d | 9e | 9f | |
|----|----|----|----|----|----|--|
| | | | | | | |

10

| a | b | c | d | e | f |
|---|---|---|---|---|---|
| | | | | | |

Options for sequence 10

| 10a | 10b | 10c | 10d | 10e | 10f |
|-----|-----|-----|-----|-----|-----|
| | | | | | |

11

| a | b | c | d | e | f |
|---|---|---|---|---|---|
| | | | | | |

Options for sequence 11

| 11a | 11b | 11c | 11d | 11e | 11f |
|-----|-----|-----|-----|-----|-----|
| | | | | | |

12

| a | b | c | d | e | f |
|---|---|---|---|---|---|
| | | | | | |

Options for sequence 12

| 12a | 12b | 12c | 12d | 12e | 12f |
|-----|-----|-----|-----|-----|-----|
| | | | | | |

Answers: see p. 293.

Categorising

Categorising skills are important for critical thinking as they enable you to sort information into appropriate groups and recognise which information has relevant connections to other kinds of information. In critical analysis, this helps you to compare the right things, so that you compare 'like with like'. This is necessary for constructing sophisticated arguments, such as in debate or for essays and reports. See also Chapter 4.

Comparisons

Drawing comparisons is essentially about finding similarities and identifying differences. The same two items may be considered to be similar or different depending on the context and the criteria used for comparison, as the following set of questions demonstrates.

Q1 What do these eight items have in common?

zebra cat puppy goldfish
whale kitten seal elephant

Q2 What do these items have in common which makes them different from the other items in the list in Q1?

cat goldfish kitten puppy

Q3 What do these items have in common which makes them different from other items in the list?

kitten puppy

The items in Q1 are all animals. Q2 has focused in on animals that are common domestic pets and Q3, on *young* domestic pets. In each case, the selection focuses in more detail on a narrower range of shared characteristics.

Salient characteristics

'Salient' simply means 'relevant to the argument'. In the above examples, your existing knowledge of animals and pets probably made it easy to

recognise the characteristics that the items in each group shared. When you recognise the characteristics that a set of items holds in common then, in effect, you are sorting these into groups, or categorising. A category is simply a group of items with shared characteristics. Any kind of category is possible: tall pointed objects; green vegetables; current prime ministers, etc.

Activity

Categorising

Identify the following categories (in other words, what does each group have in common?).

- (a) pond lake sea pool
- (b) Indian Irish Iranian Bolivian
- (c) lair den pen burrow hutch
- (d) biology chemistry physics geology
- (e) creates stellar engines soothes
- (f) decide deliver denounce devour
- (g) never seven cleverest severe
- (h) memory language problem-solving
- (i) appendicitis tonsillitis colonitis
- (j) rotor minim deed peep tenet
- (k) cheluviation illuviation leaching salination
- (l) 21 35 56 84 91
- (m) oligarchy exarchy plutarchy democracy
- (n) cete herd colony flock drove

Answers: p. 293.

Categorising involves not merely identifying shared salient characteristics, but also having the right background knowledge and vocabulary to label the group once identified. You may have found this an issue when trying to describe some of the groups above. Good background knowledge and vocabulary do make it easier to find, sort and use information at speed, making critical thinking more efficient.

The above items were easier to categorise because you already knew that they formed a category. This meant you only had to find the salient characteristics of ready-formed groups. Pattern-finding skills also make it easier to identify similarities when a group is not already formed.

Activity: Categorising text

For each of the following sets of three texts, identify which two carry the most similar message.

Passage 2.3

Matter

- (a) Different ages have classified matter in different ways. Aristotle's view was that all material substances consisted of air, earth, fire and water. This view held sway for a long time. Today, we describe liquids, solids and gases in terms of their chemical properties.
- (b) Systems for classifying matter have varied over time. Although we now analyse matter in terms of chemical properties, Aristotle's division into earth, fire, air and water was used for a long time.
- (c) Different ages have classified matter in different ways. Aristotle's view that all material substances consist of air, earth, fire and water was clearly erroneous and was replaced by the correct version we hold today. We describe liquids, solids and gases in terms of their chemical properties.

Passage 2.4

Anointing oil

- (a) When Elizabeth II was crowned queen of England, she was anointed with a mixture of essential oils (Worwood, 1999). A mixture of oils including cinnamon, rose, jasmine and civet was invented in the days of Egforth of Mercia, who was the first English king to be anointed in the manner of the Old Testament. This has been used ever since and is prepared by the royal physicians before a coronation.
- (b) The anointing of kings and queens has always been an aromatic affair. Coronation oil is prepared by royal physicians, and contains a mix of essential oils. For that of Elizabeth II, these included cinnamon, rose, jasmine, civet, musk and neroli. Such a mix of oils has been used for hundreds of years,

perhaps even all the way back to 785, when Egforth of Mercia was the first English king to be anointed in the manner of the Old Testament.

- (c) Essential oils have always played an important part in coronation rituals. When Elizabeth II was crowned queen of England, a mixture that included cinnamon, jasmine, benzoin and neroli was prepared by the Surgeon-Apothecary for anointing her in the manner of the Old Testament. It is possible that such ingredients were used even as long ago as 785, when Egforth of Mercia was crowned.

Passage 2.5

The right hemisphere

- (a) The brain controls our capacity to identify what is real. When either hemisphere is damaged, it is difficult for people to perform tasks such as differentiating their mother from a cupboard (Sachs, 1985). When the right hemisphere is damaged, some individuals lose their power of imagination. They also may not be able to envisage what problems they have. This is not the case with left hemisphere damage.
- (b) The right hemisphere of the brain controls the ability to recognise what is real in the outer world, such as differentiating your mother from your cupboard. When the right hemisphere is damaged, some individuals find it impossible to recognise or imagine the problem they have. This is not the case with left hemisphere damage.
- (c) Our capacity to recognise what is real is controlled by the brain's right hemisphere. If this is damaged, the individual may find it impossible to imagine what problems are created by the damage. Individuals with syndromes of the left hemisphere are able to grasp what problems are created by the syndrome.

Answers: see p. 294.

Close reading (1)

Critical thinking frequently requires you to read in very precise ways, paying attention to fine detail in order to make an accurate interpretation. This may require you to read more slowly, although, with practice, your critical reading skills can also become faster. This chapter provides practice in reading precisely.

In the activity below, you are required to answer a series of multiple-choice questions about a passage. There is a set of questions for each passage. Go through the passages in turn. You may find it helpful to check the answers for one passage before going on to another.

If you do not get all the answers correct, give some thought to where you were going wrong before moving on to the next passage.

Activity



For each statement, circle:

- A If this is consistent with what is said in the passage or follows logically from the information given.
- B If this is not consistent with what is said in the passage or does not follow logically from the information given.
- C If the passage does not give enough information for you to conclude whether a statement is true or follows logically from the information given. Consider what other information you would need.

Passage 2.6

Traditional legends

Traditional legends from the Americas are drawn from very diverse people and regions. They cover what would have been the particular experiences of many groups: coping with natural disasters, migrations, encounters with animals, journeys and events, distilled into myths in which many peoples can see their own story. The legends illustrate cosmic themes, such as the directions of North, South, East and West. Legends are not just quaint stories. They continue a tradition of beliefs and religion that link people culturally and ethically.

- 1 Legends serve social and cultural purposes.
A B C
- 2 The themes found in legends are common to many different peoples.
A B C
- 3 All legends address cosmic themes such as the directions of North, South, East and West.
A B C
- 4 The passage implies that if you understand these myths, you will have a better sense of direction.
A B C
- 5 Although different people produced the legends, the legends are all the same.
A B C
- 6 The passage suggests that people share common experiences and can see their stories reflected in the legends produced by others.
A B C

Answers: see p. 294.

Close reading (2)

Passage 2.7

Transformation

Disease and developmental disorders can bring about unexpected benefits. Whilst the conditions may bring unhappiness and pain, they can also bring us face to face with what we want the most out of life; many people have seen illness as a transformative event. Whilst certain opportunities close down, others can open up unexpectedly. Where certain neural pathways of the brain are blocked, for example, others may be forced into action, bringing about new ways of doing things, and sometimes even new ways of being.

7 People who travel a lot are more likely to get diseases.

A B C

8 Disease and developmental disorders are essential to neural development.

A B C

9 Most people find illness to be a transformative event.

A B C

10 If a person loses the capacity to perform an activity because of a disease, it is possible that they can learn an alternative method.

A B C

Passage 2.8

Clinical trials

Before a new pharmaceutical drug reaches the market, it must undergo clinical trials. The raw data from clinical trials of drugs are rarely published and what is published may be very misleading. The results of clinical trials that indicate that a drug is beneficial are likely to be published whereas tests that suggest the same drug is not effective are not published,

and the public do not get to hear about them. The result is that even academic articles written about new drugs, which are normally based on the same data, can be very inaccurate. Not only that, but even our understanding of what an illness is can become distorted. For example, it was widely believed that depression was caused by people having a serotonin deficiency. Clinical trials suggested taking drugs that raised serotonin levels would result in greatly reducing the risk of suicide. This is contested in *The New Brain Sciences* (Rose, 2004), which argues that such drugs, far from reducing the effect of suicide, may even increase its risk, and that there is very little evidence that depressive illness has anything to do with serotonin levels.

11 The reasons given to explain depressive illness are flawed.

A B C

12 Raw data from clinical trials are less likely to be published than the results of trials that indicate that a drug is beneficial.

A B C

13 Clinical trials are not undertaken frequently enough to establish whether the effects of drugs change as a person grows older.

A B C

14 Academic articles are normally more accurate than the results of trials produced by drug companies.

A B C

15 Decreased serotonin levels lead to an increased risk of suicide.

A B C

Answers: see p. 294.

Close reading and listening

Passage 2.9

Helping others

If a person carrying a cane collapses, they are likely to receive help very quickly. This suggests that people are altruistic, but not everyone receives such help. A third more people are likely to offer help to a person who appears to be lame than to those who are bleeding or have a facial disfigurement. If a person appears seriously wounded, helpers are more likely to offer indirect assistance by seeking more expert help. People are more likely to help if the cost of helping is low or if intervention is perceived as likely to be effective. Almost all potential helpers take flight if the victim appears drunk. However, in the USA, black people were more likely to help a black drunk and white people to help a white drunk (Piliavin et al., 1981). In other circumstances, there were no obvious racial differences in willingness to assist a victim.

- 16 If a drunk person is bleeding, they are less likely to receive help than if they are not.
- A B C
- 17 White people are generally more likely to help other white victims than black victims, except when they are drunk.
- A B C
- 18 People with facial disfigurements are less likely to receive help than people who are lame.
- A B C
- 19 People are more likely to help if they feel they can be of use.
- A B C
- 20 It is likely that people think either that the cost of helping a person with a cane is low or that help in such cases is likely to be effective.
- A B C

Check your method

If you did not get all the answers correct, give some thought to where you were going wrong before moving on to the next passage. If it is not obvious why you got an answer wrong:

- Read the passage several times, focusing on the lines related to the question you got wrong.
- Focus on the exact wording. Check whether you misread anything.
- Check whether you jumped to conclusions for which there isn't evidence in the passage.
- Check whether you read more into the passage than is actually written on the page or more than can logically be deduced from the information given.
- Did you bring other information to the passage which is not actually written down? The instructions are to use only information which is in the passage – not your general knowledge.

For other practice using close reading, see page 37.

Answers: see p. 294.

Activity



Close listening

Have a go at the close listening activities on the companion site. These are based on TED talks by Robert Waldinger (2015) and Sarah Lewis (2017). Answers are also provided on the companion site.

Summary: How well do you think?

- 1 We can enhance our critical thinking abilities.** It helps if we understand the underlying sub-skills, become more aware of where we need to improve, and then practise.
- 2 Increasing our conscious competence for criticality can help us.** It enables us to apply critical thinking to new and more challenging information, problems and situations.
- 3 You can train yourself to extend concentration.** This helps you to study for longer and more effectively, even for complex study tasks.
- 4 You can train your attentional processes.** This helps to heighten your awareness and focus, useful to many academic tasks as well as working life.
- 5 Categorising effectively assists critical thinking.** It helps ensure that you sort and compare 'like with like' in an even-handed way, which is important to making fair judgements.
- 6 Close reading and close listening are valuable skills.** They are essential to much critical analysis, such as for avoiding making unsubstantiated assumptions about meaning. They are useful in everyday life too.
- 7 You can assess your sub-skills.** In this chapter, you can check and practise your sub-skills for focusing attention, identifying similarities and differences, sequencing, categorising, following directions, and close reading and listening.
- 8 You can practise the sub-skills.** Activities to do this are provided in the chapter.

Learning outcomes

This chapter offers you opportunities to:

- ✓ identify the key components of an argument
- ✓ develop strategies for identifying reasons, conclusions and arguments within a message
- ✓ practise identifying simple arguments.

Introduction

Critical thinking focuses on 'argument'. This chapter looks at what is meant by 'argument' within the context of critical thinking, and how to recognise its key features. If you are able to detect the main argument, you are better able to direct your attention to the salient, or most appropriate, material. This enables you to direct your attention to the most relevant material, and to save time by reading and using resources more efficiently.

There are many short passages used in this chapter to help you practise critical thinking skills. It is worth noting that the activities may ask you to make judgements about the arguments, but none ask whether you agree with them. You might not agree with the reasons or conclusions given. However, critical thinking requires an evaluation of arguments in terms of the merit

of their formal features, such as the quality of the reasoning, and not whether these support our own opinions. Good critical thinking includes recognising good arguments even when we disagree with them, and poor arguments even when they support our own point of view.



Doug never recognised a good argument.

The author's position

When we read, watch television or listen to people talking, we are presented with other people's arguments. Underlying those arguments are points of view or 'positions' that they aim to convey to us, their audience.



Note how the positions of the authors above relate to the overall arguments opposite.

Key terms: Argument

The word 'argument' is used in two ways in critical thinking:

- **Contributing arguments** Individual reasons are referred to as 'arguments', 'contributing arguments' or 'supporting arguments'.
- **The overall argument** The overall argument presents the author's position. This is composed of contributing arguments, or reasons.
- **The 'line of reasoning'** This term is used to refer to a set of reasons, or contributing arguments, structured to support the overall argument

| Overall argument | Contributing arguments |
|---|---|
| (1) Longer prison sentences should be introduced. | Heavy punishments deter criminals. Current penalties for crime are too lenient and don't deter criminals. Since prison sentences were reduced, crime has increased. Victims need to see that perpetrators of crimes are punished. |

| Overall argument | Contributing arguments |
|---|---|
| (2) Increasing prison sentences is not the way to stop crime. | Crime was high even when punishments were more weighty. Prison teaches people how to be more skilled as criminals. Criminals who are imprisoned are more likely to take part in increasingly serious crime when released. Most crime is committed by people who are illiterate and lack work-related skills. Education rather than punishment is needed. |

| Overall argument | Contributing arguments |
|---------------------------------------|---|
| (3) We should invest in space travel. | Many discoveries have come about through space travel. It is important for us to learn more about the universe we live in. The fuel needed for space travel may not be around for much longer so we should use it while we have the chance. |

| Overall argument | Contributing arguments |
|---|---|
| (4) We should stop investing in space travel. | Space travel is expensive and the costs far outweigh the benefits. There are much more urgent projects that need investment more than space travel. Better alternatives for fuel for space travel may be available in the future. |

Activity: Capturing the author's position

Activity



Read through the following passages and identify the author's position:

- Skim quickly over the passage and note your first impressions, aiming to capture the author's position (the main message of the passage).
- Follow up your rapid read by closer reading to check whether you were right. This will give you an idea of how accurately you capture a message when reading at speed.

Passage 3.1

Barristers do not have much direct contact with their clients, but it is possible to find a legal job that suits your preferences for court work. However, if an aspiring barrister wants to spend time in court, they need to select their field carefully, to see if the work patterns associated with it match their preferences. Every field is different. Criminal lawyers may spend most of their time in court. Tax lawyers, on the other hand, may spend only a day a month or less in court. Advocacy work requires less time in court than in the office.

Passage 3.2

The nature and origin of disease was unclear until relatively recently. At the end of the nineteenth century, Koch, a Prussian scientist, introduced a set of procedures now known as *Koch's postulates*. He experimented with bacterial colonies cultivated in the laboratory, made from the blood of dying cattle. When these cultures were injected into healthy live cattle, these also caught the same disease. At the time, these findings were astonishing. Koch had been able to provide proof to support the theory that disease was spread by germs. He contributed one of the most important methodological advances in the history of medicine.

Passage 3.3

The Sahara is a region worthy of serious investigation by travellers interested in the past. Ancient architectures are no doubt hidden beneath the Saharan sands. Somewhere in the eastern Sahara, there may lie the long-lost oasis of Zorzura. In the west, there lies the fabled city of Timbuktu. Many have tried to find traces of the cultures that once straddled the great area covered by the desert (Sattin, 2004).

Passage 3.4

It was initially believed that young children could not understand other people's points of view or undertake tasks such as counting and measuring until they were at least seven years of age. However, it seems the problem does not lie in children's capacity to do these things so much as in their understanding of what is being asked and why. If there is no obvious purpose, or they do not understand the language used, children find tasks difficult. Even young children can perform tasks formerly considered too advanced for them, as long as these are set up in ways that make sense to them (Donaldson, 1978). Problems that involve teddies or drinks, for example, may be meaningful to a very young child, whereas tasks with counters and beakers are not.

Answers: see p. 295.

Further Activity



Read the introduction and conclusion of three books or articles in your subject.

How well does the introduction present the author's position: is it clear what the author is trying to persuade you to accept?

How well does the conclusion make clear what the author's position is?

Argument: Persuasion through reasons

Persuasion and reasons

In everyday language, an 'argument' can suggest poor communication, a difficult relationship, hard feelings and, possibly, aggression.

This is not the case with argument as part of critical thinking, where an 'argument' merely means presenting reasons to support your position or point of view. If other people accept those reasons, they are more likely to be persuaded to your point of view.

An argument includes:

- a position or point of view;
- an attempt to persuade others to accept that point of view;
- reasons given to support the point of view. Ideally, reasons are organised into a logical and persuasive sequence, referred to as the 'line of reasoning'.

To identify an argument, it is useful to keep in mind such questions as:

- 'What was the point of producing this text, programme, video, blog, or programme?'
- 'What is the main message I am supposed to take from this?'
- 'What does the author/producer want me to believe, accept or do?'
- 'What reasons have they offered to support their position?'

In most circumstances, authors aim to persuade us to a particular point of view because they believe in what they are saying. However, in some cases, they might have an obvious or a hidden vested interest. It might be that they have a long-standing rivalry with academics from a different school of thought. It might be that they work for a company that wants the audience to buy its products or to subscribe to a particular view on health or pollution or genetics. They might be social media 'influencers' who gain rewards from companies for promoting their products or views. Their interests might be indirect, such as to benefit a relative, friend or colleague.

Authors might also intentionally, or unintentionally, interpret information through the filter of their own political, religious or ideological perspectives. That doesn't necessarily make their argument invalid, but it is often important to know their theoretical position in order to identify the influences on their line of reasoning.

Ambiguous arguments

Sometimes, for everyday purposes, a statement may be clear and uncontroversial. For example:

- 'It's raining' – when clearly it is raining.
- 'Everyone who ate the fish is ill' – when this is an observation of fact.
- 'I ran a mile in 4 minutes' – when this has been timed and observed.

More often, there are complexities in what we hear, see and read. It might not be obvious what point someone is trying to make, or we might suspect that there are half-truths in what they say. We recognise this in speech when we make comments such as 'What's your point?' or 'What are you trying to say?' We might wonder how someone has arrived at a particular conclusion: what they say just doesn't seem to 'add up'. When this is obvious, we may be able to point it out and resolve the misunderstanding.

However, when we are reading books or watching television, the author isn't available to answer queries about what is meant. The argument might be very complicated and it can take time to clarify the line of reasoning through careful analysis and close reading or observation. The author might also have presented the information in such a way that the lack of evidence, the illogical arguments or false conclusions are not immediately apparent. Critical thinking skills are then particularly important because we cannot always ask directly for explanations and clarifications.

Identifying the argument (1)

Key terms: Proposition, conclusion and contention

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.

Conclusion Reasoning should lead towards an end point, which is the conclusion. The conclusion should normally relate closely to the author's main position.

Contention You might also come across this term, used to express an assertion such as a belief, idea, opinion or point of view. This might be presented as the conclusion or the 'position' of an author or producer. See also page 185 (Chapter 11).

This section looks at ways of isolating key information in a passage in order to identify the argument. You may find it useful to check the glossary of terms on page xviii before proceeding. Before you read on, see if you can identify the main argument in Passage 3.5.

Passage 3.5

This area has become well known, but for unfortunate reasons. The junction of Green Road and Mill Street has been the site of over a dozen major road traffic accidents in the last five years as drivers take the corner too quickly. A local artist has made a rather grim photographic record of all the main accidents that have taken place. Some tourists have been victims. New speed cameras have now been placed at the corner of the road and this will reduce the number of accidents.

You may have noticed that some statements and pieces of information in Passage 3.5 add to our knowledge of the accident site but do not

contribute to the overall argument. This general background and detail is highlighted in italics.

This area has become well known, but for unfortunate reasons. The junction of Green Road and Mill Street has been the site of over a dozen major road traffic accidents in the last five years as drivers take the corner too quickly. *A local artist has made a rather grim photographic record of all the main accidents that have taken place. Some tourists have been victims.* New speed cameras have now been placed at the corner of the road and this will reduce the number of accidents.

If we remove these, the propositions, or main statements of the argument, become clearer:

The junction of Green Road and Mill Street has been the site of over a dozen major road traffic accidents in the last five years as drivers take the corner too quickly. New speed cameras have now been placed at the corner of the road and this will reduce the number of accidents.

We can then isolate the main points in our own words:

- *Proposition 1:* Many road traffic accidents occur at the junction of Green Road and Mill Street.
- *Proposition 2:* Drivers take the corner too quickly.
- *Proposition 3:* New speed cameras are in place at the junction.
- *Conclusion:* There should now be fewer accidents.
- *Overall argument:* Speed cameras will reduce the number of accidents at the junction.

The overall argument becomes more obvious when the propositions and the conclusion are identified.

Identifying the argument (2)

Key terms: Premises; predicate

Premises Propositions believed to be true and used as the bases for the argument; the basic building blocks for the argument.

False premise A proposition that later turns out not to be true or correct.

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.*

For Passage 3.5, we can say further that:

- This is an argument because reasons are given to support a conclusion. The reasons supporting the conclusion are:
 - that drivers drive too quickly around the corner;
 - and that accidents happen as a consequence.
- The argument is based, or ‘predicated’, on the assumption that drivers will take notice of the speed cameras and reduce their speed on that corner. If you disagree with this, you might consider that the conclusion is predicated on a ‘false premise’.

Before you read on, see if you can identify the main argument in Passage 3.6a.

As before, general background and detail is highlighted in italics in Passage 3.6b, so that the key points in the argument stand out more clearly. As you read Passage 3.6b, consider whether the conclusion comes at the beginning, the end or elsewhere within the text.

Passage 3.6a

Pit’s End should become a site of major archaeological importance. Formerly, it was believed that the three large granite stones found near the village were deposited after the melting of glaciers at the end of the last ice age. Eleven new stones were unearthed during recent excavations. The area had been covered in farmland. Aerial photography suggested that the area was worthy of excavation. The layout of the 14 stones suggests they were originally part of an unusual oval formation. They are spaced evenly at approximately two metres, which suggests they were laid out by a former settlement, possibly for religious purposes. Geologists confirm they are unlikely to have been laid down by glacial or other natural causes. Tools unearthed there recently are amongst the oldest ever discovered in this country, making them of significant interest. The dig has been funded by the national lottery.

Passage 3.6b

Background information

Pit’s End should become a site of major archaeological importance. *Formerly, it was believed that the three large granite stones found near the village were deposited after the melting of glaciers at the end of the last ice age.* Eleven new stones were unearthed *during recent excavations.* *The area had been covered in farmland.* *Aerial photography suggested that the area was worthy of excavation.* The layout of the 14 stones suggests they were originally part of an unusual oval formation. They are spaced evenly at approximately two metres, which suggests they were laid out by a former settlement, possibly for religious purposes. Geologists confirm they are unlikely to have been laid down by glacial or other natural causes. Tools unearthed there recently are amongst the oldest ever discovered in this country, making them of significant interest. *The dig has been funded by the national lottery.*

Identifying the argument (3)

If we remove the general background material from Passage 3.6a, the premises and the conclusion become clearer:

Passage 3.6c

Pit's End should become a site of major archaeological importance. Eleven new stones were unearthed. The layout of the 14 stones suggests they were originally part of an unusual oval formation. They are spaced evenly at approximately two metres, which suggests they were laid out by a former settlement, possibly for religious purposes. Geologists confirm they are unlikely to have been laid down by glacial or other natural causes. Tools unearthed there recently are amongst the oldest ever discovered in this country, making them of significant interest.

We can then isolate the main points, and give them in our own words. Note that the conclusion comes at the beginning of the argument in this instance, and the reasons to support the point of view then follow:

- **Conclusion:** Pit's End should become a site of major archaeological importance.
- **Proposition 1:** 11 new stones have been unearthed that change what was previously known about the area.
- **Proposition 2:** The oval layout of the total 14 stones is unusual.
- **Proposition 3:** The even spacing of the stones suggests they were laid down as part of a human settlement.
- **Proposition 4:** The stones are unlikely to have been laid down by natural causes.
- **Proposition 5:** Tools unearthed there recently are amongst the oldest ever discovered in this country.
- **Argument:** The unusual oval stone formation and the very ancient tools found at Pit's End should make it into a site of great archaeological importance.

While we are looking at this passage we can say further that:

- This is an argument because reasons are given to support a conclusion. The reasons given are that the stones form part of an unusual man-made formation, and that the tools are amongst the oldest in the country. These are likely to create interest.
- The argument is predicated on the assumption that the stone formation dates back to the time of the tools or pre-dates them. However, this may be a false premise as the stones could have been laid down later. That may influence whether the site is interesting archaeologically.



You can see that when presented with a string of information such as in each of the passages above, it isn't always immediately obvious what are propositions, what is the conclusion, and what is simply additional or irrelevant information. If you search out the conclusion first, it is easier to identify the relevant supporting information.

TIP

Search for the conclusions first, and the key messages may become clear quickly.



Activity: Identifying simple arguments

Activity

Read through the passages. Identify which are arguments, and which are not. If you are unsure, re-order the sentences to see if that helps you identify a conclusion and supporting reasons.

Passage 3.7

I like that picture. The colours create the powerful effect of a sunset, which is pleasant to look at. The figures are interesting and very well drawn. It is a good picture.

Passage 3.8

Biscuits can be bad for your teeth. We often eat mid-morning when the effects of breakfast have worn off. Biscuit companies, like other food manufacturers, require their employees to wear hats to hold back their hair for health and safety reasons.

Passage 3.9

Quantum physics has identified many more dimensions than height, width, depth and time, which most people are familiar with. Such research can take a long time. Discoveries have also been made on other aspects of the time-space continuum.

Passage 3.10

The Pied Piper played a magical pipe and the side of the mountain opened. He encouraged the children from the town to enter into the mountain, which closed behind them so they were lost forever. Their parents never saw them again and he intended this to be the case. The Pied Piper was angry at the townspeople because they refused to pay him for removing rats from the town. His action wasn't accidental; it was one of revenge.

Passage 3.11

The train is late. There must have been a signal failure.

Passage 3.12

The eclipse was expected over Scotland at 9 a.m. yesterday. Lots of people turned up. The sky was still visible when they arrived but it became cloudy. When you watch an eclipse, you have to protect your eyes and you mustn't look directly at the sun.

Passage 3.13

The windows rattled and the doors banged. The air felt charged. We were all frightened. A strange sound filled the air. It must have been a ghost.



Passage 3.14

Many adults learn to read later in life. Although John and Miranda found it difficult to read as children, as adults they caught up with their peers. They enjoyed attending local literacy classes. Almost a million people have improved their literacy skills through adult classes in recent years.

Passage 3.15

Plants need nitrogen in order to grow. Although there is nitrogen in the air, plants cannot absorb it by taking it in from the air. Instead, they are reliant on bacteria in the soil to absorb nitrogen in a process known as 'nitrogen fixation'. The bacteria turn the nitrogen into nitrates which are easier for plants to absorb through their roots.

Answers: see pp. 295–6.

Activity: Reasons and conclusions

Activity

Identify the main argument, reasons and conclusions for the following passages. It may help to highlight the reasons and conclusions with a marker pen.



Passage 3.16

A human skeleton was found near the river late last month by a senior couple walking their dog. They believed it was a murder caused by a troublesome local family. The police interviewed the family but ruled out their involvement. The bones are believed to be several hundred years old. Historians confirm that the river Marle passes close to ancient burial grounds and that there are records of other bodies being carried away by the river in the distant past. This was the first for over 150 years. Recent storms have caused the river to rise by half a metre. It is probable that the skeleton was dislodged from its resting place by the river rather than murdered by the local family.

Passage 3.17

There are only 60 species of monocotyledons, more usually known as sea grasses. Nonetheless, sea grasses make important contributions to the coastal ecosystems of every continent except Antarctica. This wasn't discovered until the end of the twentieth century. In shallow waters such as estuaries and bays, sea grasses are indeed the most dominant form of vegetation, supporting a host of marine life. They act as nurseries for fish, including commercial varieties. Moreover, without sea grasses, the bio-diversity of coastal regions would be severely impoverished. The United Nations sponsored the *World Atlas of Sea Grasses* (Green and Short, 2004) to raise awareness of their importance.

Passage 3.18

According to Csikszentmihalyi (1992), fundamental unhappiness arises in today's world because we are too ruled by the way the world is, rather than the way it ought to be. Although most of us know we gain from being kind, supportive and considerate, we forget this very quickly. We act to satisfy our wants, even though we know there are people who have nothing. We consider them to be far away or less important than ourselves and so we buy another phone or pair of trainers rather than give money to strangers. We often ignore basic rules which help to keep the environment in balance. For example, we know carbon-based resources are in short supply and yet we use coal, gas and oil as if they were limitless. When we do this, there are consequences which bring unhappiness. In our everyday lives, we often focus on instant rewards and short-term gains, without thinking of the long-term consequences for human happiness. The challenge facing humans is to find a way of acting more co-operatively with each other and more in harmony with our universe.

Passage 3.19

It is important that pregnant women and those with poor immune systems become aware of the potential risks posed by cats. Many of us keep cats as house pets without realising the dangers they may be harbouring. Cats are host to infectious *toxoplasma gondii*, protozoa that cause disease, toxoplasmosis, in mammals such as humans. The protozoa are crescent-shaped and common in nature, but in the infectious stage rely on cats as host bodies. Adult humans rarely show signs of significant disease if they become infected. However, if pregnant women become infected, the foetus can become infected by parasites and suffer serious congenital damage. In the worst cases, infants may lose their eye-sight and acquire motor deficits. In people with poor immune systems or AIDS, toxoplasmosis can cause seizures and death. The symptoms of the disease are not evident in cats so there is no way of knowing if a particular cat is a risk.

Answers: see p. 296.

Hunting out the conclusion

Key terms: Conclusions as deductions

In critical thinking, a conclusion is usually a deduction, which draws together the argument, and makes a reasoned assumption about how to interpret the propositions. It may offer an interpretation about what something means, or the best course of action to take.

Activity

Before reading on, check how skilled you are at spotting signals that indicate the conclusion. Look again at Passages 3.5–3.6 and look at Passages 3.16–3.19. For each, identify what signals the conclusion. Then read the commentary.



Commentary

Location of the conclusion

The end of the passage is a good place to start looking for a conclusion, as in Passages 3.5, 3.16 and 3.18. Some authors prefer to state their reasons first. They then sum these up as part of their conclusion before going on to make a deduction about the significance of the reasoning.

However, it is useful to check the opening sentences of a passage too, as in Passages 3.6, 3.17 and 3.19. Some authors choose to state the conclusion near the beginning to establish their position. They then provide the reasons to back it up, showing how they arrived at the deductions they have made.

Conclusions as interpretative summaries

In Passage 3.16, the conclusion is also an interpretive summary. The final sentence pulls together the information from the passage, which has built the case for the logical deduction about what has occurred. A conclusion in critical thinking is more than a mere summary.

However, a summary can form part of a conclusion. In Passage 3.16, the conclusion is more than just a summary as:

- it contains a selection of salient points which provide an interpretation of events;
- it also makes a judgement about the likelihood of this interpretation.

The author uses these devices to persuade the reader to accept the interpretation offered.

Challenges and recommendations

The conclusions in Passages 3.18 and 3.19 make challenges or recommendations. These are deductions about actions that need to be taken to achieve a desired effect. Such deductions often signal the conclusion.

Signal words

Authors can use words to 'signal', or indicate, that a conclusion is about to be made, such as 'nonetheless' in Passage 3.17. Such words are not always followed by a conclusion, but they signal that it is worth checking. Look for words such as: 'therefore', 'so', 'as a consequence', 'finally', or other phrases that imply 'therefore'. See also page 167.

Words that indicate deduction

As a conclusion is concerned with making deductions, it is worth looking for other words that indicate that the author is making a deduction. These include phrases such as 'this ought to', 'as a result', 'this will', 'this would have', 'this should', 'this must', 'this means that', 'in effect'. Remember to look for words that express this in the negative too, such as 'this ought never to', 'this should never'.

Examples

Passage 3.5: *this will reduce the number of accidents*

Passage 3.6: *Pit's End should become a site of major archaeological importance.*

Summary of features

Not all messages contain an argument. When we are reading or listening to a message critically, we can save time if we check for the key features of an argument. Later in the book, we will be looking at implicit arguments, where the argument may be hidden. Here, we are concerned with explicit arguments, where the argument is expressed in a relatively open way. So far, we have identified six items to look for in identifying an argument. These are summarised in the table.

| Is it an argument? | |
|----------------------------|--|
| 1 Position | Authors have a position, or point of view that they attempt to persuade their audience to accept. |
| 2 Reasons/ propositions | Reasons are provided to support the conclusion. Reasons are also referred to as 'contributing arguments', 'propositions' and 'supporting arguments'. |
| 3 A line of reasoning | A line of reasoning is a set of reasons, presented in logical order. It is like a path leading the audience through the reasons, in steps, towards the desired conclusion. It should be ordered so that it leads clearly and logically from one reason to the next. In a poor line of reasoning, it is difficult to see how each reason contributes to the conclusion. |
| 4 Conclusion | Arguments lead towards a conclusion. The conclusion would normally be the position that the author wants you to accept. However, it is possible that the conclusion stated does not support the position that the author is advocating. |
| 5 Persuasion | The purpose of an argument is to persuade the audience to a point of view. |
| 6 Signal words and phrases | These help the audience follow the direction of the argument. |

Locating the conclusion

There are short-cuts we can take to help us locate the main conclusion within a passage more quickly. These are only indicators of where to look as the author may not have chosen to use any of these methods to signal the conclusion.

| Clues to finding the conclusion | |
|----------------------------------|---|
| 1 Start of passage | Conclusions are often set out or indicated early in the message, such as in the first or second sentence, or in the initial paragraph. |
| 2 The end of a passage | Conclusions are frequently located towards the end of a message, such as in the final or penultimate sentence or paragraph. |
| 3 Interpretive summary | Look for a summary that interprets the line of reasoning and/or makes deductions, often towards the end of a text where all the evidence is brought together. However, note page 51: summaries are not always conclusions to arguments. |
| 4 Signal words | Look for words used to indicate that a conclusion is about to follow. See pages 163 and 167. |
| 5 Challenges and recommendations | These often form part of the conclusion. They often contain the author's position or point towards it. |
| 6 Words indicating a deduction | Look for words that express a probable or possible outcome or interpretation. |

Summary: What's their point?

1 Critical thinking focuses on 'argument'.

Argument has particular meanings when used in that context, which is unlike some everyday usage of the word.

2 An argument consists of several components. These include a 'position', conclusion, and reasons leading to that conclusion.

3 An argument sets out to persuade. The function of the reasons is to persuade others to accept the conclusions drawn from them.

4 The purpose of a message might not be explicit. It might not be obvious what

it is that the author/producer means to convey. It is useful to identify this as early as possible, in order to follow an argument.

5 An argument can be encased within other material. It helps to isolate the salient steps in the argument from background and other extraneous material.

6 Locating the conclusion helps to identify the argument. This helps you to identify relevant reasoning and to establish the position of the author/piece.

7 Use the clues. Understanding the features of an argument can help with locating the conclusion.

Learning outcomes

This chapter gives you opportunities to:

- ✓ understand the distinction between argument and disagreement
- ✓ recognise forms of non-argument such as summaries, explanations and descriptions
- ✓ distinguish analytical writing from descriptive writing
- ✓ select relevant material from extraneous material.

Introduction

We saw in Chapter 3 that an argument consists of particular features. However, other messages may also contain some of those features without being an argument. This chapter looks at messages that are sometimes confused with argument, such as disagreement, description, summary and explanation.

Why does this matter?

Being aware of what is not an argument helps critical analysis by enabling you to categorise different types of material. This, in turn, helps you to find your way around a text or other material more effectively. The most important material is often contained within the argument, so it helps if you can find it quickly.

Critical thinking involves distinguishing what is really relevant from other forms of information. When considering argument, it is easy to be distracted by surrounding material so that you miss the point. If you can distinguish the argument from other material, you can:

- focus your attention more accurately and make better use of your time;
- ensure that your own response is directed to the most appropriate material;
- save the effort of criticising a point of view unnecessarily simply because you missed the point;
- select relevant information more effectively to cite in your own writing and reports.

For assignments

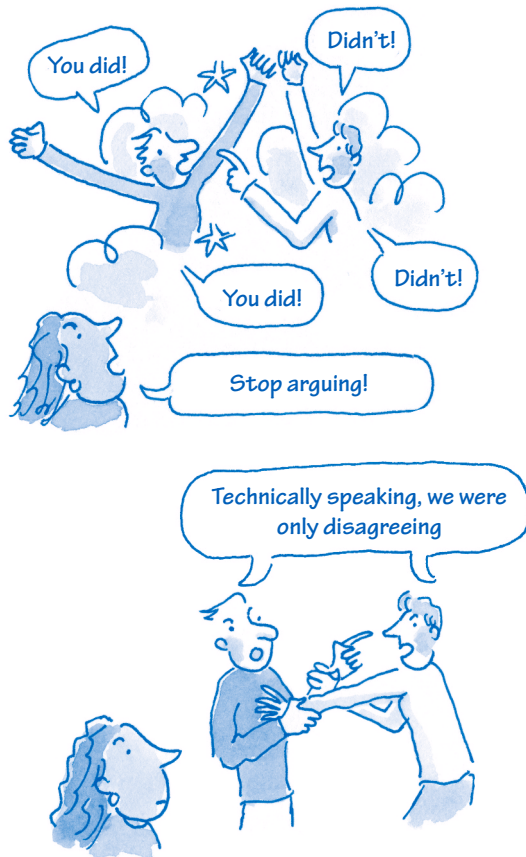
It is also beneficial to your own student assignments to be able to check whether what you have written constitutes an argument. Higher grades are generally awarded for the argument than for these other aspects of an assignment. Frequently, students achieve lower grades because they think they have written a strong argument when what they have produced is, in practice, a summary of what they have read, or a description of a process or a situation.

Argument and disagreement

Argument is not the same as disagreement. You can disagree with someone else's position without pointing out why you disagree or persuading them to think differently. In critical thinking, there is a distinction between a position, an agreement, a disagreement, and an argument.

Key terms

- **Position** A point of view.
- **Agreement** Concurring with someone else's point of view.
- **Disagreement** Holding a different point of view from someone else.
- **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.



Example

- **Position:** Genetic engineering really worries me. I don't think it should be allowed. [No reasons are given so this is simply a position.]
 - **Agreement 1:** I don't know much about genetic engineering but I agree with you.
- Or
- **Agreement 2:** I know a lot about this subject and I agree with you. [No reasons are given so these are simply agreements.]
- **Disagreement:** That doesn't convince me. I think genetic engineering is really exciting. [No reasons are given so this is simply a disagreement.]
- Or
- **Argument 1:** Genetic engineering should be curtailed because there hasn't been sufficient research into what happens when new varieties are created without natural predators to hold them in check.
 - **Argument 2:** The possibilities for improving health and longevity through genetic engineering offer hope to sufferers of many conditions that currently don't have an effective cure. We should be pushing ahead to help these people as quickly as we can.

The two arguments above use reasons for the position held, to persuade others to the point of view. Note that these are simple arguments: they don't have extended lines of reasoning and they don't present any evidence to support their case. Without these, the power of the argument would have to depend on other factors such as tone of voice, body language, or insider knowledge about the listener, such as that they had a vested interest in the outcome.

Activity: Argument and disagreement

Activity

Identify for each whether the author is presenting:

- A an argument, and if so, say why;
- B a disagreement.



Passage 4.1

Bilingualism and multilingualism confer many benefits. Speakers of more than one language have a better understanding of how languages are structured because they can compare across two different systems. People who speak only one language lack this essential point of reference. In many cases, a second language can help people to have a better understanding and appreciation of their first language.

A B

Passage 4.2

Complementary therapies are an increasingly popular supplement to other forms of treatment. Those who use these therapies argue that treatments such as reflexology, homeopathy and shiatsu complement the care provided by the medical profession. Indeed, some people claim that these therapies are more effective than traditional medicines. Anecdotal cases of miraculous cures abound and there are those who believe such methods can compete on equal terms with medical approaches. This just isn't convincing.

A B

Passage 4.3

Several young people die each year training for the construction trades. Legislation is in place to cover health and safety at work, but some employers argue that this is too expensive to implement and onerous to monitor. They say that young people are not responsible enough at work and that there is nothing further they can do to prevent their deaths. That cannot be a good argument.

A B

Passage 4.4

People are less politically aware now than they have been at any time in the past. For hundreds of years, people took great personal risks to fight for causes that would benefit other people more than themselves. This rarely happens today. As late as the 1980s, there were frequent rallies with people in one country demonstrating to show solidarity with people elsewhere. Now, rallies are more likely to be for personal gain such as better salaries or student grants rather than for political issues of wider application. Even low-risk activities such as voting in elections attract low turn-outs.

A B

Passage 4.5

Sea-levels have risen and fallen for generations, as have temperatures. Research suggests that global warming, if it is indeed occurring, is primarily the result of natural changes in the earth's temperature and the effects of solar winds. It is now claimed that industrialisation and the burning of hydro-carbons have little effect upon climatic change. My contention is that arguments against global warming are dangerous.

A B

Passage 4.6

I cannot agree with people who say that smacking children does them no harm. Of course it harms them, both physically and emotionally. Hitting another person is assault and it would not be tolerated against an adult. Many adults have no sense of the cruelty of smacking precisely because they were smacked themselves as children and erroneously regard this as normal. They then go on to assault other vulnerable people, perpetuating a vicious cycle.

A B

Answers: see p. 297.

Non-arguments: Description

Descriptions

Descriptions give an account of *how* something is done, or *what* something is like. They do not give reasoned accounts of how or why something occurred nor do they evaluate outcomes. In reports and academic writing, description should be factual, accurate and free of value judgements. Description is sometimes confused with critical analysis as both can investigate an issue in detail. Descriptive detail is not intended to persuade to a point of view but aims, rather, to give the audience a more thorough impression or understanding of the item, method or issue being described.

Example

The solution was placed in a test-tube and heated to 35° centigrade. Small amounts of yellow vapour were emitted. These were odourless. Forty millilitres of water were added to the solution, which was then heated until it began to boil. This time, grey steam was emitted. Water droplets gathered on the side of the test-tube.

This describes the steps taken in an experiment. Careful description of methodological procedures is an important part of writing up any kind of experimental research. No reasons are given for what happened. That critical analysis of the results would be in a separate part of the report.

Example

Barrell (1980) refers to painting that depicts several figures gathered around a cottage and in the fields. These figures are dressed in peasant dress. All of them are located in the shadows either of the house or of the trees. It is not possible to make out any individual features on their faces or in their clothing. By contrast, the figures of the noblemen who commissioned the painting are dressed in fine and individualised apparel. These figures are all located in the foreground of the painting, in full sunshine, and their facial features are clearly distinguishable.

This passage describes some salient features of a landscape painting. The details that the author has chosen to select suggest a point of view. However, this is not made explicit. If a conclusion was added, these details might provide useful propositions to support an argument about the way rich and poor people are depicted differently in art at a particular time and place. However, the passage does not contain a conclusion and so is a description rather than an argument.

Example

Usually, when people see an object that is familiar to them, such as an elephant, a tree, a bowl, a computer, they grasp immediately what it is. They recognise the overall pattern that the object makes and don't need to work out from other sensory information such as sounds, smell and colour, what the whole object might be. However, people with a condition known as visual agnosia cannot see a whole pattern in this way: they cannot recognise objects visually. If they traced the outline of the object with their hand, they might recognise an elephant, but they can't see an elephant. They can see, and they know they are seeing something, but they can't see an elephant.

In this instance, the author is describing what the condition of visual agnosia is like. The passage is a report of the facts, as far as they were known at the time of writing. The author is not trying to persuade the audience to a point of view. You can check this by looking through the passage for an argument and reasons to support it. The word 'however', which is often associated with a change in the direction of an argument, is used here to indicate a change in the direction of the description of how vision works.

Non-arguments: Explanations and summaries

Non-arguments can look like arguments, especially if they:

- result in a final conclusion;
- use the same signal words as an argument in order to help the flow of the writing.

Explanations

Explanations can appear to have the structure of an argument. They may include statements and reasons, leading to a final conclusion, and be introduced by signal words similar to those used for arguments. However, explanations do not attempt to persuade the audience to a point of view. They are used to:

- account for why or how something occurs;
- draw out the meaning of a theory, argument or other message.

Example

It was found that many drivers become drowsy when travelling and that long hours at the wheel were a major cause of accidents. As a result, more stopping places were set up along motorways to enable drivers to take a break.

The above example explains why more stopping places were set up along motorways.

Example

The children ate the mushrooms because they looked similar to those found in supermarkets and on the dinner table. They hadn't been taught to discriminate between safe and dangerous fungi and hadn't been told not to eat mushrooms found in hedgerows.

The above example explains why children ate dangerous mushrooms. If there were an additional sentence, such as 'therefore we need to educate children about fungi', this would become an argument, and the explanation would become a reason.

Summaries

Summaries are reduced versions of longer messages or texts. Typically, a summary repeats the key points as a reminder of what has been said already, drawing attention to the most important aspects. A conclusion may include a summary of what has been said already. New material is not usually introduced in a summary.

In the example below, the text is a list of instructions for making a cake. It does not constitute an argument. The final sentence is merely a summary of what has already been stated. The word 'therefore', which often indicates the conclusion of an argument, here simply introduces the final summary.

Example

For this cake, you need equal weights of self-raising flour, margarine and sugar. Add one egg for approximately each 50 grams of flour. Place all the ingredients in a bowl and beat furiously for three minutes. Blend the ingredients well. Pour into a greased tin and cook in the oven at 190°C for 20 mins until it is risen, golden brown and coming away from the sides of the tin. Different ovens may require different timings. Leave to cool before adding decoration such as jam and cream. Therefore, to make the cake, simply buy the ingredients, mix well, cook at 190°C, leave to cool and decorate to taste.

The passage below is a summary of Passage 3.18 (p. 43).

Example

Csikszentmihalyi (1992) argues that there is unhappiness around because we do not focus enough on how we want the world to be. Because of this, we act selfishly and focus on short-term gains, ignoring the longer-term consequences for other people and the environment. His answer is to live more in harmony with the wider world around us.

Activity: What type of message?

Activity

Read the passages, and identify whether each is an example of an argument, a summary, an explanation or a description. How do you know?



Passage 4.7

The solar system is an inhospitable place not just for humans but also for machines. Despite this, over 8000 satellites and spacecraft were launched into space from more than 30 countries between 1957 and 2004. Over 350 people have hurtled through space, not all returning to earth. Launch sites based near the equator, such as that at Kourou in Guyana, enable rockets to make best use of the earth's rotation.

Passage 4.8

New-born babies may lack the capacity to monitor their own breathing and body-temperature during the first three months of life. Babies who sleep alongside their mothers could benefit from learning to regulate their breathing and sleeping, following the rhythm of the parent. These babies wake more frequently than those who sleep alone. Moreover, mothers who sleep next to their babies are better able to monitor their child for movement during the night. Consequently, it may be safer for new-born babies to sleep with their parents.

Passage 4.9

The article by Farrar (2004a) outlined the difference between individual yawns and infectious yawning. It referred particularly to research by Professor Platek which suggests that only humans and great apes yawn sympathetically. The article went on to say that people who yawn more easily in response to other people's yawns are also more likely to be good at inferring other people's states of mind. Finally, the article indicates some social benefits of yawning, suggesting that contagious yawning might have helped groups to synchronise their behaviour.

Passage 4.10

The village was located near the outer reaches of the city. The city was starting to encroach upon it, swallowing it up, road by road. It would not be long before the village disappeared altogether, to become part of the huge conurbation forming on the eastern seaboard. To the west, hills enclosed the village, trapping it between the city and the mountains beyond. A single road led out from the city, through the village and into the mountains.

Passage 4.11

Both of the toy mice were the same size and shape so the dog was confused. Although one mouse was red and one was blue, Misty was unable to tell which mouse was his toy simply by looking. Like other dogs, he needed to sniff them both, using his sense of smell to tell them apart, because he couldn't discriminate between different colours.

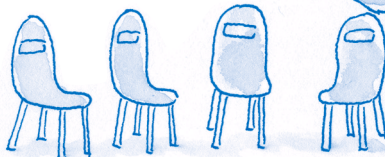
Passage 4.12

Shakespeare's *Romeo and Juliet* is set in Verona in Italy. At the beginning of the play, Romeo is pining for another young woman, but quickly falls for Juliet at a ball. Although their two families are hostile to each other, Romeo and Juliet enlist the services of their friends and a friar to bring about their marriage. Unfortunately, in a tragic turn of events, they each kill themselves, believing the other to be already dead.

Answers: see p. 297.

Passage 4.13

There were many reasons why the student was an hour late for the seminar. First of all, a pan caught fire, causing a minor disaster in his kitchen. It took 20 minutes to restore order. Then, he couldn't find his housekeys. That wasted another 10 minutes of his time. Then, just as he closed the door behind him, the postwoman arrived, saying there was a parcel to be signed for. Her device didn't work which held them up further. Finally, of course, he had to find his keys, which had once more slipped to the bottom of his bag, in order to re-open the door and place the letter on the table.



Passage 4.14

According to Farrar (2004b), it was not until 2003 that the first Ice Age engravings of horses, red deer and bison were discovered at Cresswell Crags in Nottinghamshire, England. However, the oversight occurred partly because it was assumed that such work was not to be found in Britain. Indeed, in the initial survey of the cave, the experts did not notice the art that surrounded them.

Passage 4.15

The bas relief images of horses, bison and red deer found in Cresswell Crags, England, bear remarkable similarities to those found in Germany. It is unlikely that two separate cultures would have produced drawing of such similarity if there were no links between them. This suggests that there were greater cultural links between continental Europe and Britain during the Ice Age than was formerly believed.

Passage 4.16

Recently, Ice Age specialists were excited to find evidence of some cultural links between Ice Age peoples across Europe. On a return visit to Cresswell Crags in England, they found images of horses, bison, and red deer similar to those already found in Germany. There is much controversy about other figures found on cave walls, which some experts believe to be images of dancing women, whereas others remain unconvinced.

Answers on p. 297.

Distinguishing argument from other material

Extraneous material

Usually, arguments are not provided separately from other material. They may be surrounded by:

- introductions;
- descriptions;
- explanations;
- background information;
- summaries;
- other extraneous materials.

Example

Satellite imaging has been used to match water temperature swirls drawn on a map of ocean currents made as long ago as 1539. The map was produced by a Swedish cartographer, Olaus Magnus. It had been thought that the rounded swirls, located between pictures of serpents and sea monsters, were there for purely artistic reasons. However, the size, shape and location of the swirls match changes in water temperature too closely for this to be a coincidence. The map is likely to be an accurate representation of the ocean eddy current found to the south and east of Iceland. It is believed that the map-maker collected his information from German mariners of the Hanseatic League.



Analysis of the example

The overall argument in the example is that an old sea map is likely to be an accurate chart of part of the ocean.

Description The passage opens with a description of the method used to test the map: *Satellite imaging has been used to match water temperature swirls drawn on a map of ocean currents ...*

Background information *a map of ocean currents ... made as long ago as 1539. The map was produced by a Swedish cartographer, Olaus Magnus. It had been thought that the rounded swirls, located between pictures of serpents and sea monsters, were there for purely artistic reasons.*

Reason given to support the conclusion Note that the reason follows logically from the description of the swirls and is well placed to refute the idea that the swirls were primarily there for artistic reasons: *the size, shape and location of the swirls match changes in water temperature too closely for this to be a coincidence.*

Conclusion The conclusion follows on logically from the reason: *The map is likely to be an accurate representation of the ocean eddy current found to the south and east of Iceland.*

Explanatory detail The passage finishes with information that helps to explain how the map-maker gained information to make the map: *It is believed that the map-maker collected his information from German mariners of the Hanseatic League.*

Developing the skill

When you can identify different kinds of material, you will find that you can categorise parts of the text quickly as you read. You may be able to scan a text and pick out the argument. If not, it can be useful to highlight, underline or mark the conclusion and the reasons. Extract these and note them down in your own words.

Activity: Selecting out the argument (1)

Activity

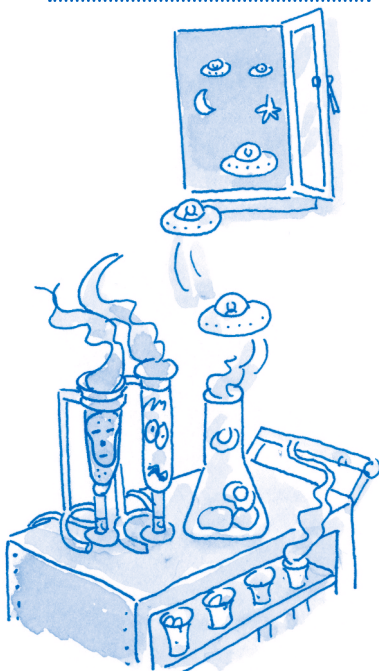
Read Passage 4.17 and identify:

- (1) the conclusion;
- (2) reasons given to support this;
- (3) the author's consideration of opposing arguments;

and other types of message such as:

- (4) the introduction;
- (5) description;
- (6) explanation;
- (7) summary;
- (8) background information and other extraneous material.

An analysis of the passage is given on the following page.

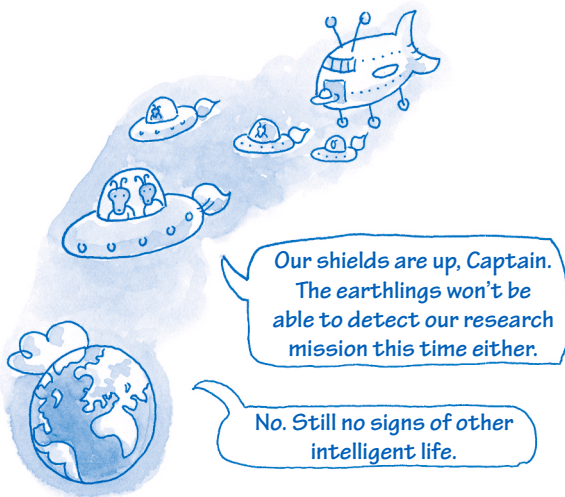


Passage 4.17

Is there anyone out there?

In some countries, the idea that there is life on other planets would make people laugh or sneer. In others, the inhabitants not only believe in life elsewhere in the universe but make efforts to communicate with it. There are certainly doubters and believers on this issue. One traditional argument for the existence of extraterrestrial life, known as the plenitude theory, is that there are so many star systems in the universe that it is unlikely that only earth would bear intelligent life. Indeed, it could be considered the folly of human arrogance to think that we are the only intelligent life in all of space. Not so, argue those who subscribe to contingency theory. Their argument, and it is a compelling one, is that life is a happy accident, a serendipitous phenomenon. They claim that the processes which led to the evolution of life are so complicated that it is extraordinary they occurred even once. They consider it extremely unlikely that the same set of processes could ever occur again. Thus, we have very divergent theories on whether there is life out there or not. It is unlikely that there is extraterrestrial life. For over 100 years, radio waves have been used to track space for signs of life and so far have uncovered nothing. If there was intelligent life out there, it is probable that we would have identified some sign of it by now. The most convincing current argument for extraterrestrial life comes from convergence theory. Convergence theory refers to situations when two different species are faced with a problem and independently arrive at the same solution. For example, both bats and birds evolved wings in order to fly. Similarly, octopus and squid have camera-like eyes. The species evolved separately, arriving at these adaptations independently. This suggests that although there may be infinite possibilities in the universe, nature tends to repeat itself. Morris (2004) has argued that where nature has produced something once, it is likely to produce it again. However, Morris himself recognises that even the basic conditions for life may be rare in the universe. Nature may be willing but the conditions might not be right. It is probable that the exacting conditions required for life are unlikely to be found more than once. It is unlikely that other planets will be exactly the right distance from their sun, with the right gravity, the right combination of chemicals and physics, with water and atmosphere. Although convergence theory indicates that nature tends to reproduce the same outcomes, and plenitude theory argues that the multiplicity of star systems increases the likelihood of extraterrestrial life, the arguments are not convincing. The conditions for life itself are so fragile and complex that it is remarkable that life occurred even once, much less that it could be repeated elsewhere.

Activity: Selecting out the argument (2)



Analysis of Passage 4.17 *Is there anyone out there?*

The numbers in brackets refer to the tasks set in the activity box on page 55.

The Argument

- (1) **Conclusion** It is unlikely that there is extraterrestrial life (line 17). The final sentence summarises the argument that supports this conclusion.
- (2) **Reason 1** For over 100 years, radio waves have been used to track space for signs of life and so far have uncovered nothing (lines 18–20).
- (2) **Reason 2** This uses the refuted argument referred to in (3), that it is probable that the exacting conditions required for life (chemicals and physics, water and atmosphere) are unlikely to be found again (lines 35–40).
- (3) **Author's consideration of opposing theories** Alternative theories such as convergence and plenitude theories are refuted in lines 34–41, and the refutation is harnessed as a reason to support the conclusion.

Other types of message

- (4) **Introduction** Lines 1–5. This sets the scene, indicating that there are widely divergent views on the issue. See also (8) below.
- (5) **Description** Lines 11–16 describe contingency theory. They list the key points of the theory. Although the author does describe this argument as 'compelling', no reasons are given to show why it is compelling, so this is description, not argument or explanation. In this case, the description is also likely to be a summary of longer accounts of the theory.
- (6) **Explanation** Lines 23–33 explain convergence theory. Unlike lines 11–16, these lines do more than simply list or describe what the theory says. Instead, they give examples to help clarify what is meant by the theory and draw out general principles from those examples: 'this suggests that ...' (line 29). They also bring out what is significant about the theory: 'This suggests that although there may be infinite possibilities in the universe, nature tends to repeat itself.'
- (7) **Summary of the material so far** Lines 16–17 summarise: 'Thus, we have very divergent theories on whether there is life out there or not.'
- (8) **Background information** Lines 5–8 present background information to help set the scene: 'One traditional argument ... bear intelligent life.' The argument isn't introduced until line 18. Further background information is presented in lines 10 to 16: 'Not so, argue those who subscribe to contingency theory ... processes could ever occur again.'

Recognising other non-arguments

Non-arguments

All of the following can also be mistaken for arguments.

Advice and guidance. These might not provide reasoning to support conclusions.

Example

If you want to study for a further degree, talk to your tutor about this at an early stage. Would your choice of dissertation help you to gain a place? Should you study this module first?

Conditional statements. These can be arguments, but are not necessarily so. It depends on whether the premises are asserted to be true (which would be an argument). If the premises are hypothetical (not claimed to be true), as in the example below, it is not an argument.

Example

If eating bananas makes your hair fall out, then as I have eaten a banana, my hair will fall out.

It would be an argument if proposed as below (even though it is not likely that the premises would be substantiated)

Example

Eating bananas makes your hair fall out. I have eaten a banana, so my hair will fall out.

Belief statements. These are not arguments when they are based on faith rather than evidence.

Example

We believe that we are the best in the business. We think nobody provides better customer care.

Reports. These may be description-based outlines of what has occurred.

Example

The tanks advanced on the city. Explosions were heard at night. Over 20,000 people fled south.

Surveys, where results are detailed without conclusions or recommendations being made.

Example

Of 1000 people surveyed, 650 said they preferred cats to dogs.

Stating the obvious or nonsense, where there is no argument to be made, or where to deny the statement would be nonsense.

Example

Nutrition is essential to many humans.

Warnings. These don't necessarily include reasoned argument.

Example

Beware of the crocodile.

Circular arguments

Be alert to circular arguments. In these, statements don't lead anywhere except back to each other. A is provided as proof of B, and B as proof of A.

Examples

- Suzy produces great paintings because she is such a brilliant artist.*
- You can believe this argument is true because I am a very honest person.*
- There is no evidence that vaccines work. The evidence that vaccines work is obviously fake, because vaccines don't work.*

Observation

Non-arguments

During this week, look out for examples of non-argument. Consider what might lead each to be mistaken for an argument. For example, are their contents suggestive of providing conclusions supported by reasons – when on closer investigation that is not the case?

Summary: Is it an argument?

- 1 Some kinds of message can be mistaken for arguments.** It is useful to be able to identify disagreement, description, summary and explanation as distinct from argument.
- 2 Understanding 'argument' helps grades.** Higher grades are generally awarded for good argument, more so than for description, summary or explanation.
- 3 Disagreement is not the same as 'argument' in critical thinking.** There need to be supporting reasons.
- 4 Description is not argument.** It provides an account, how, or what something is like. That can form an important part of some papers, especially in science reports or to provide context, but is not an argument in itself.
- 5 Non-arguments can look like arguments.** Explanations and summaries can appear to have the structure of an argument, as they might contain reasons, a conclusion or signal words similar to those used in arguments.
- 6 Explanations are not arguments.** They are not used to persuade an audience to a point of view, but, rather, to account for something. If reasons are given as 'explanation', usually in an attempt to persuade (such as 'it wasn't my fault. X happened'), this is really an argument, not an explanation.
- 7 Summaries are not necessarily arguments.** Normally they are shortened descriptions of an argument, or part of an argument. However, an argument could be set out in a shorter form: if it was still structured as an argument, with reasons leading to a conclusion, it would remain an argument.
- 8 Identifying the argument can speed the use of resources.** It helps to categorise information quickly, enabling you to clarify whether the reasoning is convincing. Categorising skills are considered in Chapter 2. Identifying the components of an argument is covered in Chapter 3.

Chapter 5

How well do they say it? Clarity, consistency and structure

Learning outcomes

This chapter gives you opportunities to:

- ✓ recognise the importance of conveying a strong clear position when making an argument
- ✓ check arguments for clarity and internal consistency
- ✓ identify logical consistency in an argument
- ✓ check for logical order
- ✓ understand what is meant by joint and independent reasons
- ✓ identify intermediate conclusions and understand their use
- ✓ differentiate between summative and logical conclusions.

Introduction

In Chapter 3, we saw that there are normally six features to check for when searching for an argument, as summarised in the table on page 45:

- author's position;
- propositions and reasons;
- a line of reasoning;
- conclusion;
- persuasion;
- use of indicator and signal words.

However, on their own, these features merely help us to identify whether an author is using an argument. They don't tell us about the quality of the argument, such as whether it is well structured and consistent. This chapter looks at how authors construct clear, consistent and logical arguments. You will have opportunities to look in more depth at how an argument is structured as a line of reasoning through the use of joint and independent reasons, interim conclusions and logical order.

By understanding how an argument is structured, you can:

- use the structure of the argument to focus your reading;
- improve comprehension by understanding how one part of an argument links to another;
- apply this understanding to model your own arguments, such as for essays, reports, presentations, and dissertations.

A well-presented argument is not necessarily the correct argument, but it can be more convincing. The benefits of understanding how to structure and present an argument well are that you can:

- better persuade others to your point of view;
- identify more easily when you are being convinced by an argument because of the way it is presented, rather than the quality of the evidence and the inherent merits of the case.

How clear is the author's position?

Stating the point

Clarity is important in constructing a good argument. Sometimes an author can present a great deal of interesting information but their point of view, or position, becomes lost in the detail. If the author's position is clear, then it is more likely that their audience will grasp what they are trying to say, and make the effort to follow an argument through to the end.

In a good argument, the author's position will be apparent through a number of means, such as:

- the introductory sentences;
- the final sentences;
- the conclusion;
- the overall line of reasoning;
- an overall summary of the argument;
- careful selection of facts so the argument is not lost.

Activity



The author's position

Read the following passages. For each, consider:

- Is the author's position clear?
- What makes the author's position clear or unclear?

Passage 5.1

The brain of an elephant is five times larger than that of humans. Some people believe elephants are very intelligent but, even if that were true, are they really five times brighter than humans? But maybe we are looking at this the wrong way. After all, is it fair to compare the brain size of a large animal with that of a small creature? Perhaps it is relative size that matters? Human brains weigh as much as 2.5 per cent of body weight whereas elephants' brains are less than half of a per cent of their total body weight. Proportionally, the brain of a human is 10 times greater than that of an elephant. Maybe it is the ratio of brain to body size that matters? If that were the case, then

the shrew, with its heavier brain, would be brighter than humans and elephants – and yet shrews do little more than eat.

Passage 5.2

Individuals have free will and so can control their own destiny. On the other hand, groups also have an identity. Research by Campbell (1984), for example, has shown that girls who mix with boys are more likely to have seen a fight and become involved in a fight than girls who mix mostly with girls. This suggests that aggressive behaviour is affected by the social environment and isn't just about character. In everyday life, our sense of self is such that we believe we are making independent decisions. We are aware we have choice and we make decisions for ourselves. Groups can also force decisions upon members, sometimes without them realising.

Passage 5.3

This report researched whether a new sports centre should be constructed in region X. Market research suggests that there is little popular demand for another sports centre in the area. However, very few people in the region use sports facilities to improve their health. The government is trying to encourage more personal responsibility for health and fitness. A sports centre would be useful in promoting this objective. People in the area are not aware of health issues and are not interested in sport. There may be government subsidies available.

Answers: see p. 298.

A clear 'position' strengthens the argument. This is useful to bear in mind for your own work. It is much easier to construct your own arguments if you are clear what your position is, and draw up a conclusion that reflects it. If you cannot do so, then your thinking might be muddled and further work is needed to establish what you really think is the case and why. Make your position apparent, through the means listed above.

Internal consistency

Clarity and internal consistency

One important aspect of presenting a clear authorial position is creating a consistent argument, so that all parts of the line of reasoning contribute to the conclusion. Nothing then contradicts or undermines the main message. Inconsistencies make an argument hard to follow, leaving the audience uncertain about what the author is trying to persuade them to believe.

Example 1

Apples are good for your teeth. Acid corrodes. Apples consist mainly of acid so they can't be good for teeth.

Here, the message lacks internal consistency. The reader is left wondering whether apples are good for your teeth or not.

Including opposing arguments

A strong line of reasoning will usually give consideration to alternative points of view, including those that appear to contradict the main argument. A good argument manages such apparent contradiction by:

- making it clear throughout the line of reasoning what position it wants the audience to take;
- making it clear when it is introducing an alternative point of view (see signal words on page 168);
- countering arguments to show why the alternative point of view is less convincing;
- resolving any apparent contradictions by showing how the main argument holds true.

Example 2

Apples are better for your teeth than refined sugar snacks. Some people argue that apples are an acid and that acid damages tooth enamel. However, any food, if left on the teeth, is bad for them. Refined sugars are particularly damaging to teeth. Compared with the sugary snacks most people eat, apples provide a more beneficial alternative and have long been recommended by dentists.

Here, the argument is internally consistent: *apples are better for your teeth than refined sugar products*. All the reasons support this. The opposing view (that acids corrode teeth) is included but its importance is minimised.

It is worth noting that the main argument is strong partly because it is worded in a more tentative way so that it is easier to defend. It is easier to argue that something is 'more beneficial than ...' rather than making an absolute statement such as 'Apples are good ...', which may not hold true in every circumstance.

Precision

Example 2 demonstrates that arguments may need to be very precisely worded. Imprecise wording is a common cause of inconsistency, as in Example 3.

Example 3

Apples are good for your teeth and have long been recommended by dentists. It may seem strange that this is the case, given that apples consist of acid and acid corrodes enamel. However, the acid is relatively harmless, and certainly apples are more beneficial than alternative snacks made of refined sugar, such as sweets and cakes.

Here, the argument is relatively well structured and is more consistent than Example 1. However, it is still not a consistent argument. The author's opening statement is: 'Apples are good for your teeth.' However, by the end of the passage, the author is arguing that the acid is 'relatively harmless' and that 'apples are more beneficial than alternative snacks'. An argument about the relative benefits is not the same as the absolute statement that 'apples are good', so the message is not internally consistent.

Activity: Internal consistency

Activity



Read through the following passages.

- Identify whether each is: A internally consistent, or B inconsistent, and why.
- For the inconsistent ones, consider how you could adapt them to make them consistent.

Passage 5.4

All drugs which enhance performance should be banned from sport as they confer an unfair advantage on those who take them. Anyone caught taking them should be automatically banned from national and international competition. Sportspeople who take such drugs are not acting in the spirit of fair competition. On the other hand, if someone needs drugs on medical grounds, they should be allowed to compete as they did not intend to cheat.

Passage 5.5

Trainers should discourage sportspeople from taking performance enhancement drugs as these can have serious effects upon their health. Some of these drugs have resulted in distorted body shapes, skin conditions, and increased aggression. The long-term effects of some of these drugs are unknown. On the other hand, some individuals with conditions such as asthma need medication which contains those drugs. For them, taking the drugs may be more beneficial than not taking them. Therefore, it would be wrong to ban performance enhancement drugs altogether.

Passage 5.6

Reality TV is not delivering what the public wants. Too many programmes are cheaply made, turning a camera on the experiences of ordinary people who are duped into wanting their short period of fame. As a result, investment in quality programmes is declining.

There is much less variety on television. The promise of choice heralded by digital TV has not materialised. Far from exercising choice, last night almost the whole nation switched on to watch the final episode of the latest reality show. What has happened to television drama, good comedy programmes and well-researched documentaries?

Passage 5.7

The countryside is a lost cause. The green fields and woodlands known as 'green belts' that surround our cities are essential to maintain the beauty of the countryside. Over 8 per cent of the countryside is now built up. Green belts are ever more essential to provide lungs to our growing cities, helping them to 'breathe'. Unfortunately, the countryside is rapidly disappearing as the extensive building of new homes stretches out of the cities. Before long it will be gone and once that happens, it will be difficult, if not impossible, to ever restore the complex ecosystems of lost woodlands and hedgerows.

Passage 5.8

Christopher Columbus was courageous in attempting to sail west to find the East Indies as, before then, everyone believed the world was flat and that he would sail over the edge. Fourth-century Christian writers such as Lactantius and Indicopleustes described the world as rectangular, but their views were not widely known. Leading medieval scholars such as Augustine, Aquinas and Albertus knew the world was round, but their minds were on higher religious issues. In Columbus's time, the scholars of Salamanca had made more accurate calculations than Columbus and, although they knew the shape of the earth, they realised Columbus had under-estimated the distances involved. They opposed his voyage but he persisted. Without his courage, the Americas might never have been discovered.

Answers: see pp. 298–9.

Logical consistency

In clear and consistent arguments, the reasons support the conclusion that the author draws from them. When evaluating an argument, we need to check whether the reasons given by the author do indeed support the conclusion. In other words, we need to check that the argument adds up. When we do this, we are checking for logical consistency.

Sometimes, authors lose track of their own arguments and draw a conclusion that does not follow from the reasons given. Sometimes, there may not be good reasons for the argument and we may feel the author is clutching at straws in the hope we won't notice the lack of logic. For Example 1, consider why the reason does not support the conclusion.

Example 1

There was a murder near the station last night. There are always young lads hanging around there. One of them probably did it. The local council should ban young people from hanging around the station.

In Example 1, the conclusion is that young people should be banned from hanging around the station. The reason given to support the conclusion is that one set of young people is often found near a station where a murder took place. This reason does not support the conclusion because there is nothing to show that:

- those young people did commit the murder;
- even if they did so, other young people would do the same;
- a general ban on young people would prevent future murders.

This is partly a question of lack of evidence. However, it is also faulty reasoning, as the conclusion does not follow from the reasons presented. An alternative conclusion might have been that if the young people were in the vicinity when the murder took place, they might have seen or heard something that would help to solve the

case. For Example 2, see if you can identify the conclusion and the reasons given to support it before reading on.

Example 2

Behaviour is better in schools in rural areas than in inner city schools. Children brought up in the country have more responsibility for contributing to the family livelihood and care for vulnerable animals. This fosters a more mature attitude and a respect for life in general. Children in inner city schools often have more material possessions but value them less. They show less respect for parents and teachers. Children from the cities should be sent to school in rural schools. This would lead to more children who are respectful and well behaved.

In this case, the conclusion is provided in the last two lines: if children were sent from city to country schools, their attitude and behaviour would improve. The main reason given is that children in rural areas have better behaviour and attitudes.

However, the alleged better behaviour of children in the countryside is attributed to the responsibilities they have at home, not to the schools themselves. As city children would not gain such responsibilities simply by going to rural schools, it does not follow logically that moving school would lead to a change in their behaviour. The reasons given in the example provide better grounds for an alternative conclusion: the behaviour of city children might improve if they were given more responsibilities.

Activity: Logical consistency

Activity

Read through the following passages. Decide whether each is logically consistent or not. Give your reasons.



Passage 5.9

The deepest parts of the oceans are known as the abyssal zone. The bathyl zone, which is that part of the abyssal zone found on the continental shelf, is too deep even for light to penetrate. Despite this absolute darkness, animal life still thrives there. Humans form part of the animal kingdom. As animals survive in the bathyl zone, this proves that we do not need light in order to survive.

A consistent

B inconsistent

Passage 5.10

Accidents happen on building sites when workers don't take sufficient care of health and safety. Many employees are lax in following health and safety guidance. This means that there will be a rise in accidents on building sites over the next year.

A consistent

B inconsistent

Passage 5.11

Although subjects such as sports, media and popular culture involve theoretical understanding of the application of scientific principles, these subjects often have lower status at universities and with the public than subjects such as history and the classics, which are less intellectually demanding. This is partly because the former subjects attract more students from working-class backgrounds. Students who take these subjects go on to earn less than those who take more traditional subjects. This perpetuates working-class people in lower-income jobs. Therefore, working-class students should be encouraged to take traditional subjects, such as history.

A consistent

B inconsistent

Passage 5.12

Layers of sediment are laid down over time, and build up to fill the valleys and seas until they form a sequence of rocks. The oldest rocks are always at the bottom, unless the beds of rock have been overturned, such as by folding or faulting. When there is too much molten lava under the earth or in a volcano, molten rock is forced through the layers of sediment. These are known as igneous intrusions and they harden into volcanic dikes that cut through many layers of sedimentary rock. Therefore, where an igneous intrusion cuts through a sequence of sedimentary rock, it is always more recent than the surrounding layers.

A consistent

B inconsistent

Passage 5.13

It is impossible to find any place where there is absolute silence. Now, everywhere you go there are mobile phones ringing, people shouting, car horns blaring, music blasting out. There is no place where you can go that does not have a sound of some kind breaking the silence. Noise pollution is definitely on the increase.

A consistent

B inconsistent

Passage 5.14

Computers can now compete with humans in complex games such as chess and beat them. This was believed impossible until the end of the last century. Since then, computer memories have become ever larger and faster. Now, very large memories can be stored in tiny spaces. Computers do not feel emotions, a faculty which is needed in order to empathise with other people. Nonetheless, computers will one day be able to outperform humans at everything.

A consistent

B inconsistent

Answers: see p. 299.

Independent reasons and joint reasons

If an author gives two or more reasons to support a conclusion, these may be either:

- joint reasons; or
- independent reasons.

Joint reasons

In this case, the reasons are connected in some way and mutually reinforce each other. Where reasons are joint, each reason must be acceptable in its own right or the argument collapses. If independent, one good reason might be sufficient even if others are discounted.

Example

It is important that employers in Britain actively encourage older people to remain within the work-force. First of all, as the population ages, there won't be enough young people entering the work-force to meet the needs of the economy. Secondly, the economy benefits from the skills and experience that older people have accrued over their lifetimes. Moreover, older people often have rare skills and useful attitudes that cannot be taught or acquired quickly.

Here, the conclusion is in the first sentence. The reasons given all relate to the skills needs of the economy, and support each other:

- there won't be enough younger people to do the work;
- older people have relevant skills and experience;
- their skills and attitudes are often rare and difficult to acquire.

Note that having several reasons does not, automatically, make an argument stronger.

Independent reasons

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

Example

It is important that employers in Britain actively encourage older people to remain within the work-force. Older people often have rare skills and useful attitudes that are wasted when they leave the work-force early. Moreover, staying on longer in full-time or part-time work is believed to be good for the health. Besides, it is unrealistic to expect savings and pensions to be sufficient to meet the needs of people retired for 30 years or more.

Here, all the reasons support the argument but are independent of each other:

- the first is economic (rare skills);
- the second relates to health concerns;
- the third relates to personal finance.

It is useful to identify whether each separate reason is sufficient in its own right to support the argument. Lots of weak reasons do not add up to a good argument, as is demonstrated in the example below.

Example

It is important that employers in Britain actively encourage older people to remain within the work-force. Firstly, older people have a right to a better standard of living. Secondly, many of them will emigrate if they do not remain active here. Thirdly, older people like to meet younger people and rarely get the opportunity outside of the workplace.

The three reasons may all be true in their own right. Having several reasons makes it sound like there must be a good case. However, an employer might consider that these are social issues that do not make a good business case for retaining older employees.

Activity: Independent reasons and joint reasons

Activity



For each of the passages, identify whether joint or independent reasons are used to support the conclusion. The conclusions are written in italics.

Passage 5.15

Young people over the age of 16 should be allowed to vote. They pay taxes so should have a voice on how their money is spent. They can fight and die for their country so should be entitled to have a voice in the country's political process. If they have political obligations, they should also have political rights.

Passage 5.16

Expeditions leave behind a range of litter, broken equipment and other unwanted items that are gradually ruining the landscape. Few useful discoveries result from the vast numbers of expeditions now taking place. Furthermore, local economies are distorted by the requirements of expedition teams. Expeditions are sometimes unsafe and survival cannot be guaranteed. *Therefore, the number of expeditions to the Arctic should be greatly reduced.*

Passage 5.17

Telling lies is sometimes justifiable. Lies can be hurtful, but the truth can hurt even more. People do not always need to hear the truth – a fantasy can sometimes provide a practical coping mechanism for dealing with difficult circumstances. Moreover, it isn't possible always to tell the truth because it isn't clear what constitutes the 'truth'. For example, exaggeration is a form of lie but it also holds something of the truth. Lies are an important part of social bonding: we lie to maintain friendships and to keep social situations harmonious.

Passage 5.18

The author travelled with the band on tour. She visited their homes, stayed in the same hotels, and attended family parties and funerals. Having had her own band for several years, she knows the life of a rock band from the inside. However, as she was never a member of this band and was not in competition with it, she is able to give an objective account of its highs and lows, its music and the lives of the artists. *As a result, the book gives us a faithful representation of the life of the rock band.*

Passage 5.19

Knowledge management is increasingly important for business. Without it, resources are wasted. For example, companies often make poor use of the training and experience of their staff, failing to cascade it to their other employees. Furthermore, businesses that do not manage knowledge well may appear less up-to-date, and therefore less attractive, to potential customers. Given the amount of electronically accessible information, businesses need strategies to help staff cope emotionally with information overload.

Passage 5.20

It took a long time for the world to appreciate the art of Magritte because he gave the public so few clues about how to interpret his work. His art calls heavily upon the unconscious, but he steadfastly refused investigation into aspects of his own life that might have helped others to understand the workings of his own unconscious. He refused to talk even about the basic events of his early life. As he didn't agree with interpretations of art based on personal problems and experiences, he offered little to encourage public interpretations of that nature.

Answers: see pp. 299–300.

Intermediate conclusions

In longer and more elaborated lines of reasoning, there may be several sets of reasons to support the overall conclusion. In a well-constructed argument, these will be ordered so that:

- similar reasons are grouped together into sets;
- each set of reasons supports an intermediate conclusion;
- all the intermediate conclusions support the main line of reasoning.

The author may draw an intermediate conclusion on the basis of each set of reasons. This helps the reader to hold in mind the different stages of the argument. Intermediate conclusions help to structure an argument, acting as stepping stones between one stage of an argument and the next.

Example

Smokers should be given more freedom to smoke and more personal responsibility for the choices they make. Many know that cigarettes carry serious health risks, but these are risks that consenting adults are willing to take. Most smokers plan to give up before the risk becomes extreme. Adults should be allowed to make up their own mind about whether they smoke or not, without warnings on cigarette packaging. Smokers pay at least as much tax and insurance as anyone else. They also pay additional taxes through levies on cigarettes and are often required to pay higher insurance. Despite this, some medical practitioners refuse them health care. Smokers should have the same rights to health care as any other tax-payer. They should also have the same access to public spaces. In some countries, it is becoming almost impossible to find a place to smoke. Smokers are forced outside no matter what the weather. They are becoming social pariahs where once smoking was the most social of activities.

In the example above, the conclusion is at the beginning of the passage: *Smokers should be given more personal responsibility for the choices they make.*

In the version of the example reproduced below, the intermediate conclusions are underlined. Note that they can be used either to introduce a new set of reasons or to summarise reasons already introduced.

There are three sets of reasons in this passage, each linked to an intermediate conclusion which is underlined.

Reworked example

Many know that cigarettes carry serious health risks, but these are risks that consenting adults are willing to take. Most smokers plan to give up before the risk becomes extreme. Adults should be allowed to make up their own mind about whether they smoke or not, without warnings on cigarette packaging.

Smokers pay at least as much tax and insurance as anyone else. They also pay additional taxes through levies on cigarettes and are often required to pay higher insurance. Despite this, some medical practitioners refuse them health care. Smokers should have the same rights to health care as any other tax-payer.

They should also have the same access to public spaces. In some countries, it is becoming almost impossible to find a place to smoke. Smokers are forced outside no matter what the weather. They are becoming social pariahs where once smoking was the most social of activities.

Intermediate conclusions used as reasons

Different types of intermediate conclusions

An intermediate conclusion can have two purposes:

- summative;
- to serve as a reason.

Summative

Summing up the argument at intermediate points clarifies the argument by providing it in more manageable bites. It can also reinforce the message, reminding the audience of the overall argument. The example on page 70 uses this approach. In a good argument, the author will:

- organise reasons into logical groups;
- use a sentence or a paragraph to summarise each set of reasons; this summary serves as an intermediate, or interim, conclusion.

To serve as a reason

An intermediate conclusion can also serve as a reason. The author may need to establish a solid case for an intermediate conclusion before it can serve as a reason. In other words, one set of reasons is used to establish an intermediate conclusion, and then that interim conclusion becomes a reason to support the overall conclusion (as in the table below).

Example

Universities want objective methods of marking students' work but objectivity is time-consuming. Lecturers spend a great deal of time checking their interpretations of students' answers. As there is only one correct answer for multiple-choice questions, there are no opportunities for subjective judgements, making the system fairer. These tests can be marked at speed, and objectively, by a computer. Multiple choice offers a quicker and fairer way of marking. With increased numbers of students, universities want to make better use of lecturers' time. Therefore, universities should make more use of multiple-choice tests.

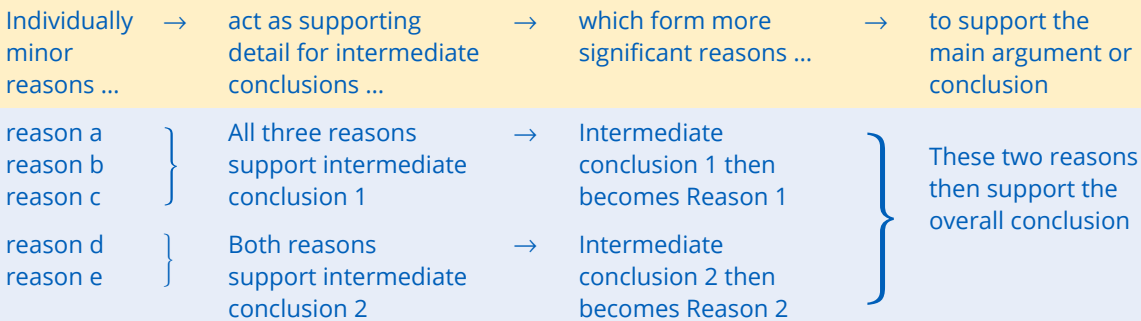
Here, the overall conclusion is that universities should make more use of multiple-choice tests.

The interim conclusion is that *Multiple choice offers a quicker and fairer way of marking.*

The author of the example needed to establish that multiple choice is a quick and objective way of marking in order to argue that universities should use it. The reasons given to support the interim conclusion are that as there is only one correct answer for a multiple-choice question:

- it can be marked objectively;
- it can be marked quickly.

The structure of an argument using intermediate conclusions



Activity: Intermediate conclusions

Activity

Identify the main argument and the intermediate conclusions for Passage 5.21.

Passage 5.21

Although most smokers say they enjoy smoking, many smokers wish they didn't smoke. 'It feels as if I am setting light to my money', wrote one correspondent. Cigarettes can account for up to a half of an individual's total spending. As people are borrowing more money in general, and paying interest on it, the overall cost of cigarettes is sometimes hidden. However, as many smokers are all too aware, smoking does not make good financial sense. The effects on long-term health are equally devastating. Just as smokers are often building up debts in the bank, they are also accruing unseen deficits in terms of their health. It is easy to forget the health implications of smoking. Warnings about illness and death can seem a long way away. Unfortunately, once cancer of the bowel, the lung, the throat, or the stomach sets in, it is often too late to take any action. Moreover, these diseases can strike unexpectedly whilst people are still young. Smokers spread strong, unpleasant odours all around them, affecting other people without their consent. Smoking impairs the sense of smell so smokers do not realise how much they are inflicting awful odours on others. Some believe that smoking outdoors washes all those nasty odours away, but this is clearly not the case. Furthermore, studies of the houses of people who always smoke outdoors have found that the chemicals found in cigarettes are over seven times as prevalent as in the houses of non-smokers. Noxious chemicals linger, affecting the health of other people, sometimes fatally. Whether outdoors or in, smoking doesn't simply kill the smoker, it kills other people and this should not be permitted. The government should take strong action to raise awareness of the risks of smoking and to ban it in public places.

Activity

Identify two intermediate conclusions used as reasons in each of the passages. In each case, the overall conclusion is in the final sentence.

Passage 5.22

It is a legal offence to assault other people. Hitting and slapping people are forms of assault and cause psychological, if not physical, damage. They should always be considered as examples of legal assault. Although this rule is applied to adults, it is often not recognised in the case of children. Slapping is defended as a useful and necessary form of discipline. It is also argued that children are not independent beings. This is not a valid argument. Children may be dependent on adults but they are still people. *Therefore, slapping a child should also count as legal assault.*

Passage 5.23

Many people speak out in discussion too quickly because they are anxious about leaving a silence. When questioned, people often acknowledge that they spoke early in order to ensure there was no gap in the discussion. They are not used to silences in conversation and don't know how to manage them skilfully. They can find silences in discussion to be unnerving and embarrassing. However, silence can be productive. First of all, it allows time for reflection so that speakers can construct a more considered and accurate response, making a more useful contribution to the debate. Secondly, it gives more people the opportunity to speak first. *For more productive discussions, we need to be skilled in managing silences.*

Answers: see pp. 300–1.

Summative and logical conclusions

It is important to note the difference between a summative conclusion, and a logical conclusion.

Summative conclusions

Summative conclusions are simply conclusions that draw together previous information into a shorter overall summary. For example, if a text presents two main points of view, a summative conclusion would give a short synopsis of these. Summative conclusions tend to draw a piece of writing or debate to a close, without making a judgement, as in Example 1.

Example 1

What causes stomach ulcers?

It used to be assumed that stomach ulcers occurred as a result of stress. People who worked too hard or worried too much were assumed to produce excess stomach acid which would, in turn, cause ulcers. Many still hold this view. On the other hand, research has indicated that 70 per cent of stomach ulcers could be caused by the bacterium *H. Pylori*, which changes the stomach lining so that it is more vulnerable to the effects of stomach acid. This bacterial infection can be treated with antibiotics, rather than forcing the patient to reduce his or her stress levels. Hence, whilst some believe that stomach ulcers are caused by stress, others now believe that they are caused by infection.

In Example 1, the conclusion is in the last sentence and simply summarises what has gone before. In this instance, the author states the two opposing points of view, and does not use the evidence to draw a logical conclusion about which is the most likely explanation for stomach ulcers. As this example does not have a logical conclusion, it is not an example of an argument. This is an example of a summary with a summative conclusion.

Logical conclusions

A logical conclusion is a deduction based on reasons. It is more than simply a summary of the arguments or the evidence. It will include one or more judgements, drawn from an analysis of the reasons given.

Example 2

How can we predict when volcanoes will erupt?

Predicting a volcanic eruption is not an exact science. Monitoring summit activity often cannot help us predict flank activity such as eruptions down the sides of the volcano. Scientists monitoring Mount Etna in Sicily thought they had established a link whereby such flank activity was preceded by summit activity for a period of a few months. However, in 1995 summit activity began but there was not a flank eruption for a further six years. They decided Etna's eruptive cycle was more complicated than they had first thought in terms of the relationship between summit and flank activity. This may be true of other volcanoes too. Consequently, a period of summit activity cannot necessarily be used as a predictor for flank activity.

In Example 2, the conclusion is signalled by the word 'consequently'. The author deduces a conclusion from the reasons, so this is an example of an argument. The conclusion is that when the summit of a volcano shows a lot of activity, this does not necessarily mean that lava will start pouring down the side of the volcano. This is clearly based on a judgement that more recent research on Etna undermines earlier research which had suggested a closer link between its flank and summit activity.

Activity: Summative and logical conclusions

Activity



Identify whether the conclusions in the passages are summative or logical conclusions. In each case, say whether the passage forms an argument.

Passage 5.24

Are criminals born or made?

In the 1960s, Jacobs et al. suggested a strong genetic component in criminal behaviour. On the other hand, the psychologist Bowlby argued that criminal behaviour is caused by upbringing rather than genetics, and noted that a significant number of criminals grew up in families where they experienced abuse or a lack of emotional warmth. More recently, Wilson and Hernstein suggested that a person is more likely to commit a crime if they have genes that predispose them towards criminality as well as facing additional stressors such as childhood abuse or substance misuse in adulthood. Although genes may predispose people towards crime, this is not a cause. As many criminals have experienced abuse and childhood neglect, it is fairer to argue that crime is the result of environment rather than genes, and that criminals are 'made' rather than 'born'.

Passage 5.25

Are 'reality' shows good for television?

In recent years the number of 'reality' shows on television has grown substantially. They are cheap to make and producers argue that viewers want to see 'real people' on their screens. However, critics complain that reality shows are made at the expense of original drama or current affairs programmes and that the overall quality of television is being reduced. Consequently, some people argue that reality shows are good for TV because they are cheap and popular whilst others argue that they result in poor quality television.

Passage 5.26

What is the true cost of cancelling debt? The Jubilee organisation has called for the cancellation of Third World debt. Concerns have been raised that this will mean serious losses that either commercial banks or Western governments will be forced to meet. Rowbotham suggests that debt could actually be cancelled with little cost to anyone. He argues that the dominant form of money in modern economies is bank credit. Although banks have accountancy rules about balancing assets and liabilities, credit does not exist in a physical form. It is not money sitting around in a vault waiting to be used or loaned – it is numerical or 'virtual' money. Consequently, if banks were not obliged to maintain parity between assets and liabilities they could cancel Third World debt without having to move the equivalent amount of money from the reserves to cover this. Therefore, the cancellation relates to 'virtual' money and the banks would experience no real financial loss if Third World debt were to be cancelled.

Passage 5.27

Does organic food taste better?

Supporters of organic produce argue that as well as being healthier than commercially produced food, it tastes better. Fillion and Arazi (2002) carried out blind tastings of organic and non-organic juices and milk with trained panelists. They concluded that although organic juice tasted better, there were no taste distinctions between organic and conventional milk. However, supporters of organic produce maintain that it is 'common sense' that organic food tastes better as it has been produced under healthier conditions. Hence, although scientific support for organic produce tasting better is limited, consumers who choose organic are convinced it does.

Answers: see p. 301.

Logical order

The line of reasoning, or the overall argument, should lead forwards with a clear direction, rather than hopping from one point to another in a random way, or leading the audience round in circles. In Example 3, the author moves from one point to another without direction or logical order.

Example 3

Pets add to the quality of life. Any benefits outweigh the costs. However, they can destroy household furniture. Stroking pets is thought to reduce stress. Property values can be affected by the odour animals leave behind them in carpets and curtains. Many people find talking to a pet helps them sort out personal problems. Problems with pets can be sorted out, so they are not insuperable.

The author of Example 3 could have constructed a more logical argument by:

- grouping similar points together;
- presenting reasons that support their argument first, so as to establish a good case for it;
- considering opposing reasons after they have established their own case, demonstrating why these are not significant or are less convincing.

Note the difference in Example 4, which takes a similar position to that above.

Example 4

Pets add to the quality of life. This is evident in several ways. For example, stroking pets can reduce stress. Many people find talking to a pet helps them sort out personal problems. There are some disadvantages to having an animal about the house such as damaged furniture and unpleasant odours. However, these problems can easily be overcome. The benefits of having a pet outweigh the disadvantages.

Dealing with poor logical order

If you are trying to follow a jumbled argument such as the one in Example 3, it can help to order the arguments for yourself:

- as lists of arguments 'for' and 'against'; or
- as 'arguments that support the conclusion' and 'arguments that do not support the conclusion'.

Consider how you could do this for Example 5, before reading the box below it.

Example 5

Nuclear power stations are not a viable source of energy for the future. Nuclear reactors are more expensive to build than fossil fuelled power stations. Fossil fuels such as coal, gas and oil are a dwindling resource so nuclear fuel offers a useful alternative for the future. Nuclear reactors are also very expensive to decommission so may not be efficient over the longer term. Coal costs may rise as fossil fuels become harder to find, making nuclear fuel more attractive. No truly safe way of storing nuclear fuel has yet been found. Research into alternative fuels has been under way for some time, with some success. Solar power and use of methane from waste are just two alternatives to fossil fuels.

Arguments for nuclear power stations

- Fossil fuels will become more expensive as reserves dwindle.
- Fossil fuels are likely to run out.

Arguments against nuclear power stations

- More expensive to build.
- More expensive to decommission.
- No truly safe way of storing nuclear waste.
- Other alternatives to fossil fuels exist.

Activity: Logical order

Activity



The following passage is not ordered logically. This makes it difficult to follow its line of reasoning. You do not need to be a specialist in the subject to identify how the argument could be better constructed.

Write a short list of the ways the passage is poorly organised – then order the sentences into a more logical sequence yourself. The sentences are numbered to help you write out a preferable order.

Answers: compare your response with those on pp. 302–3.

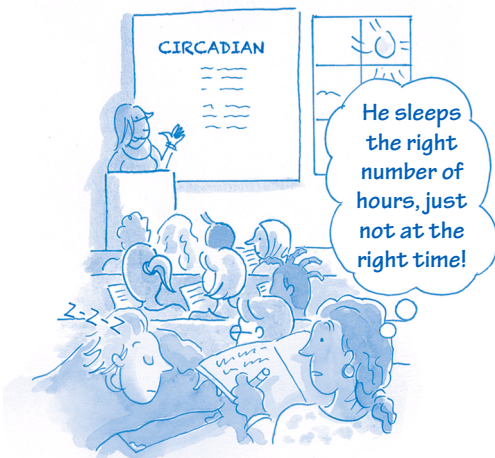
Passage 5.28

Circadian rhythms

1: In experiments, human volunteers spent several weeks underground in constant light. 2: At first, their natural clock and sleep patterns were disrupted. 3: After a few weeks, they reverted back to the natural circadian rhythm with a 24-hour clock more or less in line with the outside world. 4: Our natural clocks are helped to adjust by exposure to sunlight and do respond to patterns of light and dark. 5: Our bodies remain more responsive to biological rhythms than to the demands of clock time or the distractions of the outside world.

6: Since the mapping of human genes as part of the genome project, we have a greater understanding of circadian rhythms and their role in genetic conditions. 7: Some families have genetic conditions which make them less sensitive to circadian rhythms. 8: This may help explain patterns of sleep disturbances found in those families. 9: Our work patterns, leisure patterns, architecture, lighting, food, drugs and medication compete with our natural clocks. 10: These biological rhythms are known as circadian rhythms and we know they are particularly strong in birds. 11: In humans they are particularly controlled by the suprachiasmatic nucleus (SCN) in the anterior hypothalamus at the base of our brains. 12: If this part of the brain is damaged, a person loses all sense of a natural 24-hour clock, where sleep coincides with night-time. 13: In other people, circadian rhythms are much stronger than was expected. 14: Astronauts, who lose this connection to the sun's rhythms for a long time, find it hard to adjust. 15: Many require medication to help them sleep.

16: Night-workers, even after 20 years on shift patterns, do not adjust circadian rhythms to suit the demands of night working. 17: Certain illnesses such as peptic ulcers and heart disease, as well as increased risk of car crashes, are much more common to night-shift workers. 18: As the long-term effects of disrupting circadian rhythms are yet to be discovered, we should take care to ensure the health of shift-workers and those with genetic conditions that make them less sensitive to the biological 24-hour clock. 19: It may be that conditions associated with mental ill-health, such as schizophrenia and bi-polar disorders, are also linked to malfunctions in circadian rhythms.



Summary: How well do they say it?

1 A clear 'position' strengthens an argument, making it more persuasive.

This is useful to bear in mind when constructing your own.

2 Knowing the author's position aids comprehension. It makes it easier to anticipate the logical conclusion, identify supporting reasons and evaluate the argument.

3 Arguments should be internally consistent. Each component should reinforce the message; none of the points made or data presented should undermine the rest.

4 Strong arguments consider alternative points of view. They acknowledge the strengths of opposing views or refute these with good reasons and evidence, showing how the main argument still holds true. This strengthens the overall argument.

5 Arguments benefit from precise wording. This helps to avoid misunderstandings and apparent inconsistencies.

6 Arguments should demonstrate logical consistency. The conclusions drawn should follow from the reasons given. If their

reasoning is faulty, the author or producer draws unmerited conclusions, not based on the reasons or evidence presented.

7 Reasons can be independent or joint.

Where reasons are joint, each reason must be acceptable in its own right or the argument collapses. If independent, one good reason might be sufficient even if others are discounted. Having several reasons does not make an argument automatically stronger.

8 Complex arguments may contain intermediate conclusions. These might be summative, or might serve as reasons in their own right. In a well-constructed argument, they will be logically grouped and sequenced.

9 Conclusions can be summative or logical. A summary just rehearses the reasoning in brief. A logical conclusion contains a decision or judgement, deduced from the reasons.

10 Strong arguments are well-ordered. The line of reasoning should have a clear direction, leading the reader or audience towards the conclusion.

Chapter 6

Reading between the lines Recognising underlying assumptions and implicit arguments

Learning outcomes

This chapter offers you opportunities to:

- ✓ recognise assumptions underlying arguments and to identify hidden assumptions
- ✓ evaluate when an argument is likely to be based on false premises
- ✓ understand what is meant by an 'implicit argument' and recognise such arguments when they occur
- ✓ understand what is meant by 'denoted' and 'connoted' meanings and be able to identify these within an argument
- ✓ understand what is meant by inference and syllogism as aspects of logical deduction
- ✓ understand how hidden arguments and connoted meanings can be powerfully persuasive.

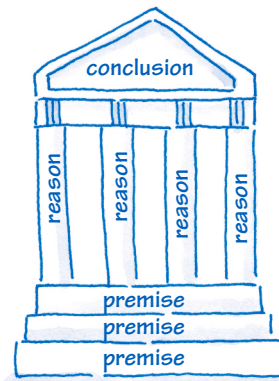
Introduction

In earlier chapters, we looked at explicit features of an argument. However, not all aspects of an argument are expressed explicitly. Arguments are often based on unstated assumptions and latent methods of persuasion. This chapter looks at some of the reasons for this, and provides practice in identifying hidden assumptions and implicit arguments.

The premises upon which an argument is based are not always immediately obvious either. These can often contain implicit assumptions or be based on incorrect information. If the premises are not sound, the argument can collapse, no matter how well it is argued. This means that a consideration of the premises of the argument is just as important as a consideration of the reasoning.

This chapter also looks at latent messages used to reinforce an argument. The connotations of a message can add to its ability to persuade. If

we can recognise connoted messages, we are in a better position to see how the argument is structured, and to decide whether we agree with its underlying point of view.



Conclusion: should be well supported

Reasons: the pillars of the argument

Premises: Underlying beliefs, assumptions, foundations, theories

Good conclusions are well supported by strong reasons based on solid premises.

Assumptions

What is an assumption?

In critical thinking, 'assumptions' refers to anything that is taken for granted in the presentation of an argument. These may be facts, ideas or beliefs that are not stated explicitly but which underlie the argument. Without them, the same conclusion would not be possible.

Proper use of assumptions

Most arguments contain assumptions or require us to draw inferences. Often, this is to save time and to simplify the argument. We don't need to have everything proved to us. When assumptions are made properly, the author has decided that it is reasonable the audience will know what is meant and is likely to agree.

Example

Holidays are a time for relaxation and enjoyment. This year, thousands of people will have their holidays ruined by oil slicks along our beaches.

Here, there are a number of assertions which we may not even recognise as assumptions because we agree with the sentiments of the passage. The conclusion is that thousands of people's holidays will be ruined. The underlying assumptions include:

Assumption 1: that holidays are for relaxation and enjoyment. This may seem obvious but the original meaning of holidays was 'holy days', which were intended for religious observation. Some people still use holidays in that way. Others may use them for seeing family or, in the case of students, finding temporary work.

Assumption 2: that thousands of holiday-makers will want to go to the beach.

Assumption 3: that those holiday-makers who go to the beach will not like oil on the beach.

Assumption 4: that oil on the beach in itself can ruin a holiday.

Assumption 5: that the audience will understand words such as *holiday, beach, relaxation, enjoyment, ruined, our*, and *oil slick* and that these do not need to be defined.

All of these are reasonable assumptions. The facts may not be true for every individual: some people may enjoy their holiday even with oil on the local beach. However, the assertions have sufficient general applicability to be fair assumptions. We would not expect the author to provide proof that most people who go to the beach for their holidays want to relax on an oil-free beach. We might be irritated if the author spent time proving such assertions or defining words that we are likely to know.

Taking the context into account

In critical thinking, it is important to identify what are reasonable assumptions and what are not. This can depend on the context, such as the intended audiences: will they share the same assumptions and background knowledge? If the example about oil on the beach was written in a book aimed at people learning English, there might be words such as *oil slick* which the author would need to explain.

Similarly, if the phrase 'our beaches' referred to a small part of local coastland but the article appeared in a national publication, then it would be wrong to assume the audience would be aware that only some local beaches were affected.

When writing an assignment or report, the same applies. You would be expected to indicate the assumptions underlying your argument and define terminology that might reasonably be open to multiple, confusing, interpretations. You should consider the context, especially the intended audience. If the assignment was aimed at non-experts, then there might be more assumptions to clarify. However, it would be a waste of everyone's time to explain anything obvious or uncontentious.

Activity: Identify the underlying assumptions

Activity

For each passage, identify the underlying assumption. Remember that an assumption is not necessarily incorrect or unreasonable.

Passage 6.1

Students of the late twentieth century regularly campaigned against nuclear weapons. Students rarely demonstrate against nuclear weapons any more. Students must be less political than they used to be.

Passage 6.2

House prices rose quickly in the 2000s in many countries. There was a big slump from 2008 and lots of house-buyers lost money. House prices are now rising very quickly again. House-buyers can expect to lose a lot of money.

Passage 6.3

Children are costing parents more. They demand more of their parents' time, expecting to be taken to activities after school, whereas in the past, parents' own interests took priority. Parents are under more pressure to provide clothes and shoes with expensive designer labels, toys, trips and even more costly brands of breakfast cereal in order for their children to be accepted by their peers. Advertising aimed at children should be banned in order to reduce this excessive peer pressure.

Passage 6.4

According to *overture.com*, more people search for information about the modern scientist, Emeagwali, on the internet than any other scientist. The number of pages downloaded are the equivalent to a best-selling book. Everybody must have heard about his discoveries by now.

Passage 6.5

Large companies move jobs to other countries where labour is less expensive. When wages rise in one country, the companies look for cheaper options overseas, taking the work to a new set of employees and making the former work-force redundant. Services such as call-handling can be offered from thousands of miles away. Soon, there will be no jobs left in the former high-wage economies.

Passage 6.6

Consumers are keen to eat more healthily. Information on packaging helps people to identify what food contains so they can make more informed judgements about what they eat. However, many people now refuse to eat food if the label refers to any E numbers. This demonstrates that simply putting such information on the label is not necessarily helpful: people need to know what it means.



Magda's quest for vitamin C has hit an obstacle.

Answers: see p. 304.

Identifying hidden assumptions

Why identify implicit assumptions?

It is useful to identify the assumptions that underlie an argument as the overall argument can then be better understood and evaluated.

Careless use of implicit assumptions

Implicit or hidden assumptions are often used to support a conclusion. However, these may be made in such a careless way that they do not support the conclusion.

Example 1

Holidays are a time for relaxation and enjoyment. People need this time to recuperate from the stresses of work and family life. This year, thousands of people will have their holidays ruined by oil slicks along our beaches. Therefore, people who have already booked their holidays should receive compensation for the stress that these holidays will bring.

The assumption here is that people are entitled to compensation for stress caused by a spoilt holiday. If this assumption was not being made, then there would be no sense in arguing that people in a particular situation should receive such compensation. The passage also carries the assumption that people are entitled not to feel stress at holiday time:

- Holidays are needed to overcome stress.
- If there is stress during a holiday, there should be compensation.

There is also an assumption that if a holiday goes wrong after it was booked, someone somewhere must pay for this. However, this is only likely to be the case in certain circumstances. The passage is not well reasoned as it makes assumptions that are not explained clearly or well based in fact.

Non-sequiturs

'Non-sequitur' means 'doesn't follow on'. Sometimes, we can guess that there must be a hidden assumption because the conclusion seems to jump out of nowhere, rather than following on from the sequence of reasons.

Example 2

The number of people in prisons continues to rise each year and is much higher than it was over a hundred years ago. Many prisons are now overcrowded. Rehabilitation of criminals would be a much better option.

The conclusion here is that *Rehabilitation of criminals would be a much better option*. This may be the case but it doesn't follow on logically from the reasons that preceded it. The conclusion is a 'non-sequitur'. Overcrowded prisons and a larger prison population may be facts but these do not give information about the relative virtues of rehabilitation versus time in prison. That would require a different set of reasons, such as those given in Example 3.

Example 3

Research shows that, far from curing people of crimes, prison teaches criminals about how to succeed at a wider range of crimes – and how not to get caught next time. On the other hand, methods such as further education, increased social responsibilities and coming face to face with their victims have worked in individual cases to change people away from a life of crime. Prison does not have to be the only option.

Here, the conclusion may or may not be correct, but it does follow logically from the sequence of reasons. The author here gives reasons why prison does not work and why rehabilitation can.

Implicit assumptions used as reasons

Authors may use hidden assumptions as reasons to justify their argument. In effect, they 'jump to conclusions'. We can check for this by:

- looking for gaps in the argument;
- then working out what the missing link is in the chain of reasons;
- then checking to see whether the conclusion would still be supported without those hidden assumptions.

Example

Examinations are a typical way of assessing what students have learnt and we are all familiar with the stress they can bring. How many of us have dreaded hearing those words 'put your pens down', signalling the end of the exam? If students had more time in examinations, they would finish their last questions with less hurry. This would bring them better marks. Students with disabilities can claim additional time so they have an unfair advantage during exams.

The conclusion here is: *Students with disabilities have an unfair advantage during exams.*

Three reasons are given to support this:

Reason 1: If students had more time in examinations, they would finish their last questions with less hurry.

Reason 2: (an interim conclusion used as a reason): If they finished in a less hurried way, they would get better marks.

Reason 3: Students with disabilities can claim additional time.

The implicit assumption, used as a hidden reason to support the conclusion, is that students with disabilities use additional time to complete their final question with less hurry. Without this assumption, there is a gap in the argument.

Furthermore, the effects of coping with a disability, such as sitting through an examination in

extreme pain, or dictating an answer to a scribe, or translating back and forth between a signed language for the deaf and the language of the examination, were not considered in the example. It may be just as true that the additional time does not compensate sufficiently for some disabilities, much less confer an advantage. We would need more evidence to know whether any student would benefit unfairly from additional time.

Sometimes there may be several implicit assumptions. This is especially typical of spoken arguments, where we tend to jump more easily from a statement to a conclusion, leaving many assumptions unstated.

Example

Old people are scared of being robbed. They shouldn't keep their money under the bed, then.

The hidden or implicit assumptions in the example are:

- that old people in general fear being robbed, rather than only certain individuals;
- that elderly people keep money under their beds;
- that they are robbed because of this;
- that there is a link between their fear of being robbed and their keeping money under their beds.

There would need to be more evidence to support all of these assumptions. For example, we don't know how common it is for elderly people to worry about being robbed, or what percentage of them conduct their finances through organisations such as banks and building societies. However, it is more likely that senior citizens are scared of being robbed for a range of different reasons, such as the difficulty of recouping stolen money when living on a pension, or the media attention given to the occasional brutal attacks on older people.

Activity: Implicit assumptions used as reasons

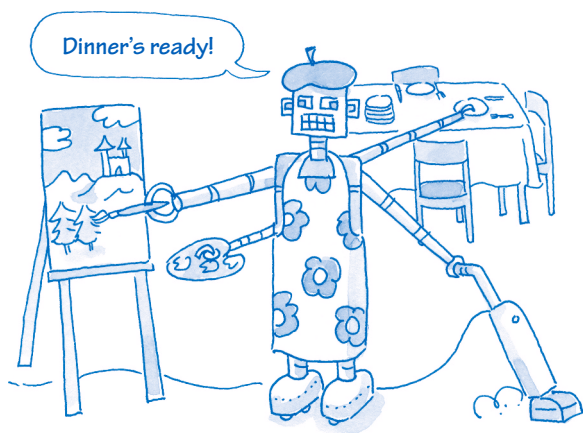
Activity

Read the following passages. In each case, identify:

- 1 the conclusion;
- 2 the implicit assumptions used as reasons to support the conclusion.

Passage 6.7

It has long been the hope of many people that robots would revolutionise mundane chores and hard labour such as construction work and housework. The first humanoid robot was designed by Leonardo da Vinci as long ago as 1495. We have gone for hundreds of years with little progress in gaining humanoid robots to assist around the house and construction site. Labour-saving robots are just a dream. As there has been so little advance on humanoid robots assisting with housework and construction, it will probably never be achieved.



Passage 6.8

The Electoral Commission found that intimidation was used to influence how some voters used their postal vote in the local elections. We should call an end to postal voting. This will ensure a return to fair elections.

Passage 6.9

People used plants as a method of curing illness for centuries before the advent of modern medicines. The same plants are often used by the pharmaceutical industry as the basis for the medicines we use even today. Medicines are now expensive to produce and purchase. It would be better if we returned to traditional methods, using leaves and roots of plants rather than mass-produced pharmaceuticals.

Passage 6.10

We should continue to improve sanitation and diet in order to further increase our life expectancy. People in the past had much shorter life expectancies than today. The life expectancy of pre-industrialised societies tended to be an average of 30 years. Today, people in developed countries can expect to live to over 80 years. Men, in particular, live much longer now.

Passage 6.11

Most new catering businesses collapse within the first year. Entrepreneurs tend to underestimate how long it takes to establish a client base. They run out of operating funds before they have a chance to establish themselves in the market. Many new restaurant owners give clients over-generous portions, often in a misguided attempt to lure them back to the restaurant. Therefore, in order to keep their businesses afloat, new restaurant owners should delay installing new kitchens until the restaurant is established.

Passage 6.12

Many people in the world are under-nourished or do not get enough to eat. More should be done to reduce the world's population so that food supplies can go round.

Answers: see pp. 304–5.

Inference, assumption and syllogism

Deductive logic and inference

Inference is the reasoning process used to fill in missing steps in an argument in order to draw a conclusion. This is also known as deductive logic. We infer a connection between the evidence (what we can observe or what is already known or stated) and what we conclude, to fill the gaps.

A logical inference is one where there is strong evidence to support the reasoning, such as where there is unlikely to be an alternative conclusion. That makes it different from an assumption, for which there isn't good evidence and other conclusions are just as likely.

Example 1

A sale started today at the shop. Unusually, there was a queue outside that shop just before it opened today. Customers must have turned up early for the sale.

In the example, we do not know for certain the reasons for the queue, but the deduction is a reasonable logical inference.

However, there is an assumption that we have the salient evidence. That might not be the case. For the example above, if we then found out that the manager who had the only key to the shop had arrived late so staff could not get into the shop, we might draw a different inference, that the queue at that time consisted of staff awaiting the manager.

In other words, it is not necessarily easy to know when we have made a logical inference and when we are making false assumptions.

Bias and inference

When we make inferences, even based on evidence, we can reveal our prejudices. What is 'obvious' to one person, might not be obvious to another, as in Example 2.

Example 2

There was corruption in the department. John Ames is Head of that department. John Ames must have known about the corruption.

Whether or not this is regarded as a good logical inference can depend on the context and our beliefs. For some, it seems obvious that a head of department must, or should, know of corruption amongst their own staff. For others, it seems obvious that a head of department couldn't be expected to know everything that their staff do. The position we take can reveal assumptions and bias about management – that managers 'should' or 'shouldn't' act in a certain way just because they are in a particular role.

For still others, it would depend on the context. For example, if it was then revealed that John Ames acted corruptly himself, or alternatively, had become Head of Department only a few hours ago, it is likely that this additional evidence would encourage different sets of inferences.

Syllogism

Syllogisms are relatively rare cases (for everyday or even academic argument) when a logical inference is used to draw a conclusion, but there is no room for assumption as the evidence is complete. A most famous example is

Example 3

Socrates is a man
All men are mortal
Therefore, Socrates is mortal.

Here, the first two propositions do not state that Socrates is mortal, but it is logical to infer this – no other conclusion can be drawn. There is no room for assumptions or bias.

It is not likely that we will, for most subjects, be constructing arguments that are syllogisms. However, the principle of closing off gaps where assumptions and bias can creep in is a good one to bear in mind when constructing a logical argument.

False premises

Predicating an argument on premises

An argument is based on reasons which are used to support the conclusion. However, when an argument is being formulated, it is also based on beliefs, theories or assumptions, known as *premises*. We say that an argument is *predicated* on its premises. *Predicated* means 'based on'. The examples below show how these terms are used.

Example 1

Usually, only 70,000 people attend the summer festival. A recent report has argued that, this year, the organisers need to order sufficient facilities for 500,000 people. People will want to attend the location that day to see the rare solar eclipse.

Here, the argument that the organisers need to order facilities for half a million people is predicated on the premise that many people will be so interested in the solar eclipse that they will come to the festival to see it. In this example, there are underlying assumptions about the popularity of a solar eclipse.

Example 2

The airport authorities have argued that they need additional security because the proportion of football fans using the airport has risen in the last year.

Here, the argument that there is a need for increased security is predicated upon the premise that football fans automatically create more of a security risk at airports.

False premises

As the basis of an argument, the premises act like the foundations of a building. If the premises are not well founded, the argument can come tumbling down. When the underlying assumptions are incorrect, we say the argument is based, or predicated, on false premises. Usually, we need some knowledge of the circumstances, such as data or the outcome of an event, in order to recognise false premises.

Example 3

A report prior to the festival argued that the organisers needed to provide facilities for 500,000. This was based on the false premise that the public would wish to see the solar eclipse at the same location as the festival. On the day, however, the public stayed home and watched the eclipse on television. Only the usual 70,000 attended.

After the event, it was easy to see that the whole argument was predicated on incorrect assumptions – or false premises.

Example 4

The proportion of football fans using the airport has risen in the last year. The airport used to be used primarily by oil rig workers before work moved further up the coast. In order to maintain the same volume of travellers, the airport is now offering cheap family deals for football fans travelling with children.

Example 2 assumed a particular type of football fan. In Example 4, when we find out more about the fans, we can see there is no obvious reason why families travelling to a football match would create a higher security risk.

Activity: False premises

Activity



For each of the following passages, make a judgement about whether the argument is likely to be based on sound or false premises. Give reasons for your answers.

Passage 6.13

Conflicts in the Middle East are likely to affect how much oil is produced in the next few months. When there is a shortage of oil, petrol prices usually rise. Therefore, the price of petrol is likely to rise this year.

Passage 6.14

Getting wet in the rain gives you a cold. The builders worked for several hours in pouring rain. Therefore, they will get colds.

Passage 6.15

Five per cent of people got married last year, and 5 per cent the year before. This means that 10 per cent of people get married every two years. Therefore, in 20 years' time, everybody will be married.

Passage 6.16

Most new restaurants struggle to survive. In order to break even after the first year of opening, we need to earn £8000 pounds a week. To make this, we need to fill every table every night. Other local restaurants fill about half their tables during the week. We have a good menu so we are likely to get a full restaurant every night. This means we will break even.

Passage 6.17

Online television will increase the number of channels from which viewers can choose. The more choice there is, the better the quality of the programmes that are produced. Therefore, online television will lead to better television programmes.

Passage 6.18

Bollywood, the Mumbai-based film industry in India, produces around 900 films every year, far more than any rival. These are being distributed to more countries than ever before. Indian films used to appeal mostly to home audiences but now attract large non-Indian audiences. India has diversified into art-films that win international acclaim. Therefore, the Indian film industry is gaining worldwide appeal.

Passage 6.19

National identities are strongly entrenched. When you are on a beach overseas, you can tell which country people come from just by watching their behaviour. French people, for example, play *boules* in the sand, whilst Englishmen are noticeable for walking round without any clothing on their upper bodies. So, there must be something in their genetic make-up that makes the people of a country behave in a similar way.

Passage 6.20

Cities are too polluted by cars' exhaust fumes and chemicals pumped into the air. In the countryside, the air is free of pollution. People ought to stop living in cities as it is healthier to live in the countryside.



Answers: see p. 306.

Implicit arguments

Explicit and implicit arguments

When an argument follows recognisable structures, the argument is explicit. Most of the arguments introduced in the book so far have been explicit.

When it doesn't obviously follow the familiar structure of an argument, the argument is implicit. Implied arguments may lack:

- an obvious line of reasoning;
- a stated conclusion;
- the appearance of attempting to persuade.

Why use implicit arguments?

An argument can be more powerful when it does not appear to be an argument or when there does not appear to be an attempt to persuade an audience. When an argument is explicit, the audience is likely to analyse it in detail, evaluating the strength of the reasoning and the quality of the evidence. This may not suit the purposes of the author.

If a set of statements leads directly to an unstated conclusion, the audience is more likely to draw the desired conclusion for themselves. An argument can be more convincing if the audience thinks they are drawing their own conclusions. It follows that implicit arguments are most likely to be used for purposes such as:

- catching someone unawares or persuading people through an appeal at an unconscious level, for example, in advertising;
- persuading someone to do something they don't really want to do;
- putting an idea into another person's head without appearing to do so;
- threatening others or creating the idea of threatening circumstances;
- maligning other people without actually mentioning their faults;
- suggesting a consequence without stating it, in an attempt to mislead or to make the audience feel they thought of it themselves.

Example

Huge cash prizes of over a million pounds!
Your number has been selected out of over 3.4 million entries to win one of our cash prizes!
Ring now on this number to find out more.

In this example, the implicit argument is that the recipient of the message has won a large cash prize, probably of over a million pounds. The message doesn't actually say whether all the cash prizes are over a million pounds. It also doesn't state whether the recipient has been selected as a winner of any kind: we only know the number has been selected 'to win'. This may turn out to be a number entered into a draw. Many people are encouraged to respond to such messages, only to find they have paid more in phone bills than the prize is worth.

Ideological assumptions

An implicit argument may be one that is simply not recognised as implicit because it represents what is taken for granted in the author's society or culture – in its body of beliefs or 'ideology'. For example, it was assumed until very recently that men should not express emotion or were incapable of coping with children. This didn't always need to be stated when it underlay an argument, because everyone 'knew' it was true. Implicit arguments can be a society's equivalent of a 'blind spot'.

Subjects such as cultural and media studies today analyse texts to bring out such 'taken for granted', or ideological, aspects so that we are becoming more aware of our hidden assumptions.

Reflection

Ideological Assumption

What do you think might be ideological assumptions that go more or less unnoticed today, but which will be evident to future generations? What are the current consequences of these assumptions going unchallenged?

Activities: Implicit arguments

Activity

Identify the implicit arguments in the following passages.

Passage 6.21

Employees would do very well to bear in mind that all forms of trade union and association, other than for sports and recreation, are not viewed favourably. Employees are not to discuss their rates of pay with other workers.

Passage 6.22

When our candidate says he fought for his country, he really did fight for his country. When our candidate says that he hasn't stolen from the nation, he really hasn't. And when our candidate makes electoral promises about taxes, he will keep them.

Passage 6.23

There were three hundred copper pipes loaded on lorries in the parking bay at the factory on Saturday afternoon when the manager and other staff left. The pipes had disappeared by Sunday morning. Julian and Ian worked late on Saturday. Both can drive the lorries. Neither has given an alibi for Saturday night.

Passage 6.24

People in our country believe in honesty and decency. We don't believe in stealing or cheating the state. Now, officials are allowing two thousand people to emigrate to here from other countries.

Passage 6.25

Most people in this country want the death penalty. This country is a democracy. In a democracy, what most people want should count. This country does not have the death penalty.

Activity

Ideological assumptions

What are the implicit social or ideological assumptions in the following passages?

Passage 6.26

I don't see why Ernest should be speaking when there are adults present. He is barely 20 and at an age when he should be attending to his seniors. A child should not force himself forward in this way.

Passage 6.27

Anna is eight years old now and it is time she was sent away to work. The farm at Nexby requires a pair of hands to help gather hay and feed the pigs and chickens. They will take her on and pay her room and board. She will only work from 6 a.m. until 6 p.m. every day. They are good people and will see that she does not fall into sin through idleness. Anna will be allowed home most years for Christmas day.

Passage 6.28

Now that Mr Potts has died, we will have to decide on the future of his estate. As he left only three daughters and has no living sons, the estate will have to pass to his dead brother's son, Mr Andrew Potts.

Passage 6.29

It is quite unreasonable to expect women to be employed to read the news. Some of the news is quite upsetting. It isn't all cakes, bazaars and cats stuck up trees. Newscasters often have to report on war, death and political unrest, which require a serious and steady approach.

Answers: see pp. 306–7.

Denoted and connoted meanings (1)

Any message may carry both denoted and connoted meanings.

Denoted meanings

The denoted meaning is the manifest meaning – the one that is most apparent on the surface.

Denoted meanings

The denoted message is the literal or explicit meaning.

Example 1

Denoted meaning

'Today! £100 reduction on all computers!'

The denoted message is: If you buy any computer at the place where the message appears, the price will be reduced by £100.

Example 2

Denoted meaning

You, too, could have a life in the sun.

The denoted message in Example 2 is: You could live where there is sunshine.

Connoted meanings

However, an argument may also contain latent messages in persuading us to a point of view. These tend to act on our unconscious as we are not necessarily aware that they are being used. Messages that act on the unconscious can be particularly powerful, so it is important to be aware of when an argument sounds convincing because of its connotations rather than its line of reasoning.

The connotations of a message can add to its effectiveness in persuading. If we can recognise connoted messages, we are in a better position to see how the argument is structured, and to decide whether we agree with its underlying point of view.

Connoted meanings

The connoted message carries additional unstated, or latent, meanings and implications. These may be obvious to the reader in some cases, but are often concealed and may need to be teased out.

Example 1a

Connoted meanings

The connotations of Example 1 are:

- These computers are bargains.
- If you don't buy the computer today, you are unlikely to get the £100 reduction so it is best to buy quickly.

Example 2a

Connoted meanings

The connotations of Example 2 are:

- A life in the sun is a desirable state that not everyone can achieve.
- If you do what we suggest, this opportunity will become available to you.



Denoted and connoted meanings (2)

Arguing by association

One common way of creating connotations is by associating the item under discussion with another. This way, the author doesn't have to argue explicitly that an item is a certain way, but implies it through the second item.

Example 3

That's a great car you got for your birthday. I got these trainers for mine. These trainers are like gold.

The denoted meaning in Example 3 is that the person received trainers as a birthday gift. The connotations of the messages are more complicated. By associating the trainers with gold, the trainers appear to be rare and therefore more valuable. This confers some importance to the gift and/or to the receiver of the gift. This may be because the trainers really are rare. Alternatively, the author may be trying to create the illusion that the gift of trainers is just as good as the more obviously expensive gift of the car.

Products which have no connections with gold often contain the word 'gold' in the name. Alternatively, marketing materials locate a golden image such as a wedding ring prominently where it will catch the eye. The association with gold immediately suggests excellence, wealth, or scarcity. Terms such as 'golden age' suggest a better time. A golden wedding ring suggests a lasting relationship or romance – associations which are useful when encouraging the idea of a long-term relationship between the audience as purchasers and the product being sold.

Latent messages

Latent messages may rely on connotations. In everyday life, we may be familiar with latent messages through the notion of 'reflected glory'. Most of us are familiar with people who don't argue explicitly: 'I am important', but imply it by mentioning all the important people they have met, or significant jobs held by friends and family. Latent messages are used a great deal

in advertising and political campaigning. The product being sold, or the candidate for election, or a political argument is linked with items and ideas that carry positive meanings. Rival political opponents and their campaign messages are associated with negative messages.

Latent messages often depend upon shared social, cultural and ideological values. As we saw above, if the audience is able to make the links for themselves, the intended message can be more powerful. One well-chosen key word or concept can evoke multiple associations, producing an effective latent message.

Latent messages may be conveyed through a number of means such as:

- Playing patriotic music in the background of a political broadcast, to suggest that a particular party is the most patriotic.
- Using an image of a bird flying in an open sky, to suggest freedom and unlimited choice as a consequence of acting in the way that the argument suggests.
- Baking bread when showing viewers around a house that is for sale, to suggest a feeling of home and well-being.

Stereotyping

When an idea or a set of people are continually linked to a small number of associations, such as adjectives, job roles or forms of behaviour, this is known as stereotyping. The more that the group is linked to that set of associations, the harder it is to conceptualise members of that group as individuals.

Example 4

On the left, we have the men's bathrooms, no doubt for the doctors, and over there are the ladies' bathrooms for the nurses.

For decades in Britain, there was a stereotype that doctors were men and nurses were women. Such stereotypes are now challenged. Stereotyping often accompanies the 'in-group' and 'out-group' behaviour described on page 100.

Activities: Associations and stereotypes

Activity

Word associations

For the table below, identify which set of concepts is associated with each key word.

| Key word | Associated concepts |
|-----------------|--|
| 3 mountain | A innocence, caring, love, tenderness, softness |
| 4 child | B danger, bravery, speed, unstoppable |
| 5 fruit extract | C romance, marriage, happiness, being special or chosen |
| 6 wall of fire | D man being independent; a place women aren't meant to go |
| 7 monkey | E healthiness, vitamins, well-being, flowing hair |
| 8 ring | F natural freshness, refreshingly cool, outdoors, hardiness |
| 9 shed or den | G humour, playfulness, tricks |

Activity

Associations that sell

Look at several advertisements. Identify which words or concepts are used the most to sell different types of product. What are the associations of the words used?

| Key word or concept used in advert | Associations given to the word or concept |
|------------------------------------|---|
| | |
| | |
| | |
| | |
| | |

Activity

Stereotypes

Identify which stereotypes are being perpetuated in the following statements.

- We'll decorate the room pink as they have two girls.
- There are uniforms here for the pilots, and ladies, your stewards' costumes are over there.
- We had better make sure there is roast beef on the menu so that the British tourists have something they are able to eat.
- We should have expected that he couldn't control his temper, seeing as he has red hair.
- We'll play some reggae for the visitors from the Caribbean and some flamenco music for those from Spain.
- We should have expected trouble as there were so many football fans in the crowd.
- There's no point providing washing machines in student halls of residence. It would be better to give them a big laundry bag so they can carry their laundry home to their parents to clean.
- They won't be interested in fashion or computers: they are both retired now.

Answers: see p. 307.

Activity: Denoted and connoted meanings

Activity



For each of the passages, identify:

- the denoted meaning;
- the connoted meaning;
- the use of association to create a latent message.

Then read the commentary opposite.

Passage 6.30

Although my client has been a bit naughty in the past, her behaviour has now changed. Her children have been through difficult times in the last few months. Her son has been seriously ill and her daughter was very distressed by her grandfather's death. During the period of trial contact with her children, my client has been like a rock to them. They are now reliant on her support.

Passage 6.31

All the other parties change their policies as the wind blows. Only our party has a constant and clear direction. We have our leader to thank for this, as she is the only captain who can steer a clear course through the storms currently facing our country.

Passage 6.32

It shouldn't be difficult to persuade people to take the new scheme on board. We just need to persuade the community leaders to approve our suggestions and the rest of the community will follow like sheep.

Commentary

Passage 6.30

The denoted meaning is that the client's behaviour had been poor but has now improved. She has shown she can provide good support for her children.

The connotations. The word 'naughty' is one associated with children's behaviour and therefore carries the connotation that the woman's bad behaviour wasn't very serious in adult terms. The mother is associated with the concept of a 'rock' to create the impression of a supportive and dependable mother. 'Rock' carries connotations of firmness, stability, reliability, and providing good support.

Passage 6.31

The denoted meaning is that whereas other parties change their policies, the author's party is constant in its direction irrespective of events.

The connotations. Other political parties are associated with the wind, which is changeable and unreliable. The connotation is that the parties are also unreliable. This creates a greater sense of contrast with the author's party, which is presented as steady even in a storm, rather than in mere wind. The party leader is associated with a captain of a ship. This carries connotations of 'command over the elements', and of steering a steady path towards the shore. This is not an unusual comparison, so, for some people, this association will carry further connotations of previous leaders who were successfully compared to captains of ships in the past.

Passage 6.32

The denoted message is that it will not be difficult to persuade the community to accept the new scheme if the community leaders approve it.

The connotations. The passage associates the people in the community with sheep, an animal that is considered to have little mind of its own. The connotation is that communities have little mind of their own and do whatever community leaders tell them.

Summary: Reading between the lines

- 1 Not all arguments are explicit.** They might be based on unstated assumptions and latent methods of persuasion. The premises upon which an argument is based might not be obvious either.
- 2 Assumptions can serve a useful purpose.** It is more efficient not to spell out details that it would be reasonable to expect that everyone already knows.
- 3 Assumptions underly most assertions.** When we read, view or listen quickly, we might miss the underlying assumptions, which can affect how we receive and understand the message.
- 4 Hidden assumptions can lead to false conclusions.** Gaps in reasoning that use hidden or implicit assumptions make it easier to 'jump to a conclusion' that is incorrect.
- 5 Arguments can be based on false premises.** In such cases, the underlying beliefs or assumptions were incorrect. It is unlikely that the argument can then be sustained.
- 6 Implicit arguments can be powerful.** If reasons lead to an unstated conclusion, the audience is more likely to draw the conclusion for themselves, which tends to make an argument more persuasive. That is especially so if it draws upon deep ideological assumptions.
- 7 The latent connotations of a message can be persuasive.** Teasing out the connotations of a message can help us to identify persuasive hidden arguments.
- 8 Connoted messages often rely on association or stereotypes.** These appeal to culturally shared connections and assumptions. Messages that act on the subconscious can be especially powerful precisely because they are not immediately obvious.
- 9 Identifying latent messages helps us to evaluate arguments.** We can better understand their structure and components, and evaluate whether they are powerful for reasons other than the quality of their reasoning.

Learning outcomes

This chapter gives you opportunities to:

- ✓ consider a range of flaws, or fallacies, that can undermine arguments
- ✓ practise identifying such fallacies
- ✓ recognise the difference between cause and effect, correlation and coincidence
- ✓ understand what is meant by necessary and sufficient conditions, and be able to distinguish between the two
- ✓ identify a range of ways in which language, or rhetorical ploys, can be used to distort an argument.

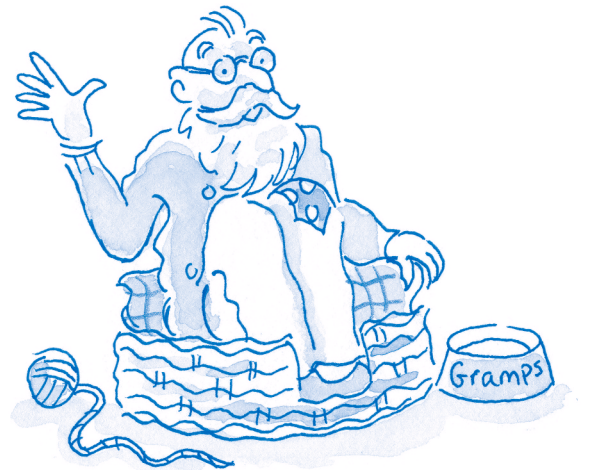
Introduction

Chapter 3 demonstrated that an argument has several components: an author's position, a line of reasoning that uses reasons to support a conclusion, and the intention to persuade. In Chapters 4 to 6, we saw that an argument can collapse even if it appears to have those components. We have already seen how an argument may be weakened by poor structure, logical inconsistency and hidden assumptions. This chapter will look at some other ways of evaluating the strength of an argument. It will enable you to consider many common types of flaws that can occur, such as: confusing cause and effect; failing to meet necessary conditions; attacking the character of a person rather than evaluating their reasoning; misrepresentation; and using emotive language.

Arguments may be flawed because:

- The authors didn't recognise that their own arguments were flawed. This chapter can help you to recognise flaws in your own arguments so you can improve your reasoning.

- The authors intended to mislead their audiences and deliberately distorted the reasoning, or misused language to create particular responses. This chapter can help you to be more alert to flaws in other people's arguments.



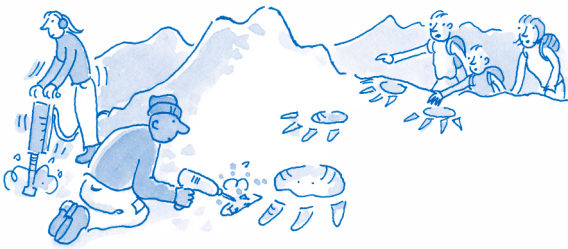
Cats have whiskers.
My grandfather has whiskers.
Therefore, my grandfather must be a cat.

Assuming a causal link

It is flawed reasoning to assume that because two things are found together, or occur at the same time, there must be a link between them. One example of this is assuming a link to be one of cause and effect: that one thing must be the 'cause' of another, or, in effect, jumping to a particular kind of conclusion.

Example 1

Wherever dinosaur imprints are found in rocks, there are geologists around. Therefore, geologists must make the imprints.



The assumption here is that as geologists and dinosaur prints can be found in the same place, the geologists create the prints. The underlying assumption is that the dinosaur prints must be fake. If this were not the case, the author couldn't draw the conclusion that geologists must make the prints. The more logical inference is that the prints attract the geologists as they are a natural subject for geologists to research when they are dating rocks. Other evidence is likely to prove they predated the arrival of the geologists by a great many years.

Example 2

The entire family was ill last night. They all ate fish at the restaurant yesterday. Therefore, the fish must have been contaminated.

Here, the cause of the illness is linked to eating fish. The underlying assumption is that nothing else could have made the family ill. Without this assumption, the author couldn't draw the conclusion that the fish was bad. More evidence than this would be needed to prove that bad fish was the cause of the illness, such as:

- whether anybody else who ate fish from the same batch became ill;
- what the nature of the illness is;
- what else might have caused the illness;
- an examination of the fish remains.

Activity

For each passage, identify the assumed causal link or links.

Passage 7.1

Life expectancy is much higher in Western countries than in the past. Obesity is also much higher. Therefore, obesity must increase life expectancy in the West.

Passage 7.2

A prisoner who protested his innocence by sitting on the prison roof has been released. This is the second time that a prisoner who has protested in this way has been released. Roof-top protests must be a good way of securing release from the prison.

Passage 7.3

The man's body was found in the kitchen. A bloody knife was found nearby. The lock on the door had been broken. Somebody must have broken in and killed the man.

Answers: see p. 308.

Correlations and false correlations

When trends are related, this is referred to as *correlation* – that is, ‘related to each other’. Sometimes, there is a causal link between the correlated trends, and at other times there is not.

Example

As the temperature rises, people drink more water.

Here, the two trends of rising temperature and increased water consumption can be correlated. Drinking water is an effect caused by the increase in temperature.

Example

As the temperature fell, people were more likely to use the indoor swimming pool.

Here, the two trends of falling temperature and increased likelihood of swimming indoors can be correlated. Use of the indoor swimming pool was an effect caused by the fall in temperature. Here, the trends move in opposite directions (one falls as the other increases) so there is an inverse correlation, but the link is still one of cause and effect.

Correlations with ‘third causes’

In other cases, there is not a causal link between trends that are correlated. For example, sales of ice cream may rise between May and August each year and so may sales in sandals. The trends move in the same direction and there is a relationship of some kind between the two. This means we can say that increased sales of both ice cream and sandals are correlated. It is reasonable to expect that when sales of sandals rise, there will also be a rise in ice cream sales.

However, increased sales of ice cream don’t cause the higher sales of sandals, nor vice versa. If a novel brand of ice cream is launched to coincide with winter festivities, ice cream sales could rise

without there being any effect on sandals sales. A third factor, warmer weather in summer, is responsible for the sales of each.



False correlations

A correlation assumes some kind of mutual relationship. Just because trends move in the same direction, this does not mean there is a correlation between them, as there may be no relationship. If a correlation is assumed where none exists, this is a false correlation.

Example

The number of car crimes has increased. There used to be only a few colours of car from which purchasers could choose. Now there is much more variety. The wider the choice of car colours, the higher the rate of car crime.

It is possible that there is some link between the two trends but it isn’t likely. The connection between the two trends is likely to be coincidental rather than correlated.

Checking the relationship

When there appears to be a correlation between trends, it is important to check the ways in which they are linked:

- Are the patterns and trends coincidental rather than there being a direct link between them?
- Are they directly linked as cause and effect?
- Are they linked by a third cause?

Activity: Identify the nature of the link

Activity



For each of the passages, identify whether:

- A The reasons support the conclusion through causal links.
- B The conclusion only works if there is an assumption or assumptions that are not covered by the reasons. Identify the assumption(s) made.
- C There is no link between the reasons and the conclusion.

Passage 7.4

Reason 1: Sugar destroys teeth.

Reason 2: Children eat a lot of sugar.

Reason 3: Children's teeth decay quickly.

Conclusion: Children's teeth decay quickly because of the sugar they eat.

Passage 7.5

Reason 1: More students use the internet for research and for submitting their work than in the past.

Reason 2: The overall number of students has risen but the number of teaching staff has not.

Reason 3: The proportion of students plagiarising the work of other people is likely to have remained the same.

Conclusion: Students are now more at risk of being discovered plagiarising.

Passage 7.6

Marie Curie, Einstein, and Darwin had long hair. They were all great scientists. Therefore, to be a great scientist you need long hair.

Passage 7.7

Reason 1: The price of football tickets has risen.

Reason 2: Football players receive higher wages than ever before.

Conclusion: Spectators are paying more to watch matches in order to pay footballers' high wages.

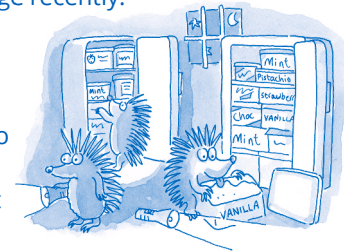
Passage 7.8

Reason 1: Hedgehogs enjoy eating ice cream.

Reason 2: Hedgehogs eat ice cream if it is stored in containers that they can break open.

Reason 3: Fast food outlets report a lot of ice cream wastage recently.

Conclusion: Hedgehogs must be breaking in to eat the ice cream at fast food outlets.



Passage 7.9

Reason 1: Dubai's population doubled every 10 years between 1940 and 2010 and is continuing to rise.

Reason 2: The port created in 1979 at Jebel Ali provided a prosperous free trade zone that brought in people from all over the world.

Reason 3: Many projects for improving the economic infrastructure, from sporting events and theme parks to world-class technology parks and international finance centres, have encouraged people to settle in Dubai.

Reason 4: Large-scale property development is under way, offering better opportunities for foreign nationals to own property in Dubai.

Conclusion: Dubai's population is increasing because of the opportunities it provides to foreign nationals.

Answers: see p. 308.

Not meeting the necessary conditions

Necessary conditions

In order to prove an argument, certain supporting reasons or evidence will be essential to it. These are called *necessary conditions*. A necessary condition is just as it sounds: it is an essential requirement. If it is not present, there is a gap in the argument, and the outcome could be different. If the outcome could be different, then the argument isn't proved. It is important to bear in mind that there may be many necessary conditions, or requirements, for proving a case.

'Without this, then not that ...'

You can check whether a reason forms a necessary condition by rephrasing the argument and seeing whether it still holds true. Necessary conditions are expressed in statements such as:

- *If this doesn't happen, then that won't occur.*
- *If this isn't true, then that can't be true either.*
- *If this isn't present, then that won't be present.*
- *If A isn't present, then B can't be true.*
- *If it doesn't have A, then it can't be B.*
- *If it doesn't do A, then B won't result.*

This is easier to grasp through concrete examples.

Example 1

If you don't make advance arrangements for a taxi to come to the house to take you to the station, then a taxi won't arrive in time for you to catch your train.

A necessary condition, or requirement, for the taxi arriving in time, in this case, is that arrangements are made in advance. This is a sound argument.

Example 2

One way of making a lot of money is by winning the lottery. In order to win the lottery, you have to have a lottery ticket for the draw. John has a lottery ticket for the draw so he will make a lot of money.

One necessary condition, or requirement, for making money through the lottery is to have a relevant lottery ticket. John has met this necessary condition by having such a ticket.

Checking for necessary conditions

When you are checking for necessary conditions, it can help to rephrase some or all of the reasons, and see whether the argument still holds.

Example 3

Proposition: Birds have wings. The item has wings. The item is a bird.

To check whether wings are a necessary condition of the item being a bird, apply a statement such as: *If it doesn't have A, then it can't be B*, and check whether this is true or false. In this case:

If it doesn't have wings, then it can't be a bird. True or false?

This is true: if an item did not have wings, it would be hard to argue that it was a bird.

However, it is important to take the context into consideration: if a bird had lost its wings in an accident, or had been born without wings, it would be flawed to argue that this prevented it from being a bird. For example, the underlying DNA that leads birds to have wings would be able to determine that this was a bird.

Not meeting sufficient conditions

'Necessary' is not enough proof

Necessary and sufficient conditions are different. Even if a necessary condition is met, this might not be sufficient to prove a case: there may be other conditions that must be met. You need to consider whether the 'conditions' are sufficient to support the conclusion. If not, then the argument is not yet proved.

In Example 2 on page 95, simply having a ticket for the lottery draw is not a sufficient condition for making money: the ticket might not win. This illustrates the difference between necessary and sufficient conditions.

'If this, then that ...'

Sufficient conditions form the totality of all those conditions that must be met in order to secure a particular argument. If sufficient conditions are met, then a particular set of consequences *must* follow. Sufficient conditions are expressed in statements such as:

- *If this is true, then that must always be true.*
- *If A is present, then that proves B.*
- *If this is true, then that must always follow.*
- *If A is present, then B must be true.*

Example 1

The lottery prize money was £10 million. John held the only winning ticket. He met the rules of the competition. Therefore, John made a lot of money.

In Example 1, some necessary conditions for John to make a lot of money are met: the prize was for a large sum, and John was the sole winner. However, if he lost his ticket, didn't claim his prize, or the lottery company went bankrupt, sufficient conditions would not have been met for John to make a lot of money.

Example 2

Bacteria usually have very short life spans. However, in 1989, the skeleton of a well-preserved, 11,000-year-old mastodon was found in Ohio. Scientists found an intestinal bacterium in its rib cage that they believe was from its last meal. The bacterium was not found in the surrounding peat. Therefore, the bacterium must be over 11,000 years old.

The author is here arguing that bacteria may live much longer than was assumed. A necessary condition is that bacteria found in the skeleton are not also found in the surrounding peat. If they are, then the bacteria might have travelled from the peat to the skeleton only very recently, and might not have been present in the rib cage 11,000 years ago. However, this is not a sufficient condition to prove the age of the bacteria. We don't know, for example, whether the bacteria were blown by the wind into the skeleton at any intervening point during the last 11,000 years, without making contact with the surrounding peat.

Sufficient and/or necessary

When you are checking for sufficient conditions, it can help to rephrase some or all of the reasons, and see whether the argument still holds true. To check whether wings are a sufficient condition to prove that something is a bird, apply a statement such as: If A is present, then that proves B, and check whether this is true or false.

Example 3

Proposition: Birds have wings. The item has wings. Therefore, it is a bird.

*If wings are present, then that proves this is a bird.
True or false?*

The answer is 'false'. Its having wings is not sufficient proof that this is a bird. Other necessary conditions would be that it was, or had been, a living creature, with feathers, and that it had the DNA of a bird. A winged item could simply be an aeroplane.

Activity: Necessary and sufficient conditions

For each argument, decide:

- Whether the reasons given meet the necessary conditions to support the conclusion. Write *Yes* or *No* in the box headed *Necessary?* Give reasons for your answer.
- Whether the reasons given to support the conclusion are sufficient. Write *Yes* or *No* in the box headed *Sufficient?* Give reasons for your answer.
- An example is given in the first box.

Answers: see pp. 309–10.

| Ex. | Argument | Necessary? | Sufficient? |
|-----|---|--|--|
| | <i>Example: Birds have wings. The item has wings. Therefore, it is a bird.</i> | <i>Yes. Wings are a necessary condition for the item being a bird.</i> | <i>No. The reasons given to support the argument that the item is a bird are not sufficient to satisfy the definition of a bird. This would include: usually flies, is animate, has two legs, has feathers. The information given is not sufficient to rule out an aeroplane or a toy.</i> |
| 1 | The report makes reference to branches. It must be about a tree. | | |
| 2 | The boxer doesn't eat meat or fish. He does eat dairy products and vegetables. The boxer is a vegetarian. | | |
| 3 | Amir is under the age of 20. Teenagers are less than 20 years old. Amir must be a teenager. | | |
| 4 | Claire does not play any musical instrument. Therefore, she is not a musician. | | |
| 5 | The bishop arrived on a vehicle with two wheels, one in front of the other. The bishop must have been on a bicycle. | | |
| 6 | A television usually costs more than a radio. This one costs less than a radio, so it must be a bargain. | | |
| 7 | Li Yeung had the benefit of an exceptionally happy childhood. She must be a very happy adult. | | |

False analogies

An analogy is a comparison made to draw out similarities between two things.

Creative comparisons

Authors can attempt to persuade their audience through using comparisons. In creative writing such as poetry and fiction, it is legitimate to compare two items that seem at first to be dissimilar in order to produce a literary effect such as surprise, humour or an unexpected perspective. In creative writing, it may be permissible to say 'it was raining wellington boots', or 'the moon is a goddess riding her chariot of clouds'. Literary critics have to decide whether such comparisons work to create the desired effect on the audience.

Valid comparisons

For most types of critical thinking, comparisons must be valid, and add to our understanding of the situation. In scientific terms, for example, it doesn't help to think of the moon as a goddess or clouds as chariots. Comparisons draw attention to those aspects which are similar. As two things are never identical, it takes critical evaluation and judgement to decide whether a comparison is valid for the context. If the comparison helps to give a more accurate understanding, then it is likely to be valid.

Example

The heart works as a pump, moving blood through the body by opening and constricting.

For most purposes, the comparison with a pump helps us to understand the action of the heart, so this is valid.

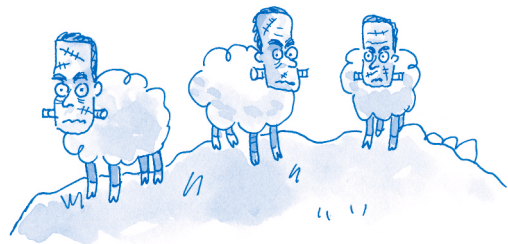
An analogy is not valid if:

- the two items being compared are not sufficiently similar; or ...
- the comparison is misleading; or ...
- the item used for comparison is described inaccurately.

Before reading on, check whether you can identify the weaknesses in the analogy in the example below.

Example

Cloning of human cells should never be allowed: it will create another Frankenstein's monster. We do not want such monsters.



The author's position on cloning is clear: that it is wrong and should be stopped. It may be that the idea of cloning is 'monstrous' to many people and the author is playing on that sentiment.

However, the analogy used is not valid as it doesn't compare like with like. A clone is an exact copy of an original. Frankenstein's monster wasn't an exact reproduction or copy of anything, but was, rather, an assembly of pieces. Moreover, by using the term 'another Frankenstein's monster', the author is implying we should have learnt our lesson from the past. However, Frankenstein's monster was only a character in a book. The author wants us to think that a clone will be a 'monster', but if the original used for the clone was not a monster, an exact copy should not be a monster either.

If an author uses a false analogy well, the argument may seem convincing. This is especially true if one half of an analogy seems easy to prove (that Frankenstein's creation was a monster) and the other isn't (the outcomes of cloning). It is easy to assume that because one half of the analogy is true, the other half must be too.

Activity: False analogies

Activity



For each of the passages, identify:

- What the analogy is: which two things are being compared?
- Whether the comparisons are valid.

Passage 7.10

The earth's atmosphere is like a blanket of gases around the earth. It is only a thin layer but it helps to maintain the temperature of the earth, keeping us warm. It also offers a layer of protection from the intensity of the sun.



Passage 7.11

It may not seem likely that the new political party will be successful in the upcoming elections but we remain optimistic. It is true that the formal membership is small and the party does not have much money with which to campaign. However, what it lacks in these areas, it makes up for in other areas, such as the skill of its politicians and their commitment to success. The party is like a new David, taking on Goliath. It may be small, but it can take on those much bigger than itself.

Passage 7.12

As the basis of an argument, the premises are like the foundations of a building. If the premises are not well founded, the argument is likely to collapse.

Passage 7.13

There was no way the defendant was able to help himself. He had been under excessive strain for some time and his emotions had been building up like steam under pressure. The witness had been goading the defendant, knowing he was likely to get angry. The defendant was like a pressure cooker, just waiting to explode. Eventually, he just reached boiling point and an explosion became inevitable.



Passage 7.14

Investors in certain businesses lost a great deal of money in recent years as their stocks and shares wavered in the financial markets. Investors may not have a right to compensation for the knocks and bruises they have suffered on the stock market but they should be reimbursed for major accidents and serious lapses in the health of the financial markets.

Answers: see pp. 308–9.

Deflection, complicity and exclusion

Language can be used skilfully to construct a powerful argument. However, it can also be used in ways that are unfair and which produce flaws in the line of reasoning. Language can be used to lull the audience into a false sense of security about whether an argument is valid, or can divert the audience from the line of reasoning. Some of these rhetorical ploys are examined below.

Deflective language

An author can use language to suggest there is no need to prove the argument, deflecting the audience from critically evaluating the reasoning.

Suggesting the argument is proved

Use of words such as: *obviously, of course, clearly, naturally* suggests that the argument is so obvious there is no need to evaluate it.

Appeals to modern thinking

Another way of deflecting the audience from the reasoning is by referring to the date, as if that, in itself, added weight to the argument.

Examples

- *It's the twenty-first century! This should be different now!*
- *It's no longer 1940!*
- *It's like being back in the ark!*

As the dating has some factual accuracy, the audience is already drawn into part agreement with the argument. This approach attempts to discredit anyone who disagrees with the argument as being old-fashioned and out-of-date.

Encouraging complicity

Everybody knows

This is a particular form of deflective ploy where the author acts as if the reader were already part of a group of like-minded thinkers.

This can be a powerful way of enticing the audience into agreement.

Examples

- *As we all know ... we all know that ...*
- *Surely, we all share the view that ...*
- *Everybody knows that ... Everyone believes ...*
- *It is well established that ...*

If 'everyone' believes something, then the audience would seem unreasonable not to agree.

'People like us': In-groups and out-groups

Another version is to suggest that people with certain attributes, such as 'decent people' or 'anyone with any intelligence', are more likely to agree with the argument. This can be especially convincing if coupled with an appeal to commonly held assumptions and prejudices.

Examples

Anyone with any sense knows that women are naturally better at housework than men.

Tajfel (1981) wrote about the way people divide into 'in-groups' and 'out-groups'. The in-group tends to make the out-group appear inferior and undesirable so that others want to avoid being associated with them. Authors can present opponents of their argument as an 'out-group'. The audience is more likely to be persuaded by the arguments of an in-group and less likely to consider the views of the out-group. Appeals to decency, morals, shared values and shared identity can be examples of this.

Examples

- *All decent people would agree that X is immoral.*
- *As British people (or black people/Muslims/ Catholics/deaf people, etc.), we all want ...*

Other types of flawed argument or fallacies

As you become more used to critical analysis, you will become more attuned to spotting fallacies. You could use a checklist such as that on page 281 to help you identify the main flaws. However, you would need a long checklist to cover *all* potential weaknesses. It is useful to develop an increased sensitivity to potential flaws, so that you can recognise them in different kinds of circumstance.

The following sections look at some further potential distortions and weaknesses to watch out for. To help develop the sensitivity mentioned above, this section presents texts first and encourages you to find the flaws yourself, if possible, before reading the commentaries that follow.

Activity



Before reading about further types of flawed argument, see if you can identify these for yourself in the passages that follow.

At this point, don't worry about the correct technical names for the fallacies, or flaws: just see if you can recognise when and why the argument isn't watertight. There may be more than one flaw in each passage.

Passage 7.15

Community centre

Closing the community centre will leave our poor little children with nowhere to play after school. Parents are rightly furious. After the death of five children from the area on a school canoeing trip, feelings are running very high. The neighbourhood just cannot take any more. If the community centre closes, parents will worry that their children are being left to suffer all over again.

Passage 7.16

Internet copying

Although it is possible to devise software to catch people who copy on the internet, it is unlikely that everyone who does this could be charged. If you can't enforce a law, then there isn't any point in passing it. If there isn't a law, then there isn't a crime. If there isn't a crime, then nobody has done anything wrong.

Passage 7.17

Tolls

More people should travel by public transport, as this would improve traffic flows in the city. If there were tolls for using roads, people would use public transport. Polls indicate that most people want the traffic flow to be improved. This shows that people would be willing to support the introduction of tolls. Therefore, the council should introduce heavy tolls.

Passage 7.18

Identity cards

Personal identity cards don't present any real dangers to human rights. They add to our security, by making it easier for the police to track and catch criminals. Opponents of identity cards are wishy-washy liberals who live in leafy areas and haven't a clue what it is like to live in run-down areas where crime is rife.

Passage 7.19

The managing director

The rugby team has had a chequered season. The team started badly and although it has picked up now, it seems unlikely that it can still win the championship. The managing director says that two new acquisitions will make a great difference to the team's performance for the end of the season. However, the board should give little credence to anything he has to say on the matter. After seeing his seedy affair with the TV quiz hostess broadcast all over the media, despite his constant denials, fans shouldn't give him any further credibility as a manager.

Answers: read pp. 102–3.

Unwarranted leaps and castle of cards

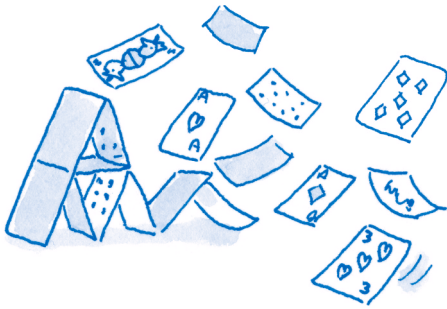
Unwarranted leaps

Where there are unwarranted leaps, the author appears to add two and two to make five. The argument races ahead, leaving gaps in the reasoning, and relying on unsubstantiated assumptions.

Castle of cards

In *castle of cards* types of argument,

- the author uses a set of interconnected reasons;
- the argument becomes precariously balanced, and depends on the previous reasons being accepted;
- if one reason or assumption is proved incorrect, the argument collapses easily.



Passage 7.17 Tolls (p. 101)

Passage 7.17 contains examples of both unwarranted leaps and *castle of cards* reasoning. The argument relies on a set of interconnected reasons and assumptions and is very delicately balanced. There are unsubstantiated assumptions which could be challenged such as that:

- the traffic problem is caused by the number of cars on the road, rather than, for example, road works or a one-way system;
- if a toll was introduced, people would respond by using public transport.

There is an unwarranted leap to the conclusion that, because a poll shows people want the traffic flow to be improved, they would also support tolls. We are not told whether the poll asked questions about tolls, so we do not know that a toll would be welcomed. The public might have preferred a different solution, such as bus shuttles or car-sharing.

Sleight of hand

A sleight of hand is a 'cunning trick' that can go unnoticed. In Passage 7.17, *Tolls*, the author jumps from a line of reasoning that appears to be discussing tolls, to a conclusion that argues for *heavy* tolls. This slight change of wording is an example of a 'sleight of hand'.

Passage 7.16 Internet copying (p. 101)

The *castle of cards* approach is also evident in Passage 7.16. This makes unsubstantiated claims such as that everybody who is caught copying on the internet could not be charged. This is not proved. On the contrary, large-scale fining is possible, and is used for minor traffic offences and for not having a television licence.

The author then argues that if a law can't be enforced, it shouldn't be passed. This is a matter of opinion and the author hasn't proved the law can't be enforced. Using this argument as the next stepping stone, the author argues that without a law there isn't a crime. There is a sleight of hand here, as the author hasn't mentioned whether a law against such copying is already in place at the time of writing.

The author makes a final leap to argue that if there isn't a crime, nobody has done anything wrong. This is not the case. Right and wrong are questions of ethics, not law. Some acts which are wrong might not yet be enshrined in law. For example, when there is a new invention or an advance in medical technology, it can take time for these to result in changes in the law.

Emotive language; attacking the person

Emotive language

Emotive language uses words, phrases and examples that intend to provoke an emotional response. Some subjects such as children, parents, national pride, religion, crime and security are emotive. Using these unnecessarily as arguments can manipulate the audience's emotions.

People tend to trust their own emotional responses. Strong emotions are usually a signal to the body to act quickly rather than to slow down and use reasoning. If an author can elicit an emotional response, then the audience is likely to be less critical of the reasoning. Where subjects are emotive, it is particularly important to check the underlying reasoning carefully.

Attacking the person

We saw in Chapter 3 that an argument should take counter arguments into consideration. This means making a critical analysis of the line of reasoning, not using personal attacks on those with opposing views. Attacks on the person rather than the argument are often used to undermine the credibility of an opposing point of view – but it is not a valid method of critical reasoning.

The exception is where there is a valid reason for showing that the opponents either have a history of being dishonest or have not revealed their vested interests in the debate.

Passage 7.15 *Community centre (p. 101)*

In Passage 7.15, *Community centre*, the author appeals to the emotions using words such as 'poor little children' and references to 'feelings running high' and 'suffering'. The passage reminds the audience of a disaster that had happened to other children in the area. The incident was very sad but

its relevance to the current argument is not clear. That accident happened away from the area, and when there was already a community centre where children could play. There may be a good case for keeping the community centre open, but the author presents an emotive appeal rather than a reasoned argument to support it.

Passage 7.18 *Identity cards (p. 101)*

This passage attacks everyone who opposes the introduction of identity cards on personal terms. It also makes unsubstantiated assumptions about the backgrounds and economic circumstances of opponents, in order to undermine their credibility. As the passage relies on these unacceptable methods rather than reasons and evidence, it demonstrates flawed reasoning.

The passage also encourages complicity in the audience (see page 100). By abusing opponents, the author encourages a division between in-groups and out-groups, or 'people like them' and 'people like us'. Furthermore, the passage draws on emotive subjects, referring to crime and security to win over the audience.

Passage 7.19 *The managing director (p. 101)*

This passage attacks the person of the manager rather than evaluating his judgements about the likely impact of the new players. It attacks the manager on the grounds of his personal life, not his expertise in managing a rugby team. We may not agree with decisions the manager takes in his personal life, but the passage does not show the relevance of this to managing the club. As the manager denies what is in the media, it may not even be true. The use of the term 'seedy' is emotive, suggesting there is an illicit side to the relationship, but this is not substantiated.

More flaws

Just as you did for page 101, check whether you can identify the flaws in the following passages. There may be more than one flaw in each passage, including flaws covered in previous sections. The answers will be on the following pages.

Passage 7.20 Nature or nurture

Those who argue that intelligence is not in-born do a disservice to the truly bright individual and hinder attempts to discover excellence. Many of us had intensive training on the piano when we were children, but we obviously did not all turn out to be a Beethoven or Mozart. We are all able to recognise brilliance when we see it. Proponents of the view that intelligence can be nurtured are too ready to blame society or the education system for not turning out more geniuses. They want us to believe that any of our children could be a genius, which is unfair on parents and teachers alike.

Passage 7.21 Curfews Juvenile crime has risen sharply in cities. Young people are out of control. There are only two options in a situation like this. Either we agree to put up with savage assaults on our persons and property, or we place a curfew on all young people after 10 o'clock.

Passage 7.22 Einstein

Einstein was not very good at maths when he was at school. Many school-children today could solve maths problems that he used to struggle with. The accolade of 'great scientist' shouldn't be ascribed to someone who struggled with basic numerical problems.

Passage 7.23 Health training

The public's knowledge of health is poor and more money is needed for education in this

area. Increased sums of money should be spent on courses to make people aware of personal health issues. People don't always know what they can do to take care of their health so further investment is needed in training on health matters.

Passage 7.24 Advantages of maths

More people should be informed of the value of studying maths to a higher level at school or university. A mathematical education can be very advantageous. Therefore, the guidance given to young people should emphasise the benefits of choosing maths.

Passage 7.25 Selling assets

The opposition party is wrong to condemn the leader of the council for selling off public assets at a low price to its own supporters. When the opposition had a majority in the council, they sold off cemeteries and houses below the commercial price, benefiting their own supporters. If they can do it, then the current council can do it too.



Passage 7.26 Stealing at work

Mr Malcolm's employers pay their stylists much lower wages than owners of other salons. Mr Malcolm supplemented his income by taking equipment and styling products from the workplace and selling these in his own area. He was justified in stealing from his employer because his employer was exploiting him.

Misrepresentation and trivialisation

One way of distorting an argument is by presenting the options or opposing arguments in an unfair or unbalanced way. Misrepresentation can be engineered in several ways. Three are given below. A consequence of misrepresentation is that important matters can be made to appear trivial.

Ignoring the main opposing reasons

An author can misrepresent an opposing argument by focusing on its minor points and ignoring its chief supporting reasons. If the minor points are not sufficient to support the conclusion, the opposing argument will appear very weak. Sometimes, authors may simply attribute beliefs and arguments to their opponents without any evidence.

Presenting restricted options

Another form of misrepresentation is to present an argument in such a way that it looks as if there are only two possible conclusions or options for action. This approach relies on selecting one conclusion or option that appears very weak and one that seems preferable. The weakness of the alternative conclusion or option makes the author's case appear stronger than it really is.

Misrepresenting a person

A poor form of argument consists of focusing on certain characteristics of a person, especially those irrelevant to the main argument, and ignoring more relevant information about that person.

Passage 7.20 Nature or nurture (p. 104)

Passage 7.20 misrepresents the opponent's arguments. The author's position is clearly one that supports the view that levels of intelligence are innate (i.e. there from birth). The passage attributes arguments to the opponent: 'They want us to believe ...', 'Proponents ... are too ready to blame society ...' No evidence is given to show that this is what is believed by people who argue that intelligence can be nurtured. Other reasons that

people might have for believing that intelligence is not simply a question of birth are not considered. For example, there is no consideration of research evidence.

The argument is trivialised by focusing on relatively rare cases of 'genius' rather than on how intelligence operates for most people. Rather than presenting a well-reasoned case, the author uses emotional devices, using an emotive subject such as unfair treatment of teachers and parents. There is an appeal for complicity through assertions aimed at drawing in the audience ('We are all able to recognise brilliance') and by references to potentially common experiences such as childhood piano lessons. These further trivialise the subject.

Passage 7.21 Curfews (p. 104)

The argument in Passage 7.21 is flawed in several ways. The main flaw is that it offers only two options, curfew or assaults. Other options, such as improved policing or changes in lighting, are not considered. 'Out of control' and 'savage' are strong statements using emotive language, but no definitions or explanations are given to substantiate these. It also assumes the crime occurs mostly after 10 o'clock.

Passage 7.22 Einstein (p. 104)

Passage 7.22 misrepresents Einstein by focusing on his early difficulties with maths and ignoring all the discoveries for which he is considered a great scientist. It overlooks that all the people who were better at maths when Einstein was young did not go on to develop such advanced scientific theories.

Activity

Misrepresentation

Watch this interview with Kimberlé Crenshaw (2021) at <https://www.youtube.com/watch?v=n4TAQF6ocLU>: Identify the reasons Crenshaw cites for the misrepresentation of the theory she named (see page 5). Can you think of similar examples, current or historical? How might critical thinking help, in your view?



Tautology; two wrongs don't make a right

Tautology

A line of reasoning should take an argument forward. Tautological arguments, on the other hand, merely repeat the same points in different words, without advancing the argument. Tautology means using different words to repeat the same concept, as in 'the car was reversing backwards'.



Two wrongs don't make a right

Another form of flawed argument is to argue that an action is acceptable simply because someone else acted in that way. Similarly, it is usually considered to be flawed reasoning to argue for consistent treatment when this would mean that an injustice or an illogical outcome was perpetuated by doing so. For example, if one person cheats in an exam, then it is not reasonable to argue that other people should be able to cheat too. If one person lies, it doesn't make it right for others to tell lies.

Passage 7.23 Health training (p. 104)

Passage 7.23 is tautological. Each sentence merely repeats what is said in the other sentences, using different words. 'Spending more money on courses' equates to 'investment in training'; 'make people aware' implies that 'people don't know what

they can do'. The argument does not progress, as no further reasons, details or evidence are provided.

Passage 7.24 Advantages of maths (p. 104)

Passage 7.24 is another example of tautology. The empty repetition makes the argument appear to go round in circles. The author doesn't present reasons to substantiate the case for learning higher maths. No details of the potential advantages are given. For example, it could have been argued that a higher qualification in maths can lead to a greater choice of careers or a better income. The author might have included information such as that surveys suggest employees in careers that require higher levels of maths have greater job satisfaction than employees in most other occupations.

Passage 7.25 Selling assets (p. 104)

Passage 7.25 is an example of 'two wrongs not making a right'. It is wrong for any party to sell public assets cheaply in order to secure political advantages for their party. Just because a previous party did so, this does not make it right for other parties to follow suit. It may appear hypocritical to cast blame on another party for behaviour that one's own party has engaged in. However, it would still be in the public interest for an apparently hypocritical politician to expose current wrongdoing. Otherwise, even more public assets would be wasted.

Passage 7.26 Stealing at work (p. 104)

Passage 7.26 is another example of 'two wrongs do not make a right'. The employers may have been in the wrong in the way they treated their employees. However, stealing was not the appropriate response. It isn't either ethical or legal. The argument would not stand up in court.

Other fallacies

There are many other fallacies used to derail or distort arguments. Here are a few to watch for.

False implications

This means deliberately creating the impression that something is true (when it is not), but without actually saying so directly. In Example 1, the implication is that Marta is not a truthful person. It relies upon the assumption that there would be no logical reason for mentioning liars unless Marta was one.

Example 1

'I like Marta. She is a good role model.'

'You don't mind liars, then?'

Smokescreens

These divert attention, deliberately, from the question under consideration by raising a different issue. Just as smoke can impede our view, the new point obscures the argument.

Example 2

Question: 'When will your government start the project to improve north coast sea defences, as it promised during the election?'

Response: 'Our party has committed over £200 million to coastal defences, more than any in history – and gave the greatest support for flood victims.'

The response is a smokescreen as it does not address the question about the north coast. It might also draw the questioner into an unintended debate on other issues, such as the accuracy of amounts spent, on what, by whom. A strong smokescreen can mean that an argument never reaches a conclusion.

Red Herring

'Red herring' ploys are similar to smokescreens as they divert the logical course of debate. Historically, smelly red fish were used to divert tracker dogs from the scent they were following. False reasoning is used to divert attention from a weak argument, by presenting reasons that appear strong but are irrelevant to the conclusion. In Examples 3 and 4,

the reasons provided for investing in a company or evaluating an essay are not relevant. They divert from valid criteria.

Examples 3 and 4

You should invest in the company because the director is such a lovely family man.

We should award the prize for best essay to Annika because she has been such a great support to all the new students and she is deaf.

Straw dogs

'Straw dogs' are responses which distort an original argument or point, taking it out of context or exaggerating it or focusing on only one aspect. This makes it easier to distract or deflect from the original point, and to make the person presenting it seem unreasonable, as in Example 4.

Example 4

Argument: 'We should provide more state support to elderly people who are struggling with heating bills.'

Response: 'People like you want us to pay 100% of our income as taxes!'

Here, the response exaggerates the suggestion of some support to 'all our income', which then looks very unreasonable. Although it might be transparent as a distortion, it diverts from consideration of the elderly to consideration of tax, and/or of who 'people like you' might be.

Activity

Write your own

Have a go at creating your own examples for each of these types of fallacy.

Want to know more?

There is a long list of fallacies at: https://en.wikipedia.org/wiki/List_of_fallacies

Summary: Does it add up?

- 1 Fallacies, or flaws, undermine many arguments.** There are a great many flaws that make an argument unsound. Becoming sensitive to flaws that undermine arguments helps with recognising weaknesses in your own arguments, and others'.
- 2 Arguments may be flawed by accident or design.** A person might not recognise that their argument is not logical, or they might use fallacies with deliberate intent.
- 3 Incorrectly assuming causal links.** It is not uncommon to find that when two events occur together, incorrect judgements are made about whether they are related and, if so, the nature of that relationship, such as whether one has caused the other.
- 4 False correlations.** Coincidences can be mistaken for cause and effect or seen as a correlation. It is important to check, even when trends move in the same direction, that there is an actual link.
- 5 Necessary conditions are minimum requirements,** such as for proving a point. Rephrasing an argument can help confirm that the necessary conditions have been met for it to hold true. For A to be true, B must necessarily be present.
- 6 Sufficient conditions are the totality of conditions that must pertain,** such as to prove a point or give rise to an event. If these are in place, then particular consequences, or logical deductions, must follow. If A is true, that is sufficient for B also to be true.
- 7 Analogies can be either valid and helpful, or false and misleading.** A good analogy compares items that are sufficiently similar, and in ways that clarify the point. False analogies can appear convincing – where part of the analogy seems valid, it is easy to assume that the comparison as a whole is also valid.
- 8 Rhetorical ploys can deflect attention from the real argument.** There are multiple ways that words or rhetorical devices can be used to divert an argument from its logical course, such as using words that make it sound as if there is no reasonable opposition to a point of view. These include, amongst others, 'smokescreens' and 'red herrings'.
- 9 Fallacies can promote false conclusions.** Ploys such as 'unwarranted leaps', 'castle of cards', emotive language, misrepresentation of opponents' arguments, trivialisation and others can all distort an argument such that an incorrect conclusion seems reasonable.
- 10 Such fallacies can prevent an argument from advancing.** The line of reasoning should take an argument forward. Flawed reasoning disrupts this.

Chapter 8

Where's the proof? Finding and evaluating sources of evidence

Learning outcomes

This chapter gives you opportunities to:

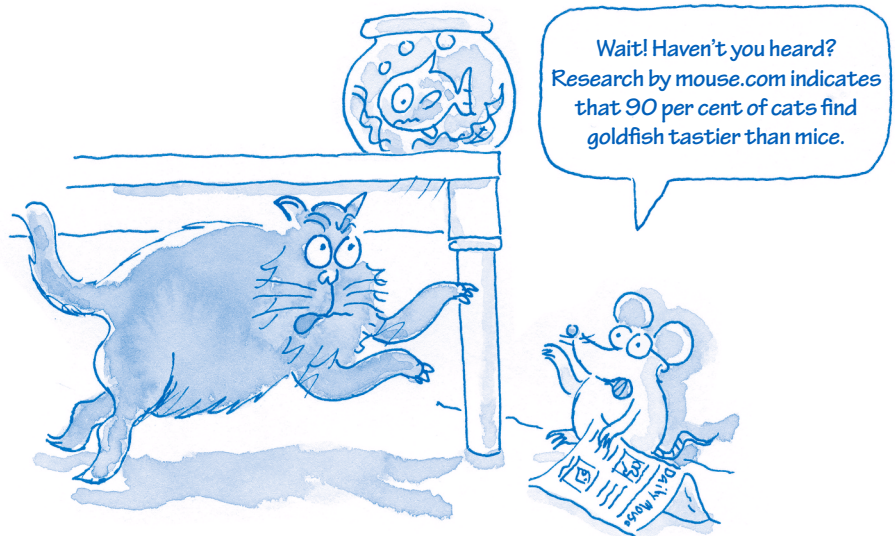
- ✓ recognise the difference between primary and secondary sources
- ✓ understand what is meant by a literature search
- ✓ understand concepts such as authenticity, validity, currency, reliability, relevance, probability, and controlling for variables, as applied to research evidence
- ✓ identify ways of evaluating samples used in research projects
- ✓ recognise potential weaknesses in oral testimony.

Introduction

We do not always need to be an expert in a subject to evaluate an argument. In many instances, we will still be able to evaluate whether the reasons support the conclusion and whether the line of reasoning is ordered in a logical way.

However, in order to evaluate many arguments, we have to know whether the evidence used to support the reasoning is true. This means that we need to go to other sources, either people or material resources, to check the facts that underlie the reasons given.

Evidence may be convincing in one context, such as in everyday conversation or a magazine, but not in others, such as in a court of law or for academic or professional writing. In the latter cases, it is expected that greater efforts are made to check that evidence is all that it appears to be.



Primary and secondary source materials

Most types of evidence can be divided into one of two categories:

- primary sources: the 'raw material' for the subject, such as data and documents;
- secondary sources: materials such as books and articles based on, or written about, primary sources.

Primary source materials

Primary source materials are those that originate from the time and place of the events being investigated. Primary sources can include:

- contemporary letters, documents, prints, painting, photographs, autobiographies;
- newspapers, books and materials published at that time;
- TV, film and video footage from the time;
- recordings of radio broadcasts, podcasts;
- remaining body parts, sources of DNA, finger prints and footprints;
- artefacts such as tools, pottery, furniture;
- testimonies of witnesses, diaries;
- the raw data from experiments;
- social media posts, images (as evidence about a person, for example);
- material on the internet if the internet or materials on it are the focus of the study;
- individual responses to surveys and questionnaires.

Secondary sources

Secondary sources are any materials written or produced about the event, usually some time later. These include:

- books, articles, web pages, documentaries about an event, person or item, biographies;
- interviews with people reporting what they heard from witnesses;
- articles in magazines;
- papers and reports using the results of surveys, questionnaires and experiments;
- wikis, blogs, videos, social media comments about a person/topic.

Crossing between categories

Whether something is a primary source depends on how far it was part of the events at the time. Secondary sources in one circumstance may be primary sources in another. For example, a biography is normally a secondary source, but may reproduce copies of original letters that are primary sources. The biography of a prime minister is a secondary source of information about the political leader but could be a primary source about the life of the author. Magazine articles written in the 1950s were secondary sources when published, but are primary sources for present-day research into life in the 1950s. In the 1950s they were writing about people, events and objects of the time, whereas for present-day researchers they are artefacts in their own right, telling us what things were considered important at that time.

Activity



What are the main primary sources for your subject?

Searching for evidence

Critical thinking generally requires an active approach to seeking out the most relevant evidence to support your own arguments, and to checking the evidence used by other people.

Checking other people's evidence

When you are reading, or watching a programme, or listening to a lecture, you may encounter a line of argument that is so interesting or relevant that you want to discover more. Alternatively, you may consider that the evidence cited does not sound very credible and you may want to check it for yourself. The higher the level of study or research, the more important it is to check the key evidence, especially if there is any doubt about its being reported accurately.

Use the references

When reading articles and books, you will see a short-hand reference in the text such as '(Gilligan, 1977)' and a more detailed list of references at the end of the text. These references provide the details you need in order to find that source for yourself.

Good references enable any reader who wishes to do so, to check whether:

- the source material really does exist;
- the author represented the source material in an accurate way, and the source really says or contains what the author claimed;
- the source contains any additional information that readers can use for their own projects.

When critically evaluating an argument, don't be afraid to go back to some of the sources and check whether these stand up to scrutiny. Often, it is not possible to form a judgement about an argument until you have more information about the subject.

Evidence for your own arguments

When looking for evidence to support your own arguments, the first questions you are likely to ask are:

- Has anything been written about this already?
- Where can I find that information?
- Which are the most relevant and authoritative sources for this subject?

For everyday purposes

If you need information for casual purposes, such as for a personal project or for contributing to a debate, you may need only to do one or two of the following:

- browse an introductory chapter of a book;
- use a search engine such as *Google*;
- read recent newspapers, or read papers on the internet, using a source such as *www.theguardian.com*;
- ask an expert in the area, such as a librarian;
- visit the websites of relevant bodies, such as campaign groups, charitable bodies, or government sites.

For academic and professional purposes

If you are looking for material as background for a professional report or for academic work, you will need to conduct a 'literature search'. The rest of this chapter focuses on finding and critically evaluating potential sources of evidence.



Gerald never let the evidence get in the way of a good theory...

Literature searches

A literature search gives you an overview of previous research on the subject. Usually, the larger the project, the more extensive the search should be. For smaller projects, or where there are word restrictions for the report or essay, careful selection is especially important.

Doing a literature search means:

- finding out what has been written or produced on the subject (secondary sources);
- collating a list of the sources that are potentially relevant for your subject;
- paring down the list, selecting sources for initial investigation to check for relevance;
- browsing selected items to help you select the most useful sources;
- selecting the most relevant sources for more detailed investigation;
- tracking how multiple sources contribute to development of our understanding of the topic, or to a line of reasoning or to a debate;
- selecting for use the items that are most relevant to your own argument or research (see page 116).

Online literature searches

Many reputable sources are now available online. If you know the names of journals, government papers or other relevant authoritative sources, enter these as part of your search. Otherwise, enter several key words to help pinpoint exactly what you want. Your search will be more effective if you use a relevant search engine. If you are at university, your tutors are likely to recommend the most useful websites and search engines. Some useful starting places are given in the Appendix (p. 290).

Using abstracts

Browsing the abstracts of journal articles is a particularly useful way of gaining a sense of all the recent research in the field. The abstract summarises the main argument, research methods, findings and conclusions, which helps

you decide whether the article is worth reading in depth. Note, especially, the section which summarises the background literature for that report. This can indicate important leads for your own project.

Deciding whether to use a secondary source

Examine secondary sources critically to decide whether, for your purposes, they are likely to be sufficiently:

- well researched;
- trustworthy;
- recent;
- relevant.

This is especially important if you are considering purchasing books or borrowing them from a library, as it helps you to avoid unnecessary costs and time delays.

Basic questioning of the evidence

Critical thinking is a questioning process. When evaluating evidence, ask such questions as:

- How do we know this is true?
- How reliable is this source?
- Are the examples given truly representative of the whole area?
- Does this match what I already know?
- Does this contradict other evidence?
- What motive might this person have for saying this?
- What are we not being told?
- Are any other explanations possible?
- Do the reasons support the conclusion?
- Is the author's line of reasoning well substantiated by the evidence?

Reputable sources

For academic study and for professional life, evidence is roughly divided into 'reputable sources' (or 'authorities') and then everything else. A reputable source is basically one that:

- has credibility: it can be believed with a high degree of certainty;
- is likely to give accurate information;
- is based on research, first-hand knowledge or expertise;
- is recognised in the field or academic discipline as an authority.

Journal articles

Articles in journals are usually regarded as the most reputable sources as, in order to be published, they have to be reviewed and selected by other leading academics. This is known as 'review by peers'. There is a great deal of competition to get published in leading journals, so articles that succeed in passing such a peer review are generally, although not always, well regarded.

Subject differences

A reputable source for one subject may not be a reputable source in another field of study. Each academic discipline has its own conventions. For some subjects, such as in science, law, medicine, and accountancy, 'hard' data such as facts and figures are generally regarded as superior forms of evidence. On the other hand, in subjects such as art, music and psychotherapy, qualitative evidence can be regarded as more important: 'feeling the subject' may be more valuable than 'number-crunching'. However, this is not a hard and fast rule, and it can depend on the nature of the subject being studied and the evidence that is available.

Using recognised 'authorities'

Older sources, especially those regarded as authorities, may have made a significant contribution to the area of study. It is important then to check:

Questions to consider

When deciding whether a text is worth reading, consider:

- Has it been recommended by a source you trust, such as your tutor or a reputable journal or a review in a quality newspaper?
- Did you find it via a search engine dedicated to scholarly material, such as those listed in the Appendix, page 290?
- Is there a clear line of reasoning, with supporting evidence?
- Does it include a detailed list of references, or a bibliography, indicating thorough research?
- Does it provide clear references to its sources of information, so that other people could check these? If not, this may not be a suitable text for use in academic contexts.
- Does it use source materials that are reputable, such as academic books and journal articles or publications by professional bodies, rather than opinion, anecdotes, popular news sites or social media?

- exactly how the source contributed to knowledge in the field – don't dismiss something just because it sounds old;
- which parts of the original arguments and evidence are still applicable, and which are not;
- how later research used the source as a stepping stone to further findings – and in what ways the original ideas or data have been refined or superseded;
- more recent authorities, to see whether the source is still exerting an influence on research.

Activity

Good quality sources

Find out what kind of sources are, and are *not*, regarded as good quality, reputable sources for your course. How do your tutors recognise a source as one worthy of attention?

Authenticity and validity

Authentic evidence

Authentic evidence is of undisputed origin. This means that it can be proved that it is what it is claimed to be, or that it really was written or produced by the persons claimed. It isn't always possible to check for authenticity when hearing or reading an argument, but it is possible to maintain an open mind about whether the evidence is likely to be authentic.

Activity



Authenticity

Consider whether each of the following references is likely to be authentic or inauthentic.

- 1 A medieval illuminated manuscript found in the stacks of a cathedral library.
- 2 A medieval illuminated manuscript that turns up in a local second-hand bookshop.
- 3 A collection of 1000 autographs of Elvis Presley being sold over the internet.
- 4 An unpublished diary written by Shakespeare, in the possession of a second year student.
- 5 Letters written by Napoleon Buonaparte, dated 1809, contained in a large collection of French Revolution memorabilia.
- 6 A set of five previously unknown Van Gogh paintings discovered in a garage on a housing estate.
- 7 Decaying remnants of a Viking ship found in recently drained marshland.
- 8 Letters and artwork written by prisoners in the nineteenth century, in the care of a prison governor.

Answers: see p. 311.

Validity

Valid evidence meets the requirements agreed, or the conventions that are usually followed, for the circumstances. What is valid will vary depending on the circumstances. Evidence may not be valid if, for example, it is not authentic, if it is incomplete, is unreliable, or if it isn't based on sound reasoning.

Examples

- 1 A defendant confessed to a crime but the confession wasn't considered valid because it became evident that the defendant had been forced to make it. Legal requirements would not regard a confession exacted under duress as valid evidence of committing a crime.
- 2 To gain a particular qualification, students were required to write eight essays as their own work. Although one student handed in eight essays on relevant subjects, the examiners found that three were too similar to essays available on the internet. These were not accepted as valid evidence of the student's own work, so the requirements of the qualification were not met.
- 3 An athlete argued that she was the fastest runner in the world. Although she had reliable evidence of her running times, these were not considered valid evidence that she was the fastest runner, as they were gained in unusually favourable wind conditions.
- 4 A report claimed that people who smoke are more likely to drink alcohol. The evidence wasn't considered valid as all the participants who smoked were selected in places that sold alcoholic drinks, whereas non-smokers were selected in the street. This meant that the selection of participants was already weighted in favour of the smokers being more likely to drink alcohol. This doesn't meet agreed research conventions, which aim to avoid unfairly weighting the evidence.

Currency and reliability

Currency

If a source is described as 'having currency', this means it is still relevant *in the present*. This may be because:

- it was published recently;
- it was updated recently;
- it has been produced in a new edition that takes account of the latest research;
- the material covered is relatively stable and unchanging over time, so that it remains relevant for a long time. Examples of this would be anatomy, biographies, or descriptions of how machinery used to work in the past.

It is always worth checking whether a source is still up to date: new research can appear on any topic at any time.

'Currency' is a term that is applied to secondary sources. Primary sources are contemporary to an event, so may be relevant or not relevant to a topic, but questions of currency are not usually appropriate.

Seminal works

Seminal works are those that are so original or far-reaching in their findings that they continue to exert an influence for a long time. A seminal work could be a text, a film, music, art, architecture or commercial design, or any other item that had a strong impact on the thinking and research in a discipline over time. It helps our understanding of our subject discipline if we have first-hand experience of the seminal works that influenced its research base and theoretical perspectives. We are in a better position to recognise the theoretical perspective informing other research, and to recognise the influence of those works in later works.

Activity

Which works are considered seminal for your area of research or the subjects you are studying this year?



Reliability

Evidence is reliable if it can be trusted. This may be because the source of the evidence is:

- someone you know to be trustworthy;
- a recognised expert;
- a person with no vested interest in the outcome;
- a reputable source (see p. 113).

NB For academic purposes, being an 'influencer' or having a large number of followers does not equate to being a 'reputable' source.

Reliability also refers to whether the evidence is stable over time, so that it can be used to make reasonably secure predictions. In other words, if you have evidence that something worked once, is this sufficient to show that it will work next time?

Example

Climatic conditions are relatively stable for large areas and time-periods and can be used to predict general trends in temperature or rainfall. On the basis of evidence of climatic change, we can predict that the Sahara region is likely to remain hot and dry for many years. Weather, on the other hand, changes quickly, and is less reliable for making predictions. It will rain in the Sahara, but it is hard to predict when or how much rain will fall.

Replication

In scientific writing, you may see references to the results being 'replicated' or 'not replicated'. This means that the results of a survey or experiment were re-tested to see whether they held true. If they didn't, the original outcome might simply have been the result of chance.

It is useful to know whether research was repeated and the findings replicated. If the outcomes were similar, this increases the probability that the findings are reliable.

Selecting the best evidence

A summary of your background reading, or reasoning based on secondary sources, is normally required as an early section in a report and for dissertations and doctoral theses.

Which sources should I refer to?

It is usually the case that there is a great deal to say about the source materials, but there are word restrictions that limit what can be said. This means you need to consider very carefully the sources to which you will refer.

Be selective

- Include sources regarded as the leading authorities on the issue.
- Refer in brief to any other sources. Select evidence that demonstrates the main pathway, or set of stepping stones, leading up to your own project.

Sources contributing to your argument

The main source materials to which you refer should be those that contribute most to supporting your own line of reasoning. There may be one or two seminal works that you refer to in some detail, a small selection of key works that you cover at some length, and several others that you refer to in passing. It is important, when writing academic reports, to show you can discriminate appropriately between the most significant sources and those of peripheral importance.

Passing references

References to other research add weight to your own reasoning. A passing reference may be a major study in its own right, but contribute only background detail to your own argument. Usually, you would use a passing reference to support a step in your line of reasoning or to substantiate a minor point in your argument. You do this by either:

- writing a sentence summarising the research findings and naming the source and date; or
- writing your point and then adding a reference in brackets.

Examples

Miles (1988) argues that British Sign Language is a language in its own right.

Sign languages are also languages with their own traditions (Lane, 1984; Miles, 1988).

What should I say about sources?

Most writing tasks have word restrictions. You will usually need to allocate most of your word allowance to critical evaluation of the argument and your sources of evidence, and very few words, if any, to describing them. If you are uncertain of the difference between descriptive and analytical writing, see pages 50–1.

When selecting sources, ask:

- Did this contribute a major theoretical perspective to the discipline?
- Has this changed thinking in the subject, or made a significant contribution to the questions debated in the discipline?
- Does this provide a contribution to the path of research evidence that leads up to my own project? If so, how? Is this a direct or an indirect link? Is it a key contribution that needs to be discussed or a lesser contribution requiring a passing reference?
- Does this source challenge what was said before or provide an alternative way of thinking about the issue?
- Does it use research methods that are novel or that I could use for my project?

Relevant and irrelevant evidence

Relevance and irrelevance

Relevant evidence is that which is necessary to give a good understanding of the issues. An author can provide evidence that:

- 1 supports the conclusion;
- 2 is relevant to the subject, but which may not be relevant to the conclusion: in this case, the evidence might even contradict the conclusion;
- 3 is relevant neither to the conclusion nor to the subject.

Example 1

People need to improve their understanding of how language works so that they can use it more effectively. Research studies (Bloggs, 2020; Bloggs, 2021) show that the study of a foreign language improves our understanding of the structure of language, providing a way of comparing different language structures. Therefore, people who only speak one language should be encouraged to study a second language.

Here, the research evidence about the benefits of studying a foreign language is relevant to the conclusion that people who speak only one language should be encouraged to study a second language.

Example 2

People need to improve their understanding of how language works so that they can use it more effectively. Research studies (Bloggs, 2020; 2021) show that many people cannot describe the different components of their own language. A surprising number of people have difficulties remembering the rules even of their mother tongue. Therefore, people who only speak one language should be encouraged to study a second language.

Here the evidence that people have difficulties in their own language could be interpreted to suggest that people who have difficulties with one language should not be encouraged to learn a second. The evidence is relevant to the debate, but does not support the argument. Further information would be needed to support the conclusion.

Example 3

People need to improve their understanding of how language works so that they can use it more effectively. Research studies (Bloggs, 2020; 2021) show that people can recognise concepts in a foreign language even when there is no word for that concept in their mother tongue. Therefore, people who only speak one language should be encouraged to study a second language.

Here, the evidence about recognising concepts in a foreign language is loosely related to the topic about languages. However, it has a completely different focus. It has no apparent relevance to the debate about using language effectively or the conclusion that people should learn a second language in order to use language more effectively.

Relevance to the conclusion

In considering whether evidence is relevant, your main focus should be on whether the conclusion would be different if that evidence (or reason) was different or not available?

Check

When evaluating an argument, check:

- Is the evidence relevant to the topic?
- Is it needed to substantiate the reasoning?
- Does it make a difference to the conclusion?
- If so, does it support it or contradict it?
- Is the evidence needed to substantiate interim conclusions?

Activity: Relevant and irrelevant evidence

Activity

For each of the following passages, identify whether the evidence and reasons are relevant to the conclusion. Then read the *Commentary* opposite.



Passage 8.1

Ice Age

Winters are getting colder. Opinion polls show that most people think there is a new Ice Age on the way. Therefore, we need to take measures to ensure that fuel resources are managed so that nobody is left to suffer from extreme cold during forthcoming winters.

Passage 8.2

Mr Charlton was given information, in confidence, that the price of shares in MKP2 Oils would rise suddenly if news of the new promotion reached the press before the share price was adjusted. Mr Charlton bought 50,000 shares in MKP2 Oils and leaked news of the promotion to the press. As a result, he made 10 million pounds personal profit. We can conclude that Mr Charlton abused the trust of the company and cheated it financially.

Passage 8.3

Major catastrophes, rather than gradual evolution, may be the main cause of change. Such a view did not seem plausible in the past as it was assumed that the process of geological change took place in a gradual way, just as it appears to today. However, evidence now suggests that change can be rapid and extreme. Geological evidence indicates that an enormous meteor collided with the earth several hundred million years ago, making most life-forms extinct. Geological science now attracts more funding than it did in the past. Archaeological evidence suggests that sudden changes in the environment brought about the rapid collapse of ancient civilisations.

Commentary

For Passage 8.1, the first reason, that winters are getting colder, is relevant to the conclusion about managing fuel resources. However, no evidence is given to substantiate this reason. The evidence from polls shows opinions, not facts, and this does not support the conclusion. An opinion is still only an opinion, even if held by a lot of people. The validity of an argument or of evidence does not normally rest on a majority decision.

For Passage 8.2, all of the evidence given is relevant to the subject and to the conclusion that Mr Charlton abused the trust of the company and cheated it financially. He betrayed a secret to the press so that he could make money at the company's expense.

In Passage 8.3, the conclusion is that major catastrophes, rather than gradual evolution, may be the main cause of change. The relevant pieces of evidence given to support this are:

- Geological evidence about the effects of a meteor collision in making life-forms extinct.
- Archaeological evidence about the effects of sudden environmental change leading to the fall of ancient civilisations.



The section about the plausibility of this view in the past is useful background information, but does not provide evidence to support the conclusion. Information about funding for geological science is not relevant to the conclusion.



Representative samples

Most research topics cannot be tested using very large numbers of people or circumstances. This would usually be too expensive, time-consuming, complicated to organise and unnecessary. Instead, surveys and research projects rely on selected samples. A representative sample is one which gives due consideration to the potential variety of relevant groups and circumstances.

Example

Four animal charities wished to know the views of the public on whether pets taken overseas should be held in quarantine before being allowed to re-enter the country. Each one selected the sample in a different way.

Sample 1

Charity 1 chose 1000 dog-owners from across the nation. The survey was balanced to ensure that roughly equal numbers were interviewed in every part of the country.

Sample 2

Charity 2 chose 1000 dog-owners from across the nation. The survey was balanced to ensure that more people were included in the survey in parts of the country which had large populations, and fewer representatives were questioned if the population was low.

Sample 3

Charity 3 chose 1000 pet-owners from across the nation. The sample was chosen to ensure that a broad range of pet-owners were included, including owners of snakes, budgies and tropical spiders.

Sample 4

Charity 4 chose 1000 people, representing a variety of pet-owners and people who do not own pets. The sample was selected from every county, weighted to include more people from heavily populated areas.

Differing principles of sample selection

Each of these samples selected participants according to a different principle. Sample 1 ensures that all geographical areas are represented equally, whereas sample 2 is more concerned that the sample is representative of population size. Sample 3 aims to ensure that different kinds of pet-owners are represented, whereas sample 4 is representative of both pet-owners and non-pet-owners.

Depending on the aim of the research, any of these methods of selection may be appropriate. For example, if it were known that 99 per cent of pets affected by quarantine were dogs, and that people from poorly populated rural areas were particularly affected, then the approach in sample 1 would be the most appropriate choice. Otherwise, a weighting according to population size is preferable.

If a wide variety of pets were subject to quarantine, then the approaches taken in samples 3 and 4 would be more representative of those affected. Samples 1–3 assume that people without pets do not need to be consulted, whereas sample 4 is more representative of the population in general. Sample 4 is more typical of the kinds of sample you will see in research projects and in articles. Usually, samples need to be representative of several different perspectives.

Check

When reading the 'Methods' section of research papers, articles and reports, check whether the most appropriate sampling method was used. If a group was not represented in the sample, then the findings may not be applicable to it.

Activity: Representative samples

Activity

Consider the following passages and decide in what ways the sample used in each is representative, and the ways it is not. Then read the *Commentary* opposite.



Passage 8.4

The experiment aimed to prove that eating carrots improves night vision in people under the age of 45, excluding children below school age. The sample consisted of 1000 people; 789 were women and the rest were men. For each sex, 25 per cent of participants were from the different age groups, 6–15 years, 16–25 years, 26–35 years and 36–45. Participants ate three capsules of carrot extract every day for 10 weeks.

Passage 8.5

The survey set out to discover whether consumers preferred soap perfumed with almond essence or soap perfumed with aloe vera. The sample consisted of 1000 people. Of these, 503 were women and 497 were men; 50 per cent of the sample were aged between 25 and 40, and the rest were aged between 41 and 55.

Passage 8.6

The research project tested the hypothesis that people who receive six sessions of counselling following a bereavement are less likely to take time away from work in the following 12 months than people who do not receive counselling. The sample consisted of 226 participants, in two groups that were matched for age, sex and ethnicity. Group 1 consisted of the 37 participants who opted to receive six sessions of counselling. Group 2 consisted of those who opted not to have counselling.

Commentary

The sample in Passage 8.4 is representative of the age group it set out to test, as it has taken care to ensure a good age distribution. It is not representative in terms of gender, as it includes far more women participants than men. It does not appear to be representative of people with different kinds of eye-sight, which would be important for this experiment.

In Passage 8.5, the sample is representative in terms of gender. Although the numbers of men and women are not exactly the same, the difference is small and not likely to be significant. The sample is not representative in terms of age. The survey does not state that the intention is to discover the preferences of people of a particular age range. It is not representative of people aged under 25 years or over 55 years. It is not clear whether the sample represented people from different economic, social, racial or geographical backgrounds.

In Passage 8.6, the two groups were 'matched' for age, sex and ethnicity. This means the sample was chosen so that a similar proportion of each of the two groups were men and women, from similar age groups and backgrounds. That is useful for ensuring the findings are not the result of differences in the composition of the groups. However, we do not know whether the samples were representative in terms of age, sex or ethnicity. For example, each group might consist entirely of white women aged 25–30. No details are given about whether the sample is representative in any other way, such as by type of job, geographical area or relationship with the deceased person. Most importantly, as only a small number of people received counselling, this is not a balanced sample.

Certainty and probability

Certainty

Arguments cannot always be proved with 100 per cent certainty. Chapter 7 looked at how necessary and sufficient conditions may need to be met in order to prove a conclusion. In many circumstances, it is difficult to prove that sufficient conditions have been met, as there are so many exceptions to the rule.

Reducing uncertainty

Uncertainty is not very satisfying and does not help in decision-making. Academics aim to reduce uncertainty in a number of ways, including:

- selecting reputable sources, which are more likely to be credible;
- critically analysing the evidence, looking for the kinds of flaws outlined in previous chapters;
- calculating the level of probability;
- increasing the level of probability as far as they can.

Probability

When evaluating an argument, the audience needs to decide on a general level of probability. This means deciding whether the evidence is likely to be credible and authentic and, if so, whether the conclusions are likely to follow from the line of reasoning and its supporting evidence. Any conclusion may lie on a spectrum from impossible, to possible, to probable, through to certain. As Chapter 10 shows, academic writing is reluctant to express certainty, even when it has taken significant steps to ensure a highly probable finding.

Probability spectrum

Impossible — possible — probable — certain

Calculating the level of probability

The level of probability is related to the likelihood that something occurred because of the reasons given, compared with how far the outcome could have occurred by chance. If you throw a coin a hundred times so that it lands flat, there are only two options for the way it can fall, heads or tails. The probability is that the coin will land on heads about 50 times and tails about 50 times. This outcome is not certain, but it shouldn't surprise us if it occurs.

To win the lottery, the chances are much less probable. If there are 14 million options for the winning set of numbers, and you have only one set of numbers, the chances of your set being selected are one in 14 million.

Statistical formulae or specialist software can be used to calculate how likely it is that a particular outcome occurred by chance or coincidence. This can be expressed as 'The probability of this happening by chance is ...'

- less than one in 10;
- less than one in 100;
- less than one in 1000.

Expressing levels of probability

You are likely to see probability expressed as:

- $p = <0.1$ (less than a 1 in 10 chance that the outcome could have occurred by chance);
- $p = <0.01$ (less than a 1 in 100 chance);
- $p = <0.001$ (less than a 1 in 1000 chance);
- $p = <0.0001$ (less than a 1 in 10,000 chance).

The words 'The probability of this happening by chance' are abbreviated to 'p = '.

The words 'less than' are abbreviated to '<'.

The numbers are usually expressed as decimals smaller than the number 1.

The more zeros that follow the decimal point, the less likely it is that the outcome is a random one, that could have occurred just by chance.

Sample sizes and statistical significance

Sample size

The larger the sample size, the greater the degree of probability. The smaller the sample size, the more likely it is that the outcome could have occurred by chance. The appropriate size of sample varies.

An appropriate sample size depends on:

- how essential it is to reduce the element of coincidence;
- whether it is a question of health and safety: a very small sample may suffice to prompt action;
- how necessary it is to be representative of many ages, backgrounds and circumstances;
- the funding available;
- how likely it is that a smaller sample will give reliable results.

Example

Clinical trials on a thousand volunteers indicate a success rate of over 95 per cent. Most patients made a complete recovery and, so far, few side effects have been identified. These trials offer hope of pain relief to a significant proportion of current patients.

Here, a thousand may seem like a significant number of people. However, that sample is unlikely to be representative of all those who may take the drug in future and of the circumstances which would ensure the drug was safe for them. If you needed to take the drug, you would be more reassured if you knew it had been tested on people who share similar circumstances to yourself, such as your blood group, age group, ethnic group, and people with similar allergies or medical conditions.

A study of heart attacks reported in *The Times* (31 August 2004) involved 29,000 participants in 52 countries over 10 years. Other medical surveys may be much smaller. Opinion polls are usually based on surveys of about 1000 people.

Statistical significance

When there are very small samples, such as surveys which include fewer than 16 people in each category, it is hard to say that the outcome wasn't just a coincidence. When the sample is small, or the differences between groups are small, we say that these are 'not statistically significant'.

Look for

When evaluating evidence, look out for expressions such as: 'the results are significant at $p = <0.0001$ (see p. 121). This shows the level of statistical significance: a one in 10,000 chance. The more zeros after the decimal point, the more reliable the finding and the less likely it is that the result occurred as a coincidence.

If, on the other hand, you see an expression such as 'the results were not statistically significant', this means that the results, or the differences between two things, may just be a coincidence.

Small samples

A small sample may be necessary:

- when surveying people who are unusual in some way, such as people who are exceptionally successful or with rare medical or neurological conditions;
- if it is dangerous to gain larger samples, such as when working at depth under the ocean, travelling into space, exposed to chemicals, or living with extreme sleep deprivation;
- in unusual circumstances, such as large numbers of multiple births.

Over-generalisation

Generalisations are useful as they help us to see patterns and to make judgements more quickly when this is needed. However, a generalisation should be well founded, based on a reasonable sample.

An over-generalisation is one based on too small a sample to justify the generalisation.

Example

My first child slept through the night but the second one was a very poor sleeper. First-born children are better at getting to sleep than their younger brothers and sisters.

Here, the generalisation about first-born children is made on the basis of only two children. This is a database of two, which is a very small sample. If thousands of other first-born and second-born children showed the same sleeping pattern, then the generalisation might be valid. However, when only two children are involved, there is a large element of chance. The family next door might find that both their children sleep well.

Generalising from a single case

Generalising from a single case means forming a general conclusion on the basis of one instance. This is rarely acceptable.

Example

Some people say that calling people names because of the way they look is offensive. My friend is very overweight and people call him names for being fat. He says he doesn't mind as he finds horrible things to call back. This shows there is no harm in calling people names as they can just retaliate if they want to.

Just because one person appears not to mind offensive language, this does not mean that all other people will react in the same way.

An exception can disprove a rule

However, some generalisations can be made on the basis of a single instance, and be accurate. This is true, for example, when a general rule is already in existence, such as that objects, when dropped, will fall towards the ground. A single case that contradicts that rule would show that the generalisation wasn't universally true: for example, a helium balloon would rise. In such cases, the rule then has to be reconsidered and refined to account for the exception. Much of science and law has progressed by refinements to rules so that they are more accurate about the exact circumstances in which they apply.

Example

Clinical trials showed the drug to be very successful. However, this patient had a severe allergic reaction to the new drug. This means that doctors need to be aware that some people may react negatively to the drug.

Here, a single example is sufficient to necessitate a carefully worded generalisation. Over time, as more exceptions emerge, the generalisation will change to become more precise and accurate.

Example

This drug can create a severe allergic reaction in asthma sufferers and people taking the drug BXR2.

These examples illustrate that a small sample, even a single example, can disprove a theory based on a much larger sample. A single example can disprove a theory or rule. When this happens, the rule or theory has to be re-examined and reformulated to take account of the exception. However, it is also important to bear in mind that a generalisation means 'most of the time' and may be useful in helping to understand a situation despite the exceptions.

Controlling for variables

What are 'variables'?

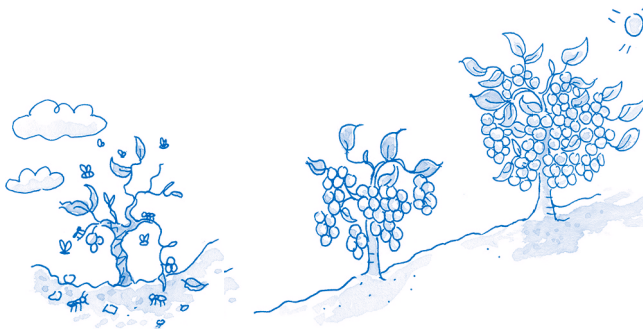
'Variables' are all those circumstances that might affect the outcome in intended or unintended ways. When evaluating evidence, it is useful to consider whether the author has taken steps to identify potential unintended variables and to prevent them affecting the outcome of the research.

Example

During trials in South Africa, the yield of grapes on a new vine was twice the usual level for red grapes. The yield produced twice the volume of wine. Cuttings of the vine were transported to California to an area with similar soil and rainfall. However, the vine didn't produce the same yields in California.

In this case, the producers controlled for some variables such as soil and rainfall, but these were not enough. In order to find out why the vine yielded more in one area than the other, the producers would need to grow it under controlled conditions, changing just one aspect of the conditions each time, until they isolated the special conditions that doubled the yield. Such variables might include:

- the total hours of daylight available;
- minerals and trace elements in the soil that had been overlooked;
- when the rainfall occurs during the growing process;
- the slope of the land;
- other plants growing nearby and their effect on insects and pests.



When you read research reports or journal articles, check what steps were taken to control for variables. In an article, this will be found in the section on methods. If the research doesn't take steps to control for variables, then the results may have been attributed to the wrong cause.

Control groups

One way of checking that the results support the conclusion is by using a control group. The control group is treated differently from the experimental group and provides a point of reference or comparison. If an experiment was testing for sleep deprivation, the experimental group might be denied sleep for 60 hours, whereas the control group might be allowed to sleep as usual.

Example

A company claims that its SuperVeg juice reduces the incidence of colds and flu. 100 people drink a bottle of SuperVeg every day for a year, and a control group, also of 100 people, is given flavoured water in a SuperVeg bottle.

The flavoured water is known as a 'placebo'. Participants should not know which group they are in, as that can influence their response: participants might wish either to help the experiment along or to sabotage it.

Activity

Controlling for variables

Look again at passages 8.4–8.6 (p. 120). For each example, identify what kinds of control groups or controlled conditions are needed.

Answers: see p. 311.

Facts and opinions

Opinion

An opinion is a belief that is thought to be true, but which is not based on proof or substantial evidence. An opinion may be a personal point of view or held by a large number of people, even if it runs contrary to the evidence.

Example Opinions



Facts

Facts are basically items of information that can be checked and proved through experience, direct observation, testing or comparison against evidence. However, as knowledge of an area increases, facts can later be disproved. A fact checked against reputable evidence generally carries more weight than personal opinion, but that doesn't mean it is true.

Example Facts

Facts

The coroner stated that the time of death was between 2 a.m. and 4 a.m. in the morning. The body was found at 6.30 a.m. by the cook. The footman reports that there were six people in the house overnight. The butler reports that four other people have keys and could have entered the house and left again before 6.30 a.m.

The facts in the example above are:

- The time of death, as given by the coroner. That is likely to be reliable.
- The time the body was found by the cook; however, somebody else could have found the body earlier and remained silent.
- The footman reported certain information.
- The butler reported certain information.

The details of the reports by the footman and the butler may not be facts: these could be personal opinions, or they may have been lying.

False appeals to the 'facts'

People's opinions can vary about what is a fact and what is an opinion.

Example

The butler was in the house all night. His employer was murdered during the night. The butler says he was a loyal servant but maybe he wasn't. I think he was lying and that he had some sort of vendetta against his employer. The facts say he is the murderer.

In this case, the facts appear to be:

- The butler was in the house all night.
- His employer was murdered during the night.
- The butler says he was a loyal servant.

These do not prove that the butler was either a loyal servant or a murderer: either or even both could be true. However, note that the author states his opinion, that the butler is the murderer, as if it were a fact.

Expert opinion

'Expert opinion' is based on specialist knowledge, usually acquired over time or based on research or direct experience. It is often used in court to help a judge or jury to understand the issues. Experts are often asked for their own judgements. This, in itself, is not taken as 'proof', as even experts can be wrong.

Eye-witness testimony

Eye-witness testimony

Eye-witness testimony may be useful in a number of circumstances, such as:

- people who saw or experienced accidents, crime and disasters first-hand;
- people who lived through historic events including the more distant past;
- clients' accounts of experiences and/or services received;
- patients' accounts of their experiences.

Levels of accuracy

Untruth

Personal testimonies can provide invaluable evidence, but they are not always accurate. Interviewees may not reveal the true case because they:

- may want to be helpful, so say what they think the interviewer wants to hear;
- may not like the interviewer;
- may be trying to protect somebody;
- may not remember anything, but like the attention of being interviewed;
- may have a vested interest in the outcome, so benefit from concealing the truth;
- may be being bullied or intimidated and be scared of speaking out;
- may have promised to keep a secret.

If using interviews to gather evidence, remember that the interviewee may have complex motivations for presenting the picture that they give.

Lack of expertise and insider knowledge

The witness may lack information such as expert knowledge or details of why something was taking place which would enable them to make sense of what they saw. They may have seen a camera crew filming a fight in the street as they passed by one afternoon. However, they would not necessarily know whether they were watching

a real fight at which a camera crew happened to attend, or whether the fight was staged deliberately for a TV drama. It may also be the case that the interviewee misunderstood what was asked of them.

The limits of memory

Loftus, in *Eyewitness Testimony* (1979), demonstrated, for legal use, how unreliable the memory can be. In one experiment, participants were shown a film of an accident and some were then asked how fast a white car was travelling when it passed a barn. A week later, 17 per cent of those who had been asked this question reported that they had seen a barn in the film, even though there had been no barn. This compared with only 3 per cent of the other viewers. Common memory mistakes include the following.

- Errors in perception: making mistakes about what you have seen and heard.
- Errors in interpretation: misinterpreting what you have seen.
- Errors of retention: simply forgetting.
- Errors of recall: remembering the event inaccurately. Our memory may be altered by going over the event in our mind, discussing it, hearing other people's accounts, or hearing about similar events.
- Composite memories: our brain can blend aspects from several events into one, without us being aware this is happening.

Corroborating sources

It is usually necessary to find other sources of information that corroborate a witness testimony, for example:

- official records from the time;
- other witness testimony;
- TV footage of the events;
- newspaper, police, social work or court records;
- photographs taken at the time;
- information about similar events that happened elsewhere but which might throw light on the event being considered.

Triangulation

What is triangulation?

Triangulation means checking and comparing different sets of evidence against each other, to see whether they support and complement each other, or whether they contradict each other. This is especially important when relying on first-hand accounts.

Triangulation is something that most of us tend to do in everyday contexts to check whether something is true.

Example

John told his mother that his sister Mary hit him. John was crying and called Mary a bully.

John may or may not be telling the truth. Before his mother took action, she is likely to have triangulated the evidence by:

- listening to Mary's side of the story;
- looking for evidence that John was hit;
- considering John's and Mary's usual ways of recounting events;
- checking for alternative explanations.

Example

A head teacher says that a school's record of achievement is better than ever, that most pupils succeed, and that this is because of improvements in teaching at the school.

This statement could be triangulated with:

- published government records over several years to check for general improvement over time at all schools;
- comparing the school's achievement rates with the average for all schools;
- comparing the school's achievement rates with those of schools of a similar type. For example, if the school was situated in an area of high economic deprivation, it is likely to be more appropriate to compare it with schools in similar areas.

You might also wish to investigate whether there are any other reasons for changes to the school's rates of achievement. For example, if the school had started to set difficult entry tests, this might have attracted a very different type of pupil to the school and excluded those less likely to achieve. The improved achievement rates might be because the pupils were different and not because of improvements in teaching.

Comparing like with like

When triangulating information, it is important to check that the different sources used are also referring to the same subject and interpreting words in the same way. If not, you may not be comparing like with like. For example, the head teacher in the example may be talking about sports achievement, not academic, so this would require triangulation with a different set of sources, such as sports records not government records.

Activity

Triangulation

What kinds of evidence would be needed to triangulate the following sources?

- (1) A person at the bus stop mentioning that cheap tickets will be available at the door, on the night, to see a band that you really like.
- (2) A report by a car manufacturer that new brakes fitted in their latest model of car were safer than other brakes available.
- (3) A chapter in a book that argued that, in the past, there were very severe legal penalties for begging.

Answers: see pp. 311–2.

Evaluating a body of evidence

When you are researching a subject, or producing an academic assignment, you are likely to refer to many sources of evidence. However, you are not likely to evaluate all of these in the same way.

You can evaluate some sources ...

- *by browsing*, to evaluate whether they are sufficiently relevant to your research topic and sufficiently reputable for the level of research;
- *by focusing* on the most relevant items, evaluating how these support specific aspects of your line of reasoning;
- *by selecting and carefully evaluating* a relatively small number of key sources, weighing the arguments, and looking for flaws and gaps in the evidence;
- *by comparing and contrasting* different sources, checking for inconsistencies.

The following activity gives you the opportunity to work with a set of short texts to practise discriminating appropriately between them. These are also used for activities in Chapters 9 and 11.

Activity



Identifying reputable sources

Read through the texts on pages 243–8.

- Identify which are the most reputable sources of evidence. Categorise these as:
 - very reputable;
 - fairly trustworthy;
 - little authority
- For which texts might the authors have a vested interest in their argument?
- Which are the most reliable sources on student nutrition?

Answers: see p. 312.

Summary: Where's the proof?

- 1 Know what is required for a good literature search.** Identify and select reputable sources. Be able to differentiate between primary and secondary sources, facts and opinion, relevant and irrelevant evidence.
- 2 Be critically selective with resources.** Whittle down many potential sources to a smaller, more manageable set for closer analysis. Organise your sources into a sequence that clarifies the background to your argument or research.
- 3 Subject your sources to scrutiny.** Check them for authority, authenticity, validity, currency, reliability. Subject them to close questioning. Is the evidence what it appears to be?
- 4 Select the right data. Consider how data were collected and interpreted.** Check they are relevant to the conclusion and support arguments as claimed, and to a high level of probability.
- 5 Be cautious of 'memory'.** Be aware of the limitations of first-hand accounts, such as eye-witness testimony, as a primary source.
- 6 Triangulate your evidence.** Check and compare evidence from different sources to ensure that they corroborate a consistent argument.

Chapter 9

Criticality when selecting, interpreting and noting from sources

Learning outcomes

This chapter offers you opportunities to:

- ✓ apply critical thinking when using books, articles and audio-visual material
- ✓ develop strategies for using source materials selectively, when reading listening or viewing
- ✓ understand the relation of theory to argument
- ✓ categorise arguments and theories
- ✓ check whether your interpretations of source materials are accurate
- ✓ develop strategies for selective and critical note-making.

Introduction

This chapter focuses on applying critical thinking skills when working with source materials for a specific purpose, such as writing a report or assignment. It looks at issues such as:

- identifying theoretical perspectives;
- categorising information to assist with its selective use;
- using a critical approach to note-making.

What is different?

When you are using resources for a purpose, that provides a focus. The more you can clarify and define your objective, the sharper the focus that you can apply, and the more selective you can be in

what you choose, use and note. Ultimately, this can save time and effort throughout the process. This is important, as critical approaches are normally more exacting, making greater demands on your time, attention and memory.

As producing critically strong pieces of work generally involves close observation, analysis, reflection and making sound judgements, it can be slower than using sources for recreation or for gaining general background. As you develop your critical abilities, these skills should become faster and more accurate.

Gain an overview first

Why do this?

Gaining an overview helps to establish the context, so that you can:

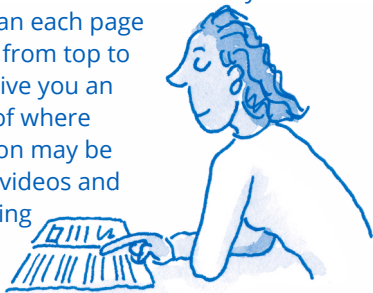
- identify the main argument more easily;
- better comprehend the reasoning and recall it;
- remember the overall argument;
- be more strategic in what you select to read, watch or listen to in more detail;
- recognise how supporting reasons and evidence contribute to the main argument (and generally how the parts contribute to the whole).

1. Prime your brain

Before starting to use a resource, decide what it is you are looking for. Select a few themes to investigate, or questions to which you need answers. This helps the brain to spot useful information, increasing your chances of finding it quickly.

2. Quick Browse

Then, look quickly through the whole item to gain a feel for the material. For long texts such as books, reports or manuscripts, simply flick through the pages a few times. Your brain will start to form a sense of what is there. Reinforce this by then letting your eye scan each page for a few seconds, from top to bottom. This can give you an initial impression of where relevant information may be located. For some videos and films, fast-forwarding through the item can do the same.



3. Find an argument summary

Check where the overall argument or the author's position is set out. It is fine to leap ahead and search for this, and worth doing as it helps you to make sense of the detailed reasoning and to decide where to focus. Depending on the source, check for this in the introduction, first chapter, abstract, or opening words of a talk or podcast.

If you are still unclear, check the final chapter, the conclusion or recommendations section of a report, or closing sections of talks and videos.

4. Use other beginnings and ends

Check whether the reasoning and evidence for contributing arguments are summarised at key places, such as the start and end of each chapter, opening lines of new sections, or when new topics are introduced in a talk. If so, this is invaluable for orientating your thinking to the material and for keeping track of the line of reasoning whilst you work through the details.

Journal articles

The structure of articles helps to locate and select relevant information. Browse the abstract to see if the article looks relevant. If so, use it to identify the argument and decide which sections are relevant to your purpose. Read these selectively.

- **The research hypotheses** sum up what the author set out to prove.
- **The background/literature review** outlines how previous research and thinking contribute to the starting place for new work undertaken for the article. Use this to gain good leads for further reading and to understand how arguments about the topic evolved over time. It can help identify debates and counter arguments useful for assignments.
- **The methods** section should tell you precisely how the author went about the research. This section can be useful for identifying potential gaps and weaknesses. Also, check the discussion section to see whether the author identified drawbacks or weaknesses in their methodology – a small change might lead to very different results and conclusions.
- **The results** outline the author's findings.
- **The discussion and/or conclusions** indicate what the author considers significant about the research and its findings. Again, this can provide useful material for your arguments or counter-arguments on the topic.

Identify the theoretical perspective

What is a theory?

A theory is a set of ideas that explains or justifies why something happens in a particular way, or principles that underpin an activity (such as teaching, nursing, construction). Theories help to predict probable future outcomes. They are based on evidence and reasoning, but have not yet been proved conclusively.

We use the term 'theory' in everyday language to suggest we don't know yet, for certain, either the reasons or the outcomes.

Examples

The flight still hasn't been announced. My theory is that a storm is brewing so they think they can't take off.

Everyday use of the word tends to be an expression of opinion, but it shares the characteristics of academic theory in being:

- an attempt to provide an explanation, or a prediction of likely outcomes;
- an idea, or set of abstract ideas, that haven't been fully proved;
- based on the facts as far as they are known at the time, and acknowledging there is still more to find out.

Knowing the theory helps fill the gaps

Most things that we do are based on some kind of theory, but we are not always aware that our opinions fit a theoretical perspective. In Chapter 6, we saw that what we say or write often contains unstated assumptions – which may be unrecognised theories. If we can identify an author's theoretical perspective, we are in a better position to recognise gaps in the reasoning as well as unstated assumptions.

Want to know more?



See whether you agree with this list of top theories by Tom Siegfried. What would be top on your list? <https://www.sciencenews.org/blog/context/top-10-revolutionary-scientific-theories>



Theory in research and academic life

In professional research and academic thinking, a theory is usually an elaborated system, or 'school', of ideas, based on critical analyses of previous theories and research. Much research sets out to test or further refine existing theories so that they are more useful in providing explanations, and for creating models for future action.

Finding the theoretical position

In the best research and texts, the theoretical position will be stated by the author in an explicit way to assist the reader. In books, this is usually outlined in an early section, or at the beginning of chapters. In articles, reports, dissertations and theses, the theoretical position will be indicated by the following:

- The research hypothesis: this should be stated near the beginning of the research and provides the key theoretical position that the research sets out to prove.
- The literature that has been selected for the literature search: authors' analysis of this should draw out the theories which have influenced the research.

The relation of theory to argument

Arguments based on theories

A theory may be used as the basis of an argument.

Example

Marx's theory of economics argues that wealth will become concentrated into a few hands. This research project is based on an interpretation of Marx's theory, and argues that although the denationalisation of public services in Britain led to more companies being set up in the short term, over a few decades, mergers and buy-outs have resulted in many smaller companies closing. As a result, the wealth of those industries is now in the possession of a small number of 'super-companies'. The research hypothesis is that after three decades, 75 per cent of the wealth of former British nationalised industries will, in each case, be in the hands of three or fewer super-companies.

In the example above, the main argument is that after a few decades, industries that were once nationalised, but were later sold to private companies, will become part of a few 'super-companies'. The author is explicit that the argument is based on an interpretation of a particular economic theory. Here, the theory is used to develop the research hypothesis.

The inclusion of numbers and proportions helps to make a general theory more specific and measurable. However, the general argument and theory could be valid, even though the specifics differ, providing that the trend was clearly in the direction predicted.

Theories as arguments

Theories can also be arguments in their own right if they offer reasons and conclusions and attempt to persuade. However, you may find that when theories are used as the basis of an argument, as in the example above, the author refers only to the conclusions or key aspects of the theory. To examine the line of reasoning behind the theory,

it may be necessary to return to the original text rather than using second-hand accounts.

An argument is not necessarily a theory

Note that arguments are not always theories. In the example below, the argument for going into town is supported by two reasons, but does not represent a theory.

Example

I know you are keen to return home quickly, but it would be a good idea to go to the shops first. We need to buy a present for Serina's birthday. We also need to get some food for tonight.

Activity

Identifying theory

Identify which of the texts on pages 243–8 have an explicit (openly stated) theoretical position.

State the theoretical position in each case.

Answers: see p. 313.

Subject-specific schools of thought

There will be specific theories, usually organised into schools of thought based around a few key researchers or approaches, for your own subjects. These might be clustered around broad theoretical approaches such as: nativism, humanism, chaos, catastrophism, functionalism, psychodynamics, systems, constructivism, Marxism, feminism, postmodernism and so on.

Activity

Schools of thought

What are the main schools of thought for your own subject discipline and areas of interest? A template is available on the companion site for recording the development of theories within schools of thought in your subject.

Categorising and selecting

Critical choices

Research tasks, including reading for reports and assignments, can require us to cover a great deal of information. We can only make active use of a proportion of what we read, but it may seem that everything is useful and interesting. Critical thinking involves decisions about:

- where to allocate available reading time;
- time to allocate to other resources;
- where to focus our thoughts;
- what to note for future reference;
- what material to use in our own report or assignment, and what to leave out.

Critical choices involve selection which is easier if we are skilled at categorising information. See Chapter 2.

Why categorise information?

It is easier to make critical choices when we have organised information not simply in files, but within our thinking. Categorising information is an essential process that helps us to recognise links between different kinds of information. This enables us to:

- identify repetition or near identical arguments;
- uncover inconsistencies and things that 'don't fit';
- compare and contrast information more easily;
- refer to sets of information as a group, so that our account is more succinct.

Categorising theory

We saw, above, that identifying the theoretical position helps us to fill in gaps in a line of reasoning. If we can categorise texts according to their theoretical position, we will be better able to:

- sort the information required for our analysis of the literature;
- track how one piece of research builds on previous research;
- better understand why further research into a subject has been undertaken, seeing how it fits into a bigger picture. Often, a piece of research can only examine part of the picture;

- group information under headings that help to clarify our understanding and aid recall;
- organise material in assignments to make a strong, well-structured argument.

Generic types of theory

There are some generic headings that are useful as points of reference when starting to group information. It is worth checking whether theories or arguments are, primarily, one or more of the following:

- *aesthetic*: related to an appreciation of art, beauty, taste;
- *cultural*: on understanding the dynamics of cultures;
- *economic*: on how economies function;
- *environmental*: on particular settings/ surroundings;
- *ethical*: a question of right and wrong;
- *financial*: considerations of money;
- *health*: on health/healthy behaviours;
- *humanitarian*: valuing human life and dignity;
- *legal*: related to the law; what the law says;
- *medical*: as explanations for disease, conditions, cures, etc.;
- *pedagogic*: on education and development;
- *philanthropic*: on private investment in public good;
- *philosophical*: related to the study of knowledge;
- *political*: related to government or state;
- *psychological*: explanations of thoughts, emotions, behaviours;
- *scientific*: resulting from a systematic and/or experimental approach that can be repeated;
- *sociological*: related to the development or organisation of human society;

Activity

Categorising arguments

Read through the texts on pages 243–8. Each text contains one or more types of argument. Categorise these using the generic themes listed above. More than one may apply to each text, or 'none of these' might apply.

Answers: see p. 313.

Accurate interpretation when reading

Reading style and accuracy

Accurate interpretation is particularly important to critical thinking. Donaldson (1978) found that people often get questions wrong because they do not adhere closely enough to the detail of what is asked or stated.

Incorrect interpretations can arise because reading is either over-focused on small details or it pays insufficient attention to details. Some common mistakes are:

- *Over-focused reading*: the reading is too slow, focusing excessively on individual words and sections of the text. Although close reading is a necessary part of critical reading, it is also important to interpret specific details in the wider context of the argument and the theoretical perspective.
- *Insufficient focus*: the reading is too superficial, taking in the big picture but lacking a sense of how the main theories and arguments are supported by specific details and evidence.
- *Insufficient attention to the exact wording*: missing out essential words such as 'not', or not following the exact sequence closely.
- *Failing to draw out correctly the implications of what is stated*.

It follows that, in order to interpret texts accurately, it helps to vary the focus of attention when reading, alternating between:

- the big picture and the fine detail;
- a consideration of the exact words and unstated implications and assumptions.

Activity

Passages 9.1–9.6 are interpretations of some of the texts on pages 243–8. In each case, decide whether the passage is accurate or inaccurate.

For any you judge to be inaccurate, give reasons for your response.



Passage 9.1

(Interpretation of Text 1, p. 243)
Mindfulness can enhance student well-being and bring benefits such as resilience and empathy.

Passage 9.2

(Interpretation of Text 3, p. 243)
Students account for almost half of the 'disease' burden in industrialised nations, because of their engagement in 'risky behaviours'.

Passage 9.3

(Interpretation of Text 5, p. 245)
The author argues that improving eating environments is more important than nutritional change.

Passage 9.4

(Interpretation of Text 6, p. 245)
65% of students are unlikely to experience good feedback or helpful teaching, so feel more anxious than others.

Passage 9.5

(Interpretation of Text 10, p. 246)
Finance managers are reluctant to improve student sleep as such support will outweigh the cost of fees.

Passage 9.6

(Interpretation of Text 12, p. 247)
Students' low consumption of fruit and vegetables should be of greater concern to students' parents than loneliness.

Answers: see p. 313.

Making notes to support critical reading

Why make notes?

Note-making is a good idea. It has several benefits over simply reading or using resources without making your own notes:

- **Concentration** It breaks up a continuous task into many shorter spells alternated with note-making. Varying the task helps the brain to stay focused. It also rests the eyes and the parts of the brain involved in each task – useful given the intense processes involved in using resources critically.
- **Memory** It is easier to recall information written in our own handwriting, not least because of the motor memory and thinking processes this involves.
- **Increased interaction** Selecting what to write, rather than noting everything, brings multiple cognitive benefits. Pausing to select what to write can reveal whether you really understand what is significant and where you need to put in more thought. This also improves future recall.
- **Less work later** Making notes draws together the information that is relevant on the topic, so you don't have to re-use the original material to find what you need.
- **Annotating and commenting can help with selection and interpretation.** Be sure to draw the key ideas into one place. You can make notes on a copy of the text if it is your own copy, but this doesn't help draw the key ideas into one place.
- **Ownership** The thought that goes into note-making, and your particular style and choices, help to make the subject material your own.

Making notes to support critical reading

The notes you make should support your main purpose. Avoid making notes on related topics just because they are interesting or might be useful some day. It is possible to write notes to fulfil several different purposes, such as to support a current project and to contribute towards a future project or assignment. If you do this, either use separate sets of notes for each project, or use clear headings in your notes to help you find what you need easily for each.

Reflect as you note

It is worth making a conscious effort to reflect on what you have read. Ask yourself questions such as these:

- What does this really mean?
- Do the reasons support the argument?
- Is there any supporting evidence?
- Does this match what I know about the subject already?
- Does it fit what other people say about the subject?
- Is this relevant and useful to my current purpose?
- How does this add to previous research on the subject?
- Are there any flaws in this?



TIP



Read without a pen in your hand. This helps to avoid writing lots of unnecessary notes that you haven't thought through, and to avoid accidental plagiarism.

Make structured, selective notes

For analysing an argument

If your main purpose is to keep notes to analyse an argument, use headings to guide and focus your use of each resource – or devise a template (see page 137). Note the following.

- Details for finding the source again easily.
- The author's position/theoretical stance.
- The main argument, or hypothesis.
- The conclusion(s).
- A list of the reasons used to support the conclusion. Number these. If the author repeats a reason in different words, make sure you include it only once on your list.
- Your evaluations of the strengths and weaknesses of the line of reasoning and supporting evidence.
- Your observations on how this adds to, or challenges, arguments or evidence presented in other sources.

Notes for assignments and reports

When making notes from a book, there is a danger of losing critical focus by taking down information indiscriminately, rather than selecting the most relevant points.

TIP



If you like to make lots of notes about facts and supporting details, keep these separate from your notes for critical analysis. If your critical analysis pages or file/folder remain empty and your background information pages begin to mount up, this will alert you that you are neglecting to evaluate the information for relevance and to select the most salient points. It may also indicate that you have slipped into copying from the text.

It is rare that you can use more than minimal background details from any one source material for either academic or professional purposes. Using a template can help you make concise, focused notes.

Note-making when reading journal articles

The main difference in note-making when reading from research articles is that you are more likely to make a close analysis of the particular contribution that the research findings or methodology make towards advancing knowledge within the subject area. Such articles tend to be based on a single piece of research and you may be especially interested in one section such as the results, methodology or discussion of findings. The template offered on page 138 puts the emphasis on your analysis rather than on background information.

Choose quotations carefully

Use few quotations and keep them short

Avoid long quotations as they eat into the word limit without providing any additional marks. Select a few short quotations that:

- in a secondary source, sum up a point well in a few words;
- in a primary source, provide direct evidence for your argument;
- are relevant and the best. Use sparingly.

Make quotations stand out in your notes

Develop the habit of using a particular colour or highlight, such as red or green, for any copied text such as quotations. This will make it immediately obvious to you, when you read your notes at a later date, what you have copied and what are your own words and ideas.

Note the source of quotations

Note down exactly where the quotation comes from. See pp. 176–7.

Templates for note-making



The templates mentioned above are available on the Companion site. You can expand and adapt these. There are also variants for noting from books and audio-visual materials, comparing schools of thought, tracking how multiple sources contribute to an argument, and supporting different kinds of argument (see also pages 185–94).

Concise critical notes: Analysing an argument



| | | |
|--|------------------|------------------|
| The issue (<i>the topic/debate</i>) | | |
| Author(s) and date | | |
| Full Citation details (<i>download/copy</i>) | | |
| Summary of its contribution to what is known about the issue/ topic | | |
| Author's position/theoretical position | | |
| Essential background | | |
| Overall argument or hypothesis | | |
| Conclusion | | |
| Supporting reasons | 1 3 5 7 | 2 4 6 8 |
| Strengths of the line of reasoning and supporting evidence | | |
| Flaws, gaps, inconsistencies or other weaknesses in the argument or supporting evidence | | |
| Comparison to/contrast with other sources? <i>(Your observations, in brief, on how this adds to, or challenges, arguments/evidence in other key sources.)</i> | | |

Concise critical notes on sources: Articles and papers

For key items that you are reading, you can complete a copy of the template, using those boxes that are relevant to your purpose. If you wish, you can then edit out unnecessary rows.



| | |
|--|--|
| Full citation details (<i>download/copy</i>) | |
| Short title (<i>to use when note-making</i>) | |
| Purpose What is it setting out to prove: its aims, hypotheses, etc.? | |
| Contribution What does it contribute to what is known about the issue? (Did it achieve its purpose?) | |
| Quality of reasoning Are conclusions, sub-conclusions or recommendations based on solid reasoning/evidence? | |
| Quality of evidence/data Has the research used sufficiently large, varied, and relevant samples or other evidence to enable convincing conclusions to be drawn? | |
| Research methods Are these sound? Is there anything about these that undermines the results or the conclusions drawn from them? | |
| Results Do these provide useful data or evidence you can use? | |
| Interpretations Are the results interpreted accurately? Could any other interpretations be made? If so, how would that affect the conclusions or recommendations that could be drawn from them? | |
| Comparison to/contrast with other sources? (<i>Your observations, in brief, on how this adds to, or challenges, arguments/evidence in other key sources.</i>) | |

Critical selection when note-taking: Commentary

Activity

Below, are notes made on Texts 1–12 (pp. 243–8) for use in an assignment entitled:

“Forget the breathing exercises! Just feed them!” Universities should focus on improving student diet, rather than using financing meditation and stress-busting.’ Discuss.

Using both the Texts on pages 243–8 and the notes here below, decide:

- 1 which texts are relevant to the assignment title;
- 2 whether the note-maker has made the best use of sources available – such as by selecting the most relevant texts to note for each side of the discussion, and the most relevant parts of those texts;
- 3 whether the notes are made in the note-maker's own words.

Then read the commentary on page 314 and compare your answers.

Extract of notes for an assignment entitled: “Forget the breathing exercises! Just feed them!” Universities should focus on improving student diet, rather than using financing meditation and stress-busting’. Discuss.

Evidence that supports the statement (pro-diet)

- (a) Ressa (2022; Text 5). Expert in student nutrition: Food is essential in multiple ways to students: health, mental well-being – AND through broader aspects of eating experience, e.g. environment, services, social aspects. NB can affect stress, achievement, etc. too.
- (b) Goncharova (2023; Text 12). Data from ACHA report: 84% of US students say they are in good health, more than 70% report eating 2 or less portions of fruit and veg a day. Only 3 in 5 students report a healthy weight/BMI. Diet and nutrition = key areas for concern.

Evidence that challenges the statement (pro-meditation)

- (a) Students benefit from meditation so it is worth the resources: e.g. Delaunay (2023; Text 2): gain significant improvements to their sense of well-being and resilience; in self-compassion, concentration, and ability to manage stress.
- (b) Students themselves talk about value of using three deep breaths (Javek; Text 11).
- (c) Even finance managers note mindfulness is useful to students (Lysatte, 2022; Text 10).
- (d) Most students eat well (Sprake, 2018; Text 3) (so food is not a big concern).

Comparing multiple sources

Purpose

When working on academic assignments or professional reports, typically you need to draw together many small pieces of information, organising these into clusters of evidence or contributing arguments, as you build towards the key arguments that support your conclusions. This can involve using many sources. Most of these will merit only a sentence in your piece. You will find that several items cover similar ground or make the same point using a different data set or context. If so, you can cite them together, as below.

Example

This was true of students in Gulf states, too (Zia, 2021; Xi et al., 2023; Oddy et al., 2022).

However long and fascinating those works might be, if you can only use them as partial support for a contributing argument, as above, you do not need copious notes about them all. You might not need more than the authors' names, dates of publication, a summary of one or two main points or pieces of data, and possibly a comment to yourself about what to do with it.

Such short notes often get lost in a mass of over-information. To prevent this, it can be useful to use a separate template to hold such information together. This encourages you to stay focused whilst making notes. It also makes it easier to browse your notes to find what you need quickly. One way of doing this is presented on page 141.

Activity

Keeping track of smaller contributions

The notes on page 141 relate to texts on pages 243–8 and the sample essay on page 251. Using these, identify what you consider to be potential strengths and useful features of the note-maker's approach. Then compare your thoughts with the commentary opposite.

Commentary

- 1 The writer has identified a relevant argument and selected useful detail from the source (Kim et al., 2022/Text 3).
- 2 Information is set out clearly, so it is easy to find. The table has the advantage of keeping the note-maker apprised of gaps (empty boxes), which they can address.
- 3 The essay and notes both show that the writer does not depend only on the initial texts (pp. 243–8) but, rather, uses these as a starting place to find other useful sources.
- 4 The writer uses notes in an active way, making comments and 'notes to self' about things to remember or tasks to follow up.
- 5 The writer doesn't take what they read/discover at face value. It is evident that they follow up useful leads, checking sources and data for themselves and setting themselves questions to address (e.g. their comments on Sprake and Vadeboncoeur).
- 6 The note-maker is assiduous in distinguishing their leads (e.g. from Kim, Text 3) from material they follow up.
- 7 They keep their own comments separate from information noted from source materials. This helps to avoid confusion and inadvertent copying or plagiarism.
- 8 As the note-maker makes notes in their own words, using a concise style, and with abbreviations, this reduces the chances of accidental copying or plagiarism if they later use the notes for an assignment.
- 9 To complete each row takes thought about what to enter where. This can help with thinking through whether each point adds to, or reinforces, what is already noted.
- 10 The note-maker opts to put the short-hand 'author and date' as the starting point. This would also be the information used for citing sources in an assignment or other piece. It provides a quick way of checking back over notes and finding details when needed. It would be easy to track back to the full citation/reference details when needed.

Noting how multiple sources contribute to an argument



Example

| 'Unhealthy clusters' of behaviour affect students' well-being (WB) (too). | | | |
|--|---|--|--|
| Source | Claims (reasons) | Supporting evidence /data | Comments |
| Kim et al. (2022) | A chronic issue for students | "'Risky' behaviour clusters amongst higher education populations will create long-term health and well-being problems." | In the full article (I read it), Kim also says there is little research on long term health impact of student life |
| World Health Org. (WHO, 2002) | Cluster of 4 risky behaviours have major WB effects worldwide | alcohol, smoking, low fruit/veg.; little physical activity → 29% 'disease burden' of industrialised nations | (in Kim 2022, text 3) |
| Schmid et al. (2021) | Cluster of 3 linked to long-term disease | chronic disease: strongly associated w/ high BMI, low exercise & higher alcohol intake | (in Kim 2022) |
| Vadeboncoeur et al. (2016). | Weight changes are a potential issue for students | UK survey: 75% had significant weight change in 1st yr (50% weight gain - mean gain +3.5kg), 25% lost weight (mean loss -3.2kg). 4-6 times faster than 20-25 yr olds' average (Scotland) | BUT- looked up. Interesting but fewer than 10 students, on average from each uni. Not clear how recruited: poss bias if self-selecting? Also less strong as based on self-reporting. Is it representative/ reliable? (in Kim 2022) |
| Dodd et al. (2010) | Similar cluster of 3 is of concern for students | Based on study of 5 factors/ 400 UK students 2008. Risky: 70% low physical activity; 66% low fruit/veg; 56% binge drinking once or more a week. | (in Kim 2022) |
| Sprake (2018) | Cluster a concern for students | i.e. for significant minority (c 25%) - high consumption of meat, take-away meals and alcohol, smoking and 'unfavourable lifestyle'. | (in Kim) Checked. |
| Notes to self Look Up: Check what the cluster is in Sprake. (done) N NB Sleep wasn't listed as an issue in any of these clusters in any of these (I checked). | | | |
| Assertion 2 | | | |
| College Resources, USF (2018) | Sleep is a big issue for students | USA students: over 80% USA report sleep affected by lost sleep | In Panesar, 2022 text 9. (Is this just a USA issue?) |
| Kelly et al. (2001) | Sleep is crucial to GPA | Students more likely to achieve poor GPA if sleep <6hrs a night | In Panesar. (Any more recent data than this?) |
| Trockel et al. (2000) | Wake-up are times esp. important to GPA | GPA affected more by sleep wake-up times than other factors (such as exercise, eating habits, having pt jobs etc.) | In Panesar. (Checked and data is just 200 students from one uni - so how representative is this?) |

Critical listening and viewing

What is the 'same'?

Listening and viewing can involve critical thinking processes you would apply in other contexts, as listed on page 2. These include identifying arguments and weighing up the quality of the line of reasoning, supporting claims and evidence. When using audio-visual sources, you still need to understand the purpose and context, to analyse details, and to make judgements on validity, reliability, consistency, relevance and persuasiveness. You need to question what you hear or see, check facts for yourself, and draw your own conclusions, based on your reasoning.

What is different?

Quality factors

Whereas academic texts are peer reviewed to help ensure quality and trustworthiness, this isn't usually the case for audio-visual sources. When using these, you need to check carefully whether they have sufficient authority for your purposes (page 113).

- 1 Check the creator/author's details. Are they recognised by other experts in the field and/or by accepted 'authorities' such as universities, research institutes, national or professional bodies, etc.?
- 2 If the creator/author is making assertions about matters that are not their area of expertise, consider whether these are well-researched before citing them as evidence for your own arguments.
- 3 Check: are they speaking on behalf of an organisation (and their views endorsed) or do they state that this is their own opinion?
- 4 Who is hosting the talk? Some platforms such as TED talks and national TV channels generally carry more authority. Check whether the platform is selective – or could just anybody put up a talk or video?
- 5 When using the talk or data, form judgements about whether you think the contents carry weight and are still relevant (i.e. have not become out of date).

Time factors

Normally, it is much faster to process information by eye than by ear. Visual summaries of an argument can be absorbed quickly. Spoken variants of the same material, such as in podcasts or talks, take longer to process. If you obtain the transcript of a speech or programme, you will probably find you can absorb the written version much faster. As listening is a linear task (we have to wait for the words to be said), there are fewer ways to reduce the time it takes. That adds challenge – not least as it means focusing your attention for longer.

Engagement

People vary in whether they prefer to gain information through reading, listening or watching, or a combination of these. If you prefer audio/visual sources, and bring greater levels of concentration, enjoyment and engagement when using them, then they might work better for you. If so, plan additional time for using them.

Extra evidence

When listening or watching, there are additional clues that can give a sense of the argument. For example, the tone of voice can show whether irony, sarcasm or humour were intended. The strength of feeling behind reasoning might be important to your purpose. Music or other sound effects might also be relevant to the way an author tries to persuade others of a point of view.

Useful sources



You can find good quality free podcasts and talks from universities and colleges worldwide via iTunesU. See also:

| | |
|--|--|
| TED (www.ted.com) | Talks at Google |
| bbc.co.uk/sounds/podcasts | thedolectures.com |
| creativemornings.com/talks | 99u.adobe.com/talks |
| Interviews on news.un.org/en/ | |
| monocle.com/radio/shows/the-globalist/ | |

Critical awareness for audio-visual material

Critical listening and viewing require some changes in approach, not least because the material might not be immediately available to process again (unlike most written sources). The following steps can enhance your critical listening and viewing skills.

Prepare. Find out about the topic and issues in advance. This helps you make more sense of the material, absorb it faster, and spot what is relevant, irrelevant, erroneous or inconsistent. It also reduces the effort needed to listen, enabling your brain to work smartly for longer.

Focus attention. As far as you can, cut out noise, physical discomfort and distraction. Concentrate on what is said, even if you think you know it already. Put devices and phones aside so that you don't miss essential steps in the argument or fail to notice flaws in it.

Take breaks. It is hard to sustain focused attention for long. When listening and viewing, it is easy to lose track of the message, or become lost in thought, suspending active, critical listening. Where feasible, listen or view material in short bursts of 5–10 minutes. Sum up the main points and note them before starting again.

Select and distil. You can't hold onto everything you see and hear. Help your brain to select the most relevant material by directing it in an active way.

- Ask yourself: 'What is the message, here?' or 'What is it that the speaker/piece wants to convince us to do, believe, or accept?' Sum this up in a few words or phrases.
- Ask yourself: 'What are the key contributing argument(s) or evidence?' List these in brief.

Adapt. Adjust your listening or viewing process to suit the context, such as for lectures, with peers, audio, videos (see below and p. 144).

Review. If feasible, go back over the material, or key sections of it, to check whether you grasped the messages correctly. Give yourself time to reflect on whether the argument stacks up. Make notes to help you to recall the arguments, and also to help you sort through the material mentally. Use your review and/or your notes to make a critical

evaluation of the argument. Note whether you are fully convinced? If not, what are the main flaws?

In lectures

As well as the behaviours outlined above, adapt your process to fit the circumstances of the lecture. For example, if you are attending these in real time, you don't have the option of breaks, so it is helpful to reduce the mental load in the following ways.

Boost understanding. Before the lecture, read up on the topic or at least browse some general material. Complete activities or reading provided in advance, so your ability to understand the lecture is not impaired.

Make brief notes. Don't make copious notes. Write just sufficient to help you recall themes or ideas to follow up afterwards. Use note-making to help your focus, not to detract from it. Use any natural breaks in the lecture to fill in any gaps in your notes that will help you to analyse the argument later.

Prioritise listening. Put more energy into listening than note-making. You will gain a much better grasp of how the argument fits together. It will also help you to recall much more of the lecture later. Watch out for lecturer hints and verbal cues about what is important or where you can find other useful material.

Activity

Criticality when listening

Listen to Tom Crowther's TED talk (2020) on biodiversity at: <https://www.youtube.com/watch?v=yjX1Te0jey0>

Identify:

1. His position at the start of the talk.
2. His conclusion.
3. The mistake in his original argument, that left it open to misinterpretation.
4. The line of reasoning (reasons and underlying claims/reasons).

Answers on page 314.

Critical thinking when listening

With peers

- 1 **Bring an open mind:** welcome new perspectives rather than dismissing whatever does not support what you already want to believe.
- 2 **Convey interest,** so that others are encouraged to give their views.
- 3 **Remember your body language.** Encourage others by your facial expression, nodding, or leaning towards them. Avoid frowning, tapping or distracting behaviours.
- 4 **Avoid interrupting** whilst others speak. Hear the full story.
- 5 **Focus** on what is being said, rather than drifting off into your own thoughts.
- 6 **Check you understood correctly.** Summarise what you understood was said; ask if you have grasped the point correctly.
- 7 **Ask.** If you are unsure about what was said or meant, or lack important information, ask questions. Don't assume; clarify instead.
- 8 **Make a considered response.** Don't ask trivial questions. Aim to ask fewer but more probing questions that help a deeper exploration of the issues.
- 9 **Stay on topic.** Don't switch topic as soon as the other person stops speaking. Stay on topic so that there is time for the brain to process, at a more critical level, what was said. Give space for others to ask questions if you don't have any of your own.

Podcasts and talks

Podcasts and talks are available as open source on almost any topic, including on cutting edge research by world experts.

Check the summary first. Decide whether it is really what you need for your purposes.

Check the length. Knowing how long you are going to have to pay attention helps you decide on which listening strategy to use.

Decide on your purpose. This helps you to listen more selectively, especially for longer pieces where your attention might drift. This is similar to the 'cocktail party effect': being able to pick out what is important against background 'noise'.

Make notes. Pause every few minutes (or as often as you need) to jot down important points.

Re-play selectively. A lot of time can be wasted listening more than once to audio material. Use your note-making to jot down where to locate any really important sections you might want to hear again. If the facility is available, listen to excerpts rather than the entire piece, or skip parts that are not useful.

Absorb and question. Even if the talk is by an expert, consider the material critically, as you would for a written source – for consistency, quality of evidence, flawed reasoning, etc.

Activity

Persuasive argument

Listen to Daan Windhorst's entertaining talk *Why you should never trust a TED talk* (2013), at https://www.youtube.com/watch?v=g_bVaZ-oQhw. Consider how he uses argument and persuasive ploys. For comments, see page 315.

What persuades you?

Be vigilant in checking whether you are easily persuaded (for or against) by factors such as:

- **Who they are:** their social position, background, work role, celebrity, etc.
- **Voice:** tone, accent, fluency, impediments
- **Use of language:** whether they use humour or sound clever, interesting or entertaining.
- **Emotion:** either appeals to your emotion, or because of emotions they seem to express.
- **Linguistic ploys** such as constantly repeating certain points, changing topic, not directly answering questions, so that it is hard to follow their argument.
- **Irrelevant data,** facts or anecdotes employed to create a false sense of 'authority'.

Observation

What persuades you?

Note your own response to different speakers, whether lecturers, peers, or people in the media. Which of the above factors are you more susceptible to?

Critically active viewing

In video and film, there is a huge range of additional material to draw upon to convey, or interpret, a message. That includes use of body language, colour, light and shade, whether images are placed in the foreground or background of a viewer's attention, or shown out of sequence or out of context, and so on. A laugh, a sharp comment, or an expression of distress might look like instantaneous reactions when, in reality, they were filmed as responses to something else entirely. As a viewer, we would not know, so we need to stay open to the possibility that this could be the case.

That is especially so when our opinions and beliefs about an issue, person, cause or advertised products, are being shaped by what we are viewing. Active viewing from time to time can help us to be more critically alert at times when we need to be.

Active viewing

It can be tempting to sit back and enjoy the flow of visual images. The better a video or film is produced, the more likely it is to absorb our attention and carry us along with its preferred messages. Active viewing involves the following.

Structuring your viewing and attention so that you are better able to take from the material the information relevant to your purpose. Slow down at points relevant to questions you have set in advance. Use beginnings, endings, titles and subtitles, for clues to messages in that section.

Interrupting the flow, by pausing the film/video occasionally to absorb what you have seen.

Connecting: Check actively how segments contribute to the whole, and how and why details contribute to an overall message.

Predicting: Pause it – and see if you can predict accurately where an argument, message or plot is leading. If not, check back to see what led you astray – so you are better able to interpret such messages in future.

Evaluating: Make critical judgements, such as whether the piece was effective in getting its message across, or about its ethics, aesthetics, accuracy, currency, and so on.

Questioning: Set questions to help focus your attention and sharpen your thinking as you view. Some key questions are listed below. Add others relevant to your subject.

Key questions when viewing

What is the message? What am I meant to take away from this video/source? What is it aiming to persuade me to believe/do?

What makes me think that is the message? Is it expressed directly? Or was I encouraged to draw this conclusion for myself from the way the material was put together? What techniques were used to encourage this interpretation of the contents?

Alternative interpretations? What other messages could be taken from this material? How might other people interpret it? Who might be likely to interpret it differently and why?

Why was this made? Who made it and for what purpose? What do they stand to gain by creating it/putting out this message?

What is not being said? What questions are not asked in the video? Which angles have not been covered? Which potentially relevant voices or perspectives have not been included?

Is this what it appears to be? How might it have been manipulated: what might have been added, cut, falsified, enhanced, re-sequenced? Did any of the material originate in a different context? How might the sequence/re-sequencing of images alter the message?

Want to know more?



Visual 'languages' can be employed to persuade viewers, using techniques such as association and connotation (see pages 86–9). See also: Harrell, M. (2013) *Visual literacy* (TEDx talk) Brian Kennedy (2010) *Visual Literacy: Why We Need It* (YouTube video)

For more about skills of visual literacy see: <https://www.ala.org/acrl/standards/visualliteracy>

Making notes: Audio-visual material

This template is available on the Companion site (with more space for your own notes).



| Rationale for each aspect | Aspect | Your notes |
|---|---|------------|
| <i>To make sure you can find it again. For online materials, you can download the web-address.</i> | Full citation details (download full details and date accessed) | |
| <i>Useful for recall.</i> | Type of item (e.g. film, video, podcast, blog, social media, etc.) | |
| <i>This might vary by source, such as author name and date, or name of report – whatever you find quick and easy for note-making.</i> | Short title (to use in your notes) | |
| <i>It can feel annoying to interrupt viewing or listening to summarise the key message – but this is great for maintaining focus – and saves time later on.</i> | Core message(s)? (What am I meant to take away from this? What is it trying to persuade me to believe or do?) | |
| <i>Is the source worth using at all? If not, move on. This saves you time.</i> | Quality status (Can this source be considered a reliable 'authority' on the issue? If so, on what grounds – e.g. profession, qualifications?) | |
| <i>Looking at how you knew what the message was, helps with identifying any persuasive techniques employed and with questioning the creator's intent (Chapter 7).</i> | How is the message conveyed? (e.g. is it expressed directly? Or through non-verbal means such as through the way material is structured, sound effects, etc.?) | |
| <i>This helps with identifying your own potential bias in interpreting the material, or whether you had jumped to conclusions about meaning or intent.</i> | Alternative interpretations? (What other messages could be taken from this material? How might others interpret it?) | |
| <i>Check whether the views expressed are representative of particular views, cultures or demographics.</i> | What is not being said? (Questions, angles, voices or perspectives not included?) | |
| <i>Even if you haven't expert technical expertise, you might be able to detect this. Either way, consider the potential for resequencing, cutting, etc. – and the likely impact of these.</i> | Is it what it appears to be? (Might it have been manipulated or falsified? How might that affect the message conveyed?) | |
| <i>What corroborates the messages in the source? What corroborates your own interpretations of the material?</i> | Comparison to/contrast with other sources? (Your observations, in brief, on how this adds to, or challenges, arguments/ evidence in other key sources.) | |

Critical use of social media

Social media platforms hold a vast amount of data. These can be especially useful for assignments focused on marketing, analytics, business and opinion, and could be useful starting points for any subject. However, it is often a challenge to gain meaningful information of a quality suitable for assignments.

Watch out for ...

- 1 **Misinformation:** Incorrect or misleading content shared through a genuine belief that it was true (accidental error).
- 2 **Disinformation:** False or misleading content created and/or shared with the deliberate intent to deceive.
- 3 **Lack of oversight:** Content is not usually verified nor well-managed; false content can be hard to detect.
- 4 **Low generalisation:** Caution is needed if generalising from social media to broader populations.
- 5 **Unreliable user-led content:** Avoid use of posts as isolated sources.
- 6 **Hijacking:** Issues become defined by a vocal minority. Alternative views may be unheard or even silenced.
- 7 **Popularity error:** Mistaking the number of followers (or being an 'influencer') as an indicator of expertise or representativeness.

Social media trust

Surveys such as the *Digital Trust Benchmark Report* provide user ratings that give insights into the relative reliability of social media on issues such as deceptive content, privacy and security.

For academic purposes, bear in mind that ratings do not refer to individual posts or details found on the platforms. Also, surveys tend to use relatively small samples for a particular country or region.

<https://www.emarketer.com/content/digital-trust-benchmark-report-2021> (Sample: 1730. USA)

User opinion

In a survey of 11 emerging countries by Pew Research (2019), most participants considered social media they used to be informative, although 92% had seen content that was obviously false and most had seen articles that made them feel negatively towards people who were different from themselves.

Verifying information

Some ways of checking whether a social media post is authentic and reliable.

- 1 **Identity:** Who is the post from? Have they given their real name? What do you know about them for sure?
- 2 **Network:** Who follows them? What does the size and type of following tell you about them? Is that relevant?
- 3 **Rationale:** What was the purpose of this post? What does it try to persuade you to believe or do?
- 4 **Accountability:** Is it from a recognised expert? What do they have to lose if the content is not true?
- 5 **Vested interest:** How might this post benefit whoever posted it (or their reputation, following, business, personal agendas)?
- 6 **Consistency:** Are the details internally consistent, such as for time of day, location, clothing, items that you would or wouldn't expect to be present together, or changes from one related post to another that you wouldn't expect if they were true?
- 7 **Eye-witness:** Is the person present at the event or in the location (see page 126)?
- 8 **Corroboration:** Can the content be verified through other sources (see page 127)?
- 9 **Recency:** Has there been time for others to check and corroborate the content?
- 10 **History:** Are you familiar with the source. Have they been reliable in the past?

Real or fake news?

What is fake news?

'Fake news' is, as it sounds, news stories that are false, either misconstruing the facts, or generated without any basis in reality. The phrase was popularised in the USA following the 2016 elections, but this is not a new phenomenon. False arguments, disinformation and propaganda have been around for hundreds of years. Fake news is created and/or spread for varied reasons, including the following.

Deception. Items can be manufactured and/or spread with the deliberate intent to deceive. Proclaiming known truths to be 'fake news' is itself fake news – as it is a deliberate attempt to mislead.

Error. Much fake news starts as unintended mistakes, misinterpretation, confusion or rumours. Such false news can arise from individuals mistaking anecdote and opinion as 'fact', such as through social media, and the item then going viral.

Entertainment. Magazines such as *Private Eye* or *Viz*, or comedy shows on TV that 'mock' the news, use fake news for humour or satire. It is assumed people will know these stories are not real.

Cross-overs. Stories that started out as genuine mistakes or entertainment can be perpetuated as 'true', either as deliberate attempts to deceive, or because some people genuinely believe them.

Over time, embellishments, anecdotes, random data that appears to support positions on an issue, along with vested interests, genuine anxieties, conspiracy theories and similar behaviours all add layers of misinformation and distortion to stories. It can become hard to sift the real from the false, or inaccurate interpretations from more reliable ones.

Fake news is not ...

- Just any news you disagree with or dislike
- Established belief systems, religions, myths and legends: they are not 'news'
- Items presented as 'fiction': these do not purport to be true in the first place, and are not news.

Note that not everyone uses the term 'fake news' in the same way. Some use it relatively

comprehensively as above; others apply the term only where there is deliberate intent to mislead.

Grey areas?

Whilst we can become more adept at identifying what is fake, it can take critical enquiry to establish whether many stories we encounter as 'news' are real or fake. It can be challenging to determine whether a credible-sounding story is all that it appears, or to establish others' motives for passing on information. Also, fake news is still not true, whether or not the people spreading it believe it to be genuine and so were not trying to mislead.

Conversely, even news items that would normally be considered to be legitimate, such as in reputable mainstream media, can only ever present part of a story. In the interests of brevity and practicality, their stories are a selection of facts: the 'full truth' is always edited in some way. Without knowing what was edited and why, we don't know what other slants or interpretations might have been possible. We can bring a critical eye, and query which obvious angles or voices are not being presented.

Why does it matter?

- What we believe as 'news' affects crucial life choices and decisions – about politics, business, purchases, vaccination, what we believe is good or harmful, necessary or dangerous.
- We need to know what we can trust as true. Spreading false news, including denying true stories, is destabilising, undermining trust and confidence.
- It is easy to manipulate information electronically – including credible false online identities and websites.
- The variety of voices online makes it easier to find differing perspectives, but the sheer volume makes it hard to sift through and verify all stories.
- Grades for student assignments can be lower if they include fake news.

Fake news: What can we do?

Understand the cause

Consider why a story might be fake. If those reasons pertain, it is worth investigating further. Here are some typical reasons for fake news.

Strong vested interests, whether financial or political, can lead to deliberate attempts to get a particular point of view across to the public.

Mischief. Some people find it amusing to deceive others, despite the problems or distress it can cause.

It creates 'a better story'. Exaggerating or omitting facts, slanting an interpretation, cutting and pasting comments, gestures, body language or facial expressions create a different narrative that will attract more attention or sway opinion.

Need to be 'liked'. Sensational stories or those that feed popular interest or paranoia can attract followers and affirmations.

Personal grievance. Many stories are generated because people have had (or believe they have had) bad experiences. They are ready to believe and spread any story that seems to confirm their view of a person, event or cause. Often, they want to sway opinion and gain validation for their own views.

Know your vulnerabilities

Apply critical self-awareness. We all have areas where we are more gullible, especially where there is an appeal to our emotions, beliefs or sense of identity. Become more aware of your own Achilles heels. What kinds of information are you more likely to accept unquestioningly as true? Be more assiduous in checking in those areas.

Pause before acting (critically informed decision-making). As there are so many convincing scams, avoid taking precipitate action. If there is any risk to you or others, check out the details very carefully. Apply close critical reading, viewing or listening skills.

Check the source. See whether you can track back the news item to trusted, reliable sources. Consider the accuracy of eye-witness testimony (see page 126).

Apply your critical abilities

Weigh up the arguments and the evidence, applying the critical thinking skills detailed in earlier chapters:

Compare different reports. Look for discrepancies. Triangulate the details (see page 127).

Bring an open mind. Avoid 'parti pris': that is, don't approach a disputed topic expecting one side to be manipulative – or truthful. For example, whilst it is right to question and check what is said by big businesses, or political parties, that does not mean that everything they say is wrong (or right). Check for potential undeclared interests of those who oppose them too. Assume, in any new instance, that all parties might be telling partial truths.

Share responsibly

Don't be part of the problem. Don't share stories and rumours if you are not sure of the facts.

Use a fact-checking site

Various sources such as the BBC have regular updates on facts underlying stories in the news. Wikipedia lists fact-checking sites for different parts of the world. Some useful sites are:

| | |
|---------------|-------------------|
| Snopes | PolitiFact |
| Fact Check | BBC Reality Check |
| Full fact.org | gov.uk |

Fact-checkers can sign up to an international code of principles and oversight. See <http://www.poynter.org/fact-checkers-code-of-principles/>

Want to know more?



Read about some examples of fake news and how different countries are responding to the phenomenon.

Future Skills: understanding fake news, at: <https://www.britishcouncil.org/anyone-anywhere/explore/dark-side-web/fake-news>

Summary: Criticality when selecting, interpreting and noting from sources

- 1 Clarify your purpose and be selective.** This saves time and effort, because producing critically strong pieces of work is exacting and time-consuming.
- 2 Gain an overview first.** It increases your comprehension, helps you to direct your attention and develop better strategies for using resources.
- 3 Identify the theoretical perspective of the piece.** It helps you to understand, anticipate and interpret arguments better – and more quickly. Become familiar with the main schools of thought for your academic subjects.
- 4 Become adept at categorising information.** It helps you to recognise connections, similarities, repetitions, inconsistencies and distinctions, all of which also help you to compare and contrast different arguments and sources. It also helps you to note and write selectively and succinctly.
- 5 Use reading strategies that support accurate interpretation.** Avoid common errors that disrupt accurate interpretation.
- 6 Make your own notes to support critical analysis.** When reading or using other sources, make brief notes of significant points, to increase concentration, focus, analysis, selection and recall.
- 7 Make notes that are concise, structured and selective.** Decide on a structure or use a template to help ensure your notes are succinct and focused on points that support your purpose. Select, or create, a template that is best for your source and purpose, such as for books, articles, comparing schools of thought, etc.
- 8 Track how each source adds to an argument.** Use noting structures that help you maintain details, in brief, of how multiple sources each contributed to the development of a theory or argument.
- 9 Heighten your critical awareness for audio and visual material.** Employ strategies such as good advance preparation, questioning and timely pauses in order to clarify which messages are being conveyed and how those messages are constructed.
- 10 Employ active viewing.** Use active viewing strategies to help maintain your focus and to provide structure to your critical use of visual sources.
- 11 Use social media critically.** Use social media to stimulate ideas, and for content where relevant. Be aware of potential limitations when using content. Take steps to verify information, as for any source, adapted to the use of social media content.
- 12 Avoid using and spreading ‘fake news’.** Be aware of your vulnerabilities. Apply your critical analytical skills to help identify false reports, unsubstantiated rumours and disinformation. Don’t be part of the problem: check the facts with reputable sources before sharing.

Learning outcomes

This chapter offers you opportunities to:

- ✓ consider the characteristics of critical, analytical writing
- ✓ identify the appropriate language structures for indicating, or signposting, the direction of your argument
- ✓ understand how to develop a topic, in order to formulate an argument as a piece of writing
- ✓ compare pieces of writing to identify the characteristics of critical writing
- ✓ understand how critical thinking skills are applied to essay-writing.

Introduction

Critical writing draws together other aspects of critical thinking in order to present a forceful case to readers. This means that it must continue the process of selecting and forming judgements about the evidence. However, the writing must be produced with its eventual readers in mind.

This chapter considers the characteristics of critical, analytical writing from the perspective of writing text, as opposed to considering written arguments from the reader's point of view. As well as looking at general characteristics, it focuses on the language used to present written arguments.

Previous chapters emphasised the importance of developing a clear line of reasoning. When speaking, it is possible to use the tone of voice, pacing and pauses, as well as body language, to help the audience to follow the argument. It is also common to repeat phrases or to raise the voice for emphasis.

These devices are not available to orientate the reader when arguments are written down, especially in formal writing. Therefore, it is all the more important to set the scene well, to

summarise key points as you go through and, in particular, to use recognisable words and phrases to signpost the different aspects of the argument.

The process of re-drafting and editing writing is particularly important to critical writing. The writer needs to ensure that the final draft has the characteristics associated with critical writing. The final piece of critical writing should be clearly written and well structured. It should include devices, such as signal words, that lead readers through the evidence in such a way that they are clear about the conclusion even before they read it.

This chapter provides a structure for developing a topic so that you can produce a well-founded argument within your writing. This is just one example of approaching the process. The more you research and present arguments, the more you will evolve your own methods.

Finally, the chapter looks at how a range of critical thinking skills are applied to the process of producing essays – a particular kind of writing. Essay-writing is a requirement of most subjects, and the main vehicle used for demonstrating, and assessing, good critical thinking skills.

Characteristics of critical, analytical writing (1)

Content

In critical writing, most of the text is dedicated to presenting a case through providing reasons, using relevant evidence, comparing and evaluating alternative arguments, weighing up conflicting evidence, and forming judgements on the basis of the evidence. Background information of a general nature is used very sparingly, and only essential details are usually included. Description is kept to a minimum.

A sense of audience

Good critical writing always keeps its future audience, or readers, in mind. The aim of an argument is to persuade others. When producing critical writing, it is important to consider how the message might be read by other people, especially people who might disagree with the evidence or the conclusions. A good critical writer knows which aspects of the argument are likely to be the most contentious, and the kind of evidence required in order to counter potential opposition within the reader.

Clarity

Critical writing should aim to be as clear as is possible. The aim is to convince the reader, so it is important that the style of writing makes it easy for the reader to see the point. Long, complicated or poorly punctuated sentences can make it difficult for the reader to follow the argument.

The language used for critical writing is generally sparse. It usually sticks to the facts and avoids emotional content, adjectives, and flowery language or jargon. The aim is to present, as far as is possible, the points in a way that an intelligent general reader can understand. Technical language can be used but should not be used simply to sound clever.

Often, an argument can sound clear in our own mind but does not come across clearly in our writing. It is not always easy to see which text may be interpreted differently when read by someone else, or what might be confusing or ambiguous. Skilful writers check through their writing several times, often by reading aloud, looking for any phrases that may be awkward to read or which could be open to a different interpretation by others.

Analysis

Analytical writing is writing that looks at the evidence in a detailed and critical way. In particular, it weighs up the relative strengths and weaknesses of the evidence, pointing these out to the reader, so that it is clear how the writer has arrived at judgements and conclusions.

Selection

Presenting too much detail can mean the main argument becomes obscured. The reader may lose interest in tracking the line of reasoning and simply conclude that the argument is weak. Usually, writers cannot include detailed critical analyses of every point that supports their arguments. On the other hand, presenting too little detail can make it sound as if there is not enough concrete evidence to support the case.

Skilful writers select the most important points, often the most controversial points, to examine in detail. They may only allude briefly to other points, sometimes grouping several together, in order to indicate that they are aware of these points. Strong critical writing uses a good balance of detailed analysis and sections that summarise arguments and evidence.

Characteristics of critical, analytical writing (2)

Sequence

The more complicated the argument, the more important it is that the information is sequenced in a way that helps the reader. Good critical writing is planned out well so that the most important points stand out clearly. Readers can follow an argument more easily if they can see how each point is connected with the preceding point, and how each point links to the main argument. Good signposting, as described below, helps the reader to understand the sequence used by the writer.

Best order

It is generally more logical to present the points that support your own argument first, so that you establish your case early in the mind of the reader. This helps to align the audience to your position. Audiences are more likely to interpret subsequent reasoning from the perspective of the first argument presented, so it is better to present your own argument first.

However, if your argument aims to show why a well-established argument is wrong, it can make more sense to make a critique of the established argument first, in order to refute this before presenting an alternative case.

Good critical writing shows an awareness of what are the most important or controversial aspects and dedicates the most space to these. If readers are persuaded on these points, they need less convincing on other points.

Skilful critical writers consider which information their audience needs to read first so as to make best sense of the argument. They ask, repeatedly, questions such as:

- Is this the best order or could it be better?
- Where does this best fit into the argument?
- Is the argument coming across clearly?
- If I moved this information somewhere else, would it be easier to follow the line of reasoning?

Group similar points

Similar points should be located near each other in the writing. For example, the points that support one aspect of the reasoning could be grouped together, followed by the points against. Usually, you should complete your analysis of one piece of evidence before moving on to an analysis of the next.

Alternatively, all the aspects of the evidence that support a contributing argument could be grouped together, followed by an analysis of those aspects of the evidence that do not support it. In each case, it is important to consider whether similar points are grouped together in a way that makes the text easy to read. The readers should not feel they are 'hopping' back and forward between points.

Signposting

Good critical writing leads the readers effortlessly through the argument so that they do not need to pause to consider where they are in the argument or whether the writer intends them to agree or disagree with a particular point. A skilful writer will use certain words and phrases as 'signposts' to indicate to the readers where they are in the argument, and how each point links to previous or subsequent points.

In critical writing, it is not usually acceptable to use graphical means to highlight important points. Critical writing avoids methods such as using italics, boldening text, capital letters, larger font, colour or arrows to make important points stand out. Instead, it relies on good sequencing and use of language to signpost the reader through the line of reasoning.

Activity

Characteristics of critical writing

Read through a recent essay that you have written. Use this to evaluate the following:

- Which of the above characteristics (on pages 152–3) are already strengths in your own writing?
- Which of these characteristics could you improve upon in your writing?

Developing a topic 1: Test and defend a 'thesis'

Formulate a strong statement

A thesis is an idea, proposed in the form of a statement, which can then be supported or disputed through an examination of the reasons and evidence for and against it. For student assignments, you might be given this as a statement to discuss, or as a question to answer and for which you would need to formulate your own thesis.

It helps to have a working thesis or hypothesis to steer your research and thinking from the start of the task. If you are formulating your own statement, it's useful to devise an initial working hypothesis; you can modify or change this once you know more about the topic.

A written argument is generally stronger if there is room for debate, so you can weigh up opposing arguments and, where possible, make a reasoned rebuttal of them. If there is no obvious divergence of opinion, it is harder to produce a strong, interesting critical perspective. Your thesis (or hypothesis for some subjects) is your starting position. It provides a focus for your research, reading, thinking, and for developing your argument. Keep it in mind as you work.

Decide your position

You can have a strong position that either supports the thesis (if provided by others, such as a tutor) or disagrees with it. As you work, formulate a judgement about the initial thesis. Test this by examining whether it would stand up to scrutiny: check that your thinking is clear, logical, consistent, coherent, and reasoned, following the principles of argumentation outlined in Chapters 1–9.

Check that your position can be supported by relevant evidence gathered from credible sources such as research findings, expert opinion, reliable data and the equivalent (see Chapter 8).

'Defend' your position

When producing your work, whether in writing, video or other media, your position should be

obvious to the reader. You 'defend' your position by stating it clearly and then presenting succinctly the strongest evidence and reasoning that supports it. Finally, you sum up your reasoning so that it is clear that your conclusion is well-founded. It should be obvious from your conclusion whether you agree or disagree with the thesis – state this clearly.

Example: sample essay

See the sample essay on student well-being (page 251). The author's position is one of disagreement with the initial thesis.

That essay is used as the basis for material on developing a topic, below, pages 155–9.

Refine your position

As you learn more about the topic, it is likely that you will modify your initial position. You might find that the argument is stronger than you thought, with evidence and angles that you had not known about previously. Alternatively, you might find that the argument is partially true, or true only in particular circumstances. In this case, you should incorporate those circumstances into your position and into any definitions you use (see page 155).

The evidence is against you?

If you become aware that you are arguing from a relatively weak position, consider changing it. If you decide to hold to the weaker position (because you still believe it to be correct, even though hard to prove at this point), acknowledge that you are aware of this. Provide good reasons for maintaining your position in the face of stronger arguments to the contrary.

If the evidence base or academic argument is currently strongest for a position that you do not accept, do show that you understand that. It does not mean that you have to change your beliefs. In such circumstances, if feasible, indicate where you consider that research or evidence is currently lacking which might reasonably become available in the future to support your position.

Developing a topic 2: Define your terms

When starting to formulate your argument, write out a definition of the key issues and specialist terminology, as well as any other terms in the title or argument that could be confusing or open to interpretation. This helps to clarify your thinking and focus your research and writing. Check and refine your definitions as your understanding of the topic develops. Consider how far your definitions help to set the scene for your reader (see page 160).

Look for definitions such as by leading theorists in your subject. Check whether they define the topic in the same way. If not, decide which approach seems most relevant to the assignment, the time you have available, your resources, and the reading list you have been given. Provide a summary in your own words.

Give your interpretation

The purpose of defining your terms is to enable your audience to understand how you are using terminology that you use in your work, especially in the title. This helps to make it clearer exactly what you mean, and to know from the outset what is included or is not included in your argument.

Avoid dictionary definitions

Don't use dictionary definitions or use long quotations from books to explain your terms. The point of student assignments is not to see whether you can use a dictionary or quote others – but about how you construct the case.

Example 1: Define your terms

For example, if the topic of an assignment or report was on 'student well-being', you might:

- Clarify whether you mean school-age or college/university students, or all students *and*
- State what you mean by 'well-being': are you including physical health and lifestyle aspects or are you focusing only on mental health? Or are you excluding mental health?

Tease out distinctions

Being accurate and precise about terminology might seem unnecessarily pedantic at first. However,

when we set about defining terms in our own words whilst still being true to the essentials, we find subtle distinctions between one definition and another. 'Well-being' and 'mental health' are often referred to as if they were the same thing. When we start to define these separately, or to examine whether there are differences between 'mental health' and 'good mental health', we find the topic opens up: there are more aspects to consider than we thought originally. That is a typical experience when researching a topic.

Clarify scope

Question, critically, and with specific examples, exactly how accurate and applicable definitions, conclusions or recommendations would be if generalised to other contexts, populations or demographics. Ask:

- Would this be true for everyone (all ages, ethnicities, nationalities, cultures, abilities, disabilities, beliefs, occupations, etc.)?
- Would this be true across time and space (for all times, eras, locations, regions, etc.)?

If not, then specify exactly the conditions which do apply. This is part of 'defining your terms'.

Example 2: Written example

Is 'a feeling of well-being' necessary to good mental health?

In teasing out a definition of 'mental health', Galderisi et al. (2015) point out that this is often erroneously conflated with feelings of well-being and positivity, which do not make sense in many life situations. Feelings not considered 'positive', such as sadness, anger or shame, are appropriate in certain contexts, such as if someone is hurt or killed, or fired from a job. In considering definitions and assumptions of mental health, Galderisi notes that they often refer to only some people and exclude others. Former definitions of well-being from the World Health Organisation (2004) had been translated to include notions of 'working productively' or 'mastery over the environment', which do not apply to all life stages and groups, and/or are culturally specific.

Developing a topic 3: Critical use of resources

Read around the topic

For a student assignment, much of your time is spent finding out about the subject from various resources: this is typically referred to as 'reading around the topic', as most of the quality resources are likely to be written. You would be expected to apply the critical skills covered earlier in this book, such as:

- making good critical decisions about the relevance of the material, given the specific assignment title and the issues relevant to it;
- making good critical decisions in what you choose to read, based on the quality of the materials and the evidence base that these draw upon (see pp. 113–17);
- in the breadth of what you read and the variety of perspectives considered.

Demonstrate criticality

You demonstrate your critical abilities to your tutors through the ways that you make use of reading material. They will look at:

- what you choose to refer to – or omit;
- how well you query the findings and opinions in what you read, especially in the light of contradictory findings and judgements;
- whether you can recognise the relative merits and flaws of different perspectives.

Reading for balanced analysis

There is a fine balance in writing assignments and papers between ensuring that your position is clear, and not appearing to be dogmatic about it. If you have strong personal opinions or beliefs, then it can be especially difficult to maintain a balanced approach. The guidelines opposite can help.

Compare multiple sources

Build your understanding of the topic and formulate your position using multiple sources. It is likely that these will include information or reasoning that suggest different, possibly opposing, conclusions, or raise new questions

for you. The temptation can be to brush over differences, or to read more into the differences than might be warranted. However, exploring these can strengthen your assignment.

Create a chart that enables you to compare and contrast their key features or data, so that you can see similarities and differences clearly at a glance (see pages 140–1 and 158).

Alternatively, each source might add just a small piece to the puzzle, deserving only a passing reference. Consider how much weight to give to each, and how many words to assign them in your own writing. See how passing references are used in the essay on page 251. Make notes that reflect the relative weight you assign to such contributing information (see page 141).

Balanced reading/use of resources

- **Use quality resources** Justify the position that you believe in, with reasons and arguments drawn from good quality sources; if you cannot find these, it will be difficult to present a strong academic case that gains good marks. Cite the sources that support your position (pp. 176–7).
- **Balance your choice of reading** Read good quality resources for all sides of the argument and select the best evidence for all viewpoints – not just for your own position. If you do this, you demonstrate that you are making a reasonable effort to make objective judgements.
- **Be even-handed** Bring a similar level of criticality when using sources that support your own position and those that support positions you reject.
- **Acknowledge good counter arguments** Even if you are not convinced by alternative viewpoints, be fair in presenting their strengths. If your reading suggests that there are good arguments against your position, then acknowledge the strengths of these. Cite sources for these just as you would for your own position.

Developing a topic 4: Identify themes

Hunt out key themes

If you can identify a few relevant themes to research early on, this can add to your efficiency. Here are some ways to get going.

- Listen out for key themes during lectures. Note these and find out more about them.
- Look up alternatives to the key terms used in the assignment title.
- Browse abstracts of articles on the topic.
- Browse sub-headings in books.
- Check the back cover of books.
- Listen out for themes that arise in debates on the topic in class or online.
- Pose many questions: see which open up interesting angles to pursue.

Reduce the number of themes

Pause frequently to see where your searches are taking you and what patterns or themes are emerging. Keep using the material you find to help you decide on a few key themes to pursue. Each of these will be a section or paragraph of your written piece of work. As you work, have a go at mapping out how the themes relate to each other and in what order you would present them.

Example: Identify themes

For the essay on sleep and well-being (page 151), the author keeps a working list of themes (below), adding to it when new angles come to light through reading or thinking. She inserts questions and comments as she goes along, to remind herself of items to follow up.

She deletes items once she decides not to pursue them further. She initially considered looking up specific sleep problems, but deletes these when she decides they are less important themes to pursue, given her overall argument and the word limit available for the assignment: not every interesting angle can be pursued.

Working list of themes to check out.

- Well-being, mental health, happiness; World Health Org. (WHO) says mental health isn't the same as well-being. (Isn't it?)
- Sleep – Why does it matter to well-being?
- Student sleep: how much of a problem is it?
- Are there different kinds of sleep problems—(yes—insomnia, waking up, disrupted sleep what do we know about it? is this just about too little sleep—or late nights? or patterns of sleep? Or other sleep issues:)
- If sleep is a problem, is there anything that can help? What would be useful for sleep?
- Compared to what? ... i.e. are interventions on sleep more or less useful than interventions for other aspects of student well-being? What might those be: Financial worries? Nutrition? Loneliness? General health and fitness/exercise? Worries about academic work?
- What interventions are possible? Meditation and relaxation? Stress management? Other things? Things we do here on campus—fitness days—has anyone researched these?
- Would students take any of this on board, anyway? What interventions have worked? (check for articles)

This initial list provided starting points to explore as part of the overall topic – such as sleep deficits, nutrition, meditation, exercise, etc. As the author spent more time working on the theme, the following questions came to mind:

- Is well-being any different for students than for anyone else? If so, what is different? Why would that be the case? Are there any studies that look at this? Check it out.
- Are these issues for students just in some countries, or everywhere? Are there any differences nationally? Check this.
- Sleep problems – are they cause or effect? Do we even know? Or just part of a cluster of problems? Check this.

Developing a topic 5: Use the literature

It can be overwhelming to discover the vast amount of resources available to you. Pause and decide on a strategy for navigating your way through them and to guide your decision-making.

Browse to gain an overview

Before launching into researching the topic, browse widely to gain a feel for the key issues. This will help you to make more sense of what you read, and to make better critical decisions about what to select. Don't assume you can rely on the first information you find. Use it as a launchpad to finding other and better sources.

Identify key perspectives

Aim at identifying a small number of key perspectives. Use these to help guide your searches, so that you treat each of the main perspectives in an even-handed way. To start this, check whether there are different ways in which various writers or schools of thought in your subject define and approach the topic.

Be open-minded

Be open to finding out new perspectives on the topic. Aim to broaden your knowledge base and extend your thinking, so you become more expert in the subject. This will help you bring the same measure of criticality to opposing positions as you do to your own opinion.

Use specialist sources

Use a 'Find Articles' guide, Google Scholar or a subject specialist database to speed your search. Specialist search engines will narrow the search and save time. See Appendix, page 290.

When browsing journal articles, check their list of references. This often has direct links to abstracts of relevant articles, websites or videos. If not,

copy and paste the item into Google Scholar or a specialist search engine. Most articles are either open source or free if accessed through the college/university library.

Keep shaping your thinking

Use your research to help you think about and discuss the topic. Formulate or reformulate your argument as you proceed.

Be aware that there are likely to be times during this process when your thinking is clear, and others when it seems to be more muddled than when you started. When you unearth new facts and arguments, these might throw doubt on other information you have gathered or undermine your position. You may start to feel that you don't know what your position is any more. If so, be reassured that this is not unusual – it is just part of the learning process.

If feeling confused, pause and make a list, map or chart of key themes. Identify who says what about what – or how the reasons stack up for each argument. See p. 141.



A template for recording notes from different schools of thought is available on the Companion site.

Stay focused; make decisions

Take charge. Don't let internet links dictate. Keep making critical decisions about what is worth looking at and relevant to the question. As you add to your notes and material, edit these too. Keep your working database manageable.

Aim at selecting a focus for your assignment that enables you to go into some depth on the issue rather than covering a broad spread of information at a superficial level. Use questions to help you stay focused.

Shaping your thinking on a topic

Useful questions

- 1 What can I cover in depth within the time available, and within the set word-limit?
- 2 Which aspects of the topic allow me to demonstrate a strong argument and critical analysis of diverse aspects or perspectives?
- 3 Which topic is most controversial – enabling me to take a strong position?
- 4 Which questions can provide a path through my reading, thinking and writing, providing a clear structure?
- 5 Are these questions strong enough to enable me to provide persuasive answers based on reasoning and good evidence?
- 6 Are there good sources of information to which I can refer to back up my points? (If nothing has been written on the topic, it is unlikely that you can produce a good student assignment on it.)
- 7 Where does that leave me in my thinking? Where do I stand on the main issues? Do I agree on some points but remain unconvinced about others, or wish there were more specific information available on certain aspects?

Jot down your thoughts: this helps to formulate your position for the assignment. Be clear where you stand on each theme or issue – and why.

Plot the direction

List sections and paragraphs.

As soon as you can, work out how many sections to include within your written piece. This is unlikely to be more than 3–5 sections, each dedicated to a theme. Work out the likely paragraphs that you will include for each section. Unless you are writing an extended essay, dissertation or long report, there will not be many paragraphs to each section. If you find you have generated a long list, this is a good clue that you need to clarify:

- what you can really include;
- where to focus so you don't waste time writing up material you won't be able to use.

Identify intermediate arguments

Arguments don't necessarily follow a straight line. Most student assignments tend to require extended arguments, where several underlying claims need to be established in order to persuade the reader to accept a given position, which in itself might be one of several arguments needed to establish the overall conclusion. See Chapter 5 on intermediate conclusions.

Use an argument map?

To clarify your thinking and organise your argument and material, it can help to map out your reasoning. (See Argument maps, pages 179–201.)

Maintain your critical stance

Keep that inner critical, analytical voice on alert, questioning what you find, do, think and write.

Critique your process. 'Am I spending too long on this aspect? Do I have sufficient information about this? Have I understood why they are arguing this point?'

Critique your thinking. 'Have I looked into this sufficiently before starting to draw conclusions?'

Want to know more?



For the essay and report writing process: Stella Cottrell, *The Study Skills Handbook*.

For extended essays, reports and dissertations: Stella Cottrell, *Dissertations and Project Reports. A Step by Step Guide*.

For developing yourself as a writer: Stella Cottrell, *50 Ways to Excel at Writing*.

Writing it up: Set the scene for the reader

When presenting an argument, the author usually has to include more than simply the reasons and conclusions. The audience and the circumstances and reasons for producing the argument will usually determine what else is considered to be relevant. When evaluating the likely effectiveness of an argument, it is important to consider:

- what background information the audience needs and expects;
- what they will already know;
- what kind of reasons and evidence are likely to convince that particular sort of audience.

Conventions

For academic subjects, there are conventions which govern the presentation of a line of reasoning. Journal articles, for example, have different conventions from newspaper articles, blogs or everyday speech. Usually, the background information in articles is of two types:

- 1 Key details of previous research relevant to the current article.
- 2 Details of the methods used to gather and analyse the evidence, especially data, for the current article.

Activity

Browse through journal articles and identify how background information is treated in your subject area. Note how much or how little detail is used in each section of the article. Consider what kind of background information is included, as well as what is not included.



Background and history

In critical writing, general background details are usually kept to a minimum, as in the Feng Shui example on page 163. The history and general background are only usually included where they form part of the argument.

Take for example the question: *How did the fish come to take over the estuary?* The history is relevant, and provides a reason that supports the conclusion, as in the example below.

Example

'Background' as a reason

Historically, the fish were subject to many large prey and laid many eggs to increase their chances of survival. When they migrated to the estuary, there were no natural predators to restrain their numbers. They continued to lay as many eggs, and so took over the estuary.

If the question was *Account for changes in banking practices over the last 10 years*, the historical background given in the example below would be unnecessary.

Example

Unnecessary detail

Banking is a very old profession. Early examples include the development of the letter of exchange by the Hansa League in the fifteenth century.

Definitions

As we saw above (page 155), it is typical in critical thinking to define any terms used in the line of reasoning that might be open to more than one interpretation. This enables the audience to know which interpretation the author is using and reduces misunderstandings.

Example

There has been much debate about whether only humans have consciousness but there is a growing body of research which suggests that animals and even inanimate objects share this capacity. In considering whether animals and objects have consciousness, the first point to consider is what is meant by the term *consciousness*.

Activity: Setting the scene for the reader

Activity



How well do the authors of the following passages set the scene for an essay about a theory of food production?

Passage 10.1

'Is productionism dead?'

Productionism was a theory developed following the recession and famines of the 1930s. Theorists such as Orr, Stapleton and Seebom Rowntree argued that if farming methods were adapted to include technology, more food could be produced and famines would become a thing of the past. This essay will argue that productionism has been successful to some extent, in that some areas that were formerly subject to famine are no longer prone to famine, and the proportion of starving people worldwide reduced year on year. However, it will also argue that despite the successes of technology in producing more food, other aspects of productionism have undermined its strength as a model for social reform. The essay examines some negative by-products of the productionist approach, such as the threat to bio-diversity, pollution, depopulation of agricultural areas, and the power that lies in the hands of retailers at the expense of small farmers. It will argue that productionism is not dead, but that a new model of food production would now better serve consumers, food producers and the global ecology.

Passage 10.2

'Is productionism dead?'

Productionism is dead. Its main proponents, such as Orr, Stapleton, Orwin and Seebom Rowntree, were inspired by social altruism. Not for them the traditional farming methods of the past nor the harrowing scenes of

famine and collapse presented worldwide in the 1930s. For them, there was a saviour and the saviour was technology. Today, technology has developed in ways that even a visionary could not have imagined in the 1930s. Nonetheless, it has not been the saviour that was predicted. A new model is needed, and social and ecological forces will ensure that productionism, as a theory, passes into the realms of history.

Passage 10.3

'Is productionism dead?'

The main problem with productionism is that it places too much hope in science when science cannot always deliver. One result of productionism, with its emphasis on producing more and more food, is that people in the developed world think that food supplies can be endless. Child obesity is one result of such an approach. Whilst some people have too much to eat, others do not have enough. A lot of food isn't even a good thing: much of the food we eat is 'junk' and contains little nourishment.

Passage 10.4

'Is productionism dead?'

Food production has always been an important aspect of human activity. Since time began, humans have looked for ways of increasing the amount of food available to them. Without food, we would not be able to survive so this is a critical consideration for any society. Unfortunately, for most of history, the spectres of hunger and famine have hung over people's heads. One period when this was particularly acute was the 1930s, when even rich economies were affected. It was in the face of such crises that productionism was born.

Answers: see p. 316.

Writing up the literature search

Chapter 8 described methods for conducting a literature search and for identifying reputable sources. As we have seen, you are likely to read many more sources than you can include within your own writing, and this requires careful selection of what to include as background information. That requires a strategy.

For essays

In essays, the focus is on the development of your own argument. It is not typical to include a summary of the literature at the beginning of an essay. Instead, you introduce sources at the relevant point in your argument. In essays, you need to refer to materials used as background reading in order to:

- illustrate a point you are making or add weight to a specific reason you are using to support your argument;
- argue against a point of view, if you wish to challenge what has been previously written;
- provide weight to your own argument by showing that it is supported by the research or arguments of other writers who are well known in the subject area.

For reports, dissertations and projects

It is usual when writing reports, dissertations and projects to start with a relatively brief overview of the background research. This is generally about 10 per cent of the overall piece of writing. You need to identify:

- which two or three pieces, theories, perspectives or previous research articles provide the most significant background information for your own research;
- how, if at all, these pieces of research are linked to each other. Usually, this will be by chronological order.

Focus on two to five pieces of significant published research, drawing out the key points. Provide

only enough information to ensure the reader understands the significance of the research and its relevance to the rest of your report or dissertation. Allude to most of the other pieces of research – and there may be many – in passing, or very briefly. This helps the reader to recognise what you consider to be most significant whilst referring them to other sources that support a point and that they can pursue further if they wish.

Accuracy

Always check the original source and/or your notes carefully before writing about the work of other people. Check:

- that you have ascribed the right theory and discoveries to the right people;
- that you have given the right dates;
- that you have spelt their names correctly;
- that you have interpreted their meaning and significance correctly.

Interpretation

Critical reading is an act of interpretation as well as selection. The recommendations made on pages 135–6 about how to combine reading with note-making make it more likely that you will produce a personal interpretation for your own assignment or report rather than simply reproducing the work of someone else. For essays, this does not mean that you must find an approach that nobody else has ever considered. Simply through the choices you make and through writing in your own words, you will be making a personal interpretation. The same applies when you are writing up your 'literature search'.

Reminder about referencing

Remember that copying from the internet or a written source is not acceptable, unless it is for a brief quotation and you reference the source correctly. On citing and referencing your sources, see pages 176–7.

Words used to introduce the line of reasoning

Words that signal the direction of an argument

At the end of Chapter 3, there was an introduction to words that indicate conclusions within an argument. You can use other words and phrases, too, to indicate the different stages of the argument to the reader. These signal the direction of the line of reasoning.

The table on page 168 lists useful words and phrases that you can use when constructing your own arguments.

Different words have different functions within an argument. Some, for example, are used at the beginning of an argument, others reinforce a point, some signal a change of perspective, others are used for conclusions. These words are sometimes known as *connectives* – as they connect the different parts of the argument.

Introducing the line of reasoning

Words used to signal the opening stages of an argument include: *first; so first; first of all; to begin; first and foremost; at the outset; initially; I will start by ...*

Examples

- I will start by arguing that Feng Shui is important to every aspect of our lives and is not simply a question of decorative art.
- First of all, studying the size of the neo-cortex in the brains of different types of animals such as monkeys or rats can tell us a great deal about their social worlds.
- In considering the role of chemistry in the commercial world, it is important, at the outset, to recognise that chemistry is a commercially viable subject.
- Initially, we will consider whether porous rocks can ever provide solid foundations for new buildings.

Note that the introduction to the argument might not be the first sentence. It may be later in the paragraph. For example, the argument in the set of examples above might follow an introductory sentence or passage, used to set the scene, such as that in the example below.

Examples

Feng Shui has formed part of Chinese life for over three thousand years and is increasingly gaining popularity in the West. The reasons for this new popularity are sometimes attributed to a growth in favour of simplicity and minimalism in house decoration. This is a mistake. I will start by arguing that Feng Shui is important to every aspect of our lives and is not simply a question of decorative art.



Words used to reinforce the line of reasoning

Certain words can be used to indicate that new information is being introduced that further reinforces the direction of the line of reasoning. These include words such as *also*; *in addition*; *besides*; *too*; *furthermore*; *moreover*.

Adding similar reasons

When reinforcing a line of reasoning, the author may wish to add reasons similar to those already presented. This can be signalled by words such as: *similarly*; *equally*; *likewise*; *in the same way*; *also*; *another*; *further*; *and*, *of course* ...

Examples

- Similarly, the Chinese martial arts are not merely about fighting, but offer tools for understanding mind and motivation.
- In the same way, when we look at the neo-cortex of humans, we learn about the evolution of our own social habits.
- Likewise, applying chemical knowledge to biological problems has opened up new avenues of business and many spin-off industries.

Adding different reasons

At other times, the author may choose to reinforce the overall argument by adding new and different reasons. Authors often indicate that they are adding new reasons by using words such as *in addition*; *besides*; *as well as* ...; *not only* ... *but also* ...; *secondly*; *thirdly*...

Observation

Signposting an argument

For the next few items you read on your course, observe how these use words to show their line of reasoning. At what points is this most effective? How do they signpost their argument if they don't use such words?

Examples

- Not only can Feng Shui help to guard your health, it is believed to protect and enhance your wealth and prosperity.
- The amount of time that animals such as chimpanzees spend on grooming each other is not only linked to the composition of the social group, but also to the size of that group.
- In addition to developments within chemistry, developments within information technology have opened up new possibilities for biochemical research at the molecular level.

Strengthening the argument

At other times, authors can use words such as *furthermore*; *moreover*; *indeed*; *what is more*; *such as* in order to indicate that they believe a reason is particularly good, or that its addition to the line of reasoning makes a more convincing case.

Examples

- Furthermore, Feng Shui is used in business in order to help keep customers and employees happy.
- Moreover, the development of language in humans may be directly related to the size of human communities, which makes grooming impossible as a key form of communication.
- Indeed, the reorganisation of scientific departments to encourage work across disciplines such as physics and material science has led to much excitement about research on the boundaries of each discipline as well as opening up new areas of entrepreneurship.

Signposting alternative points of view

Introducing alternative arguments

A strong argument will usually critically evaluate alternative perspectives or points of view. By doing so, authors show readers that they have considered other possibilities and not simply presented the first argument that entered their heads. This approach usually strengthens an argument as it suggests that the author has researched the subject or has considered all angles.

Words used to signal that an alternative point of view is being considered include: *alternatively*; *others argue that ...*; *it might be argued that ...*

Examples

- It might be argued that Feng Shui has not been proved through rigorous scientific research.
- On the other hand, not everyone believes that animal behaviours have anything to tell us about human behaviours.



- Alternatively, there are those who believe that the prime role of biochemical research should be the advancement of knowledge and that this goal should not be distorted or lost through the demands of the market place.

Rebutting alternative arguments

As we saw above, it is typical, within a line of reasoning, to introduce alternative points of view in order to disprove them or indicate their weaknesses. Normally you would expect the author to show why their own point of view is the more convincing.

Words used to rebut alternative arguments are: *however*; *on the other hand*; *nonetheless*; *notwithstanding this*.

Examples

- However, many practitioners of Feng Shui are also scientists.
- Nonetheless, humans are closely related to other primates such as chimpanzees and apes.
- These arguments notwithstanding, there is still much to be gained from a closer alignment between science and business.
- Notwithstanding the argument that chalk is porous and porous rocks provide riskier surfaces for building, under certain circumstances, chalk can provide a solid foundation for building.

Contrasting and contradicting

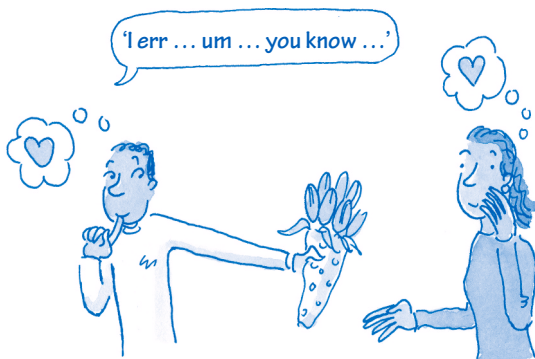
When other arguments are being considered, authors may move back and forth between their own point of view and opposing arguments. They will normally either weigh up the evidence for one side and then the other for each reason in turn, or they will contrast all the evidence for one point of view against the evidence for their own line of reasoning.

Words that indicate this process of contrasting include: *although ...*; *conversely*; *by contrast*; *on the one hand ... on the other hand ...*; *in fact*.

Signposting alternative points of view (continued)

Examples

- On the one hand there are those who argue that Feng Shui is based on mysterious principles such as yin and yang that people in the West cannot understand. On the other hand are those who argue that Feng Shui is based on common sense and therefore suitable for everyone.
- Although humans' verbal language can be used in sophisticated ways to express abstract ideas and reasoning, it can also be very restricted in its capacity to communicate our deepest feelings and creative thoughts.



- Some researchers argue that scientists are being forced to patent their work even when they do not want to enter commercial contracts. By contrast, others complain that they do not receive enough support in patenting their discoveries.
- Houses benefit from being built on bedrock. By contrast, houses built on beaches tend to sink over time.

Expressing results and consequences

After several reasons have been considered, the author should draw out how these should be interpreted as a whole. This would normally be found towards the end of the sequence, but the author may do this several times during the line of reasoning, to help the reader keep track of the reasoning and to reinforce the message. This was covered in Chapter 5 (on p. 67), under 'Intermediate conclusions'.

Words used to express the consequences of the evidence the author has presented include: *as a result*; *as a consequence*; *hence*; *thus*; *consequently*; *because of this*.

Examples

- As a result, we can see that the rules governing Feng Shui in the workplace are similar to those that apply in the home.
- Thus, the introduction of verbal communication allowed us to communicate with more of our species and more quickly.
- As a consequence of commercial backing, the infrastructure for scientific research has been improved in a number of institutions.
- Hence, as sand shifts and moves over time, a house built on sand is likely to sink.

Activity

Browse through three or four articles for your subject. What words are used to:

- Introduce the main argument?
- Move an argument along?
- Sum up the argument?

Words used to signpost conclusions

Conclusions

All the reasons and evidence presented should lead towards the conclusion. Even when alternative arguments are put forward, these should be presented in a way that supports the main line of reasoning. Authors usually signal conclusions using words such as *therefore*; *in conclusion*; *thus*; *thus*; *we can see ...*

For longer texts, the conclusion may consist of one or more paragraphs rather than just a single sentence. These would normally be placed at the end of the piece of writing. For longer texts, a good piece of writing will usually refer clearly to the overall conclusions as it unfolds, so as to help the reader to make sense of what they read.

In shorter passages, as we have seen, the conclusion may be stated near the beginning rather than the end.

Examples

- In conclusion, Feng Shui is not a decorative art but is, rather, a sophisticated system for arranging our surroundings so that we live in greater balance and harmony with the outer world.
- Thus, we have shown that the human brain evolved as a result of our need for more effective and efficient social communication.
- Therefore, academic research can be greatly advanced by commercial partnership.
- We can conclude that it is important to ensure that sufficient tests have been carried out to check the underlying rock structures, and to consider carefully the consequences of building on surfaces other than bedrock.

Activity

Add signal words to signpost the development of the argument in the following passages.



Passage 10.5

Deaf people have their own languages, based on signs, body position and facial expressions. As few hearing people understand these languages, communication between deaf and hearing people is not usually very effective. Deaf people often form strong social and cultural groups, they are often excluded from mainstream culture and their talents are not used effectively within the economy. Hearing people can feel excluded from deaf conversations and uncertain of how to behave around deaf people. It would be in everyone's interests if sign languages were taught in school so that deaf and hearing children grew up able to communicate effectively with each other.

Passage 10.6

Globalisation appears to be inevitable but there is disagreement about whether this is a positive development. There are those who argue that increased contact between countries leads to better understanding and reduces the likelihood of future wars. They see benefits to democracy and human rights from information being widely available electronically, so that different nations can compare conditions in their country with those elsewhere. Some see globalisation as a destructive force. They argue that it leads to less powerful peoples losing their indigenous languages as the languages of more powerful countries are used internationally for business and politics. They argue that globalisation often means big business buying up resources and land in poorer countries, distorting local economies and draining their resources. Although there are some potential benefits to globalisation, some controls are needed to protect poorer economies from exploitation.

Answers: see p. 316.

Words and phrases used to structure the line of reasoning

The signal words introduced in this chapter are summarised in the table below.

| Function | Words used |
|--|--|
| Introducing the line of reasoning | |
| Opening phrases | <i>Words indicating 'first ...'</i> first; first of all; to begin; first and foremost; at the outset; Initially, I will start by ... |
| Developing the line of reasoning | |
| Reinforcing with similar reasons | <i>Words indicating 'similarly ...'</i> similarly; equally; likewise; in the same way; indeed; correspondingly; in the same line; also; too; again; besides; and, of course ... |
| Reinforcing with different reasons or evidence | <i>Words indicating 'also ...'</i> also; in addition; besides; again; as well as; either; too; not only ... but also ...; neither ... nor ...; neither; secondly; thirdly |
| Stronger reinforcement | <i>Words indicating 'furthermore'</i> furthermore; moreover; indeed; what is more |
| Introducing alternative arguments | <i>Words indicating 'alternatively ...'</i> alternatively; a different perspective on this ...; others argue that ...; it might be argued that ... (the words used in 'rebutting alternative arguments' can also be used) |
| Rebutting alternative arguments | <i>Words indicating 'however'</i> however; on the other hand; nonetheless; nevertheless; notwithstanding this; in any case; in spite of this; despite this; at the same time; even though ... |
| Contrasting | <i>Words indicating 'by contrast ...'</i> by contrast; although ...; conversely; on the one hand ... on the other hand ...; in fact |
| Concluding | |
| Expressing results and consequences | <i>Words indicating 'therefore'</i> therefore; this suggests that ...; this indicates ...; as a result; as a consequence; hence; thus; consequently; because of this; from this we can infer that ...; from this we can deduce that ... |
| Conclusions | <i>Words indicating 'in conclusion'</i> therefore; in conclusion; thus we can see; thus |

Drawing tentative conclusions

Academic writing, such as that used for research projects, articles and books, tends to avoid words that suggest absolutes and, instead, uses words that express some tentativeness. The kind of alternatives used are indicated below.

| Avoids | Uses qualifiers such as: |
|------------|---|
| all, every | most, many, some |
| always | usually, generally, often, in most cases, so far, haven't yet |
| never | rarely, in few cases, it is unlikely that |
| proves | the evidence suggests, indicates, points to, it would appear |

Example 1

During the Protestant Reformation in Britain in the sixteenth century, the kings' ministers ordered that religious ornaments such as chalices and carved rood screens found in churches be destroyed. These disappeared from churches at that time. However, during the short reign of the Catholic queen, Mary Tudor, these articles reappeared. As chalices and elaborate carved rood screens appeared again so quickly during Mary's reign, this suggests that the items had not been destroyed previously. It would appear that people had simply hidden them away. This further suggests that the Reformation had less popular support than had been previously believed, and that many people had been hoping for a return to the old Catholic ways.

Here, the author considers that the sudden reappearance of religious items suggests the items had been hidden rather than destroyed. The author then proposes that this is evidence that the old religious customs were more popular than had been previously believed.

These sound like sensible conclusions. However, the author uses tentative language in drawing these conclusions as there may be other interpretations. For example, it may be that there was a much higher level of skill in reproducing those items than was formerly believed. It is possible the items were destroyed and new items were made quickly.

Alternatively, people would have been aware that there was a possibility that the new religious ways might be overturned in the future and that they might be punished for having destroyed sacred items. They may have preferred the new religion but hidden the forbidden items away in order to protect themselves in the future.

Academic writers are always aware that there may be alternative explanations or unexpected findings that overturn even the most widely held views. In Example 1, the writer used phrases such as *this suggests*, *it would appear*, *this further suggests*.

Example 2

A small amount of hydrochloric acid was poured on each rock. The first rock then gave off the smell of hydrogen sulphide, a smell like rotten eggs, suggesting the rock was galena. The second rock fizzed, suggesting that it was giving off carbon dioxide and that the rock may be an oolitic limestone.

Example 2 is science writing. The writer is basing judgements on well-tried tests. The tests used are fairly conclusive, but the writer uses tentative language as, if the rocks did not share other known characteristics of those rocks, such as mineral content or grain size, a different judgement might be needed. It is possible, for example, that the fizzing rock was a different type of calcite rock, such as chalk or marble.

Activity: Writing conclusions

Activity

Consider how well do these passages express their conclusions in a suitably tentative manner? Then check the commentary below.



Passage 10.7

Interpreting new discoveries

We have seen that when explorers found new lands, they tended to interpret what they saw as evidence of what they had intended to find. Travellers to the 'Americas' in the fourteenth and fifteenth centuries sent home reports of finding giants and green men. Earlier, Marco Polo, who had hoped to find unicorns on his travels to China, believed the one-horned creature he found in Java was indeed a unicorn, despite the animal, a rhinoceros, bearing no other resemblance to the fabled beast. However, unlike those who claimed to see giants, or later explorers who really believed they had heard orangutans talking, Marco Polo appears to have described rhinoceroses exactly as he found them. This suggests that not everyone responded to new discoveries by using the same approach. Moreover, it is possible that with the number of discoveries made in recent decades, people are now more likely to take new discoveries in their stride.

Passage 10.8

RNA does the hard work

Although we hear more in the press about DNA, especially after work on mapping human genes, we hear much less about the role of RNA in cell reproduction. RNA, or ribonucleic acid, is essential to the functioning of our genes. One type of RNA reads the messages encoded in the DNA. Various types of RNA are involved in

making proteins and carrying these to where they are needed in the body's cells, so that the cell can function as it should, including growing and reproducing. Although the DNA holds encoded messages which help define the nature of the next generation, these would not mean much without RNA. Therefore, it is RNA that appears to do the really hard work in reproduction.

Commentary

Passage 10.7 examines the way people, historically, tried to make sense when they discovered things that were new to them and their cultures. It is difficult to write with absolute certainty about approaches, attitudes and beliefs, and even more so when these took place in the distant past. The writer uses the phrases 'this suggests' and 'it is possible' to indicate the tentative nature of the conclusions being drawn. It is possible, for example, that people today think that there is little more to find out, so are even more surprised by discoveries. The writer uses tentative language appropriately.

Passage 10.8 makes a judgement about the relative importance of RNA in reproduction. Scientific judgements can usually be stated with more certainty, as they can be tested, replicated and measured more exactly than matters such as attitudes and responses. However, even science mainly sets out to support hypotheses and test what appear to be laws. Science recognises that further research can overturn scientific laws, at least under specific conditions. Most of this text is written in more certain language than Passage 10.7, as befits a scientific subject, but the overall conclusion is suitably tentative as it is possible that future research will reveal hitherto unknown roles for DNA or RNA.

Critical analysis for essays: Essay titles

Essays are exercises in critical thinking. In academic contexts, they are set primarily for you to demonstrate your understanding of an issue, drawing on your critical analysis of, and engagement with, source materials and a range of theoretical perspectives.

As a rule, essays are set for students on issues where there are multiple perspectives. You are expected to:

- become aware of what those different perspectives are, through attendance at taught sessions and especially by reading around the subject;
- understand how and why the major differences in perspective have arisen;
- understand the theoretical underpinnings for each major area of difference in perspective, and how these compare and contrast with each other;
- critically evaluate the evidence base for the different perspectives and theories, and their applicability to different contexts;
- draw together your critical judgements to form a conclusion or set of conclusions that indicate your own considered position, based on the relative quality of the evidence base.

Critical analysis of the essay title

Essays set for students are usually carefully worded so as to encourage a focus on a particular complex or controversial issue. Before launching into an essay, look carefully at the wording of the title so as to do the following:

- Tease out how many parts or subsections there are to the essay and the relative weighting of each. If there is a word limit, consider how many words you can allocate to each section. This will, in turn, give you a sense of how much time to spend reading and writing for each section.

- Identify the main focus of the essay: what is it that the tutors want you to address? If this isn't clear, it may become so once you have read around the subject.
- Consider which theoretical perspective or schools of thought to call upon to explore the issues – you will be expected to engage in a 'critical dialogue' with these. Again, these may not be evident until you start reading around the subject.

Setting your own essay title

If you are setting your own essay title, you need to ensure that you set one that encourages you to work in the same way as for an essay title set by a tutor:

- decide on the key issue that you want the essay to address;
- ensure that there are multiple perspectives on the issue, each of which presents good arguments and evidence;
- look for a topic that contains an element of controversy or other complexity;
- ensure that there is a good range of quality reading material on these different perspectives;
- beware of creating an essay title where there is good reading material or evidence for only one perspective – as this will not help you to demonstrate your own critical judgements well.

Resource

An explanatory list of terms commonly used for essay titles is provided on page 172.

Academic keywords used in titles

These words indicate the approach or style expected for the piece of writing.

Account for Give reasons for; explain why something happens.

Analyse Examine in very close detail; identify important points and chief features.

Comment on Identify and write about the main issues, giving your reactions based upon what you have read or heard in lectures. Avoid purely personal opinion.

Compare Show how two or more things are similar. Indicate the relevance or consequences of these similarities.

Contrast Set two or more items or arguments in opposition so as to draw out differences. Indicate whether the differences are significant. If appropriate, give reasons why one item or argument may be preferable (see Chapter 9).

Critically evaluate Weigh arguments for and against something, assessing the strength of the evidence on both sides. Use criteria to guide your assessment of which opinions, theories, models or items are preferable.

Define Give the exact meaning of. Where relevant, show that you understand why the definition may be problematic.

Describe Give the main characteristics or features of something, or outline the main events.

Discuss Write about the most important aspects of (probably including criticism); give arguments for and against; consider the implications of.

Distinguish Bring out the differences between two (possibly confusable) items.

Evaluate Assess the worth, importance or usefulness of something, using evidence. There will probably be cases to be made both *for* and *against*.

Examine Put the subject 'under the microscope', looking at it in detail. If appropriate, 'Critically evaluate' it as well.

Explain Make clear why something happens, or why something is the way it is. For academic work at higher levels, this might require you to evaluate, critically, the merits and flaws of alternative explanations.

Identify Outline the salient points, indicating their significance or implications.

Illustrate Make something clear and explicit, giving examples or evidence.

Interpret Give the meaning and relevance of data or other material presented.

Justify Give evidence which supports an argument or idea; show why decisions or conclusions were made, considering objections that others might make.

Narrate Concentrate on saying *what* happened, telling it as a story.

Outline Give only the main points, showing the main structure.

Relate Show similarities and connections between two or more things.

State Give the main features, in very clear English (almost like a simple list but written in full sentences).

Summarise Draw out the main points only (see 'Outline'), omitting details or examples.

To what extent Consider how far something is true, or contributes to a final outcome. Consider also ways in which the proposition is not true. (The answer is usually somewhere between 'completely' and 'not at all'.)

Trace Follow the order of different stages in an event or process.

Critical analytical essays: Introductions

Parts and components of an essay

An essay consists of three parts, known as:

- the introduction;
- the body of the essay;
- the conclusion.

Into these, a critical, analytical essay integrates the following five components:

- 1 clarification of the issues;
- 2 a statement of your own position;
- 3 analysis of compelling arguments in support of your position;
- 4 analysis and rebuttal of counter arguments;
- 5 potential synthesis.

The weighting and sequence of these will vary depending on the issues and the material to be covered, but some guidelines follow.

The introduction to the essay

An essay isn't like a mystery novel where the plot gradually unfolds and the unexpected suddenly occurs. Rather, in a good essay, the scene is set for the reader through a formal introduction. This should be succinct, precise and brief; it can be as short as a single paragraph and shouldn't be longer than a tenth of your essay.

As part of your introduction, without at this point going into detail, you should make the following clear to your potential reader.

The core issues

Refer to the main issues that will be addressed in the essay and, if this can be done succinctly, include an indication of why these are of significance.

Key perspectives

Indicate the major differences of opinion, perspectives or schools of thought on the issues embedded within the essay title. Avoid straying into the more detailed analysis which would come later in the essay.

Define the terms

Define what you mean by words or phrases that are potentially open to different interpretations, or which are contentious, or that could be used in different ways to produce alternative conclusions. Avoid defining obvious terms, covering every word in a title, or giving dictionary definitions. See page 155.

Your position

Ensure that your position comes across clearly and that this is consistent with what you write in your conclusion. If possible, indicate the critical perspective that you are taking, such as the school of thought that you lean towards. Your own position should either be stated explicitly or else should be easily inferred from the rest of your introduction.

The direction of your argument

If there are twists and caveats intrinsic to your argument, then mention these succinctly, indicating how they support or modify your overall line of reasoning.

Get to the point

- Avoid giving unnecessary background information that an interested reader can find out for themselves.
- Be specific about 'significance'. Give reasons for why an issue is important now – such as because of new or high-profile research findings, or recent political or social events, or the anticipated future impact in the sciences, arts, the economy, or in a region, or for a large number of people, or in an area of research where solutions have been hard to find, or where previous research findings have been overturned.
- Avoid the urge to make broad generalisations such as about 'science', 'humanity' or 'the world' as a means of getting started.

Structured argument: The body of the essay

Clarification of the issues

Typically, essays are set on subjects that are multi-faceted and complex – that enable the analysis of different points of view. You are not expected to cover every issue and perspective. The wording of the essay title gives clues to the expected focus for that essay; this narrows down the issues to be addressed. To orientate your reader, clarify the issues either in the introduction or in the opening paragraph of the body of the essay.

Bring out why these issues are significant, controversial or complex. If this seems difficult, it is likely that you have not read sufficiently around the subject. It may help to browse extracts of articles and book reviews for the past few years in key journals for your subject in order to gain a feel for the developing issues.

Your position

Ensure that you provide a clear line of reasoning (pages xviii and 45) such that your own position as stated in your introduction comes across clearly and coherently throughout your essay.

Analysis of arguments

The bulk of the essay consists of examining, critically, two or more viewpoints on the issues identified. In doing so, you will identify compelling reasons for espousing some arguments and for dismissing others.

Some arguments may appear persuasive at first but less so when scrutinised further. These could be the dominant views or most interesting recent research. Opinion on these might be different in a few years' time. It is worth examining them from that perspective and seeing if you can identify any weak points for yourself.

Other viewpoints may have little following or may be so new that the evidence base is still weak. Nonetheless, in the future, these might become dominant perspectives in the discipline. It is

worth considering what further research might strengthen these viewpoints or give them more credibility.

Make critical judgements

- Make critical judgements on the relative merits of each perspective or school of thought, stating the strengths and weaknesses of each.
- Be prepared to state if there are gaps in the evidence base that make it difficult to make a definitive judgement on a particular aspect.
- Be clear about *exactly* what the evidence does support; it may be very convincing, or weak, in some conditions, but that might not be the case if the conditions were changed in specific ways. Demonstrate that you have given thought to when, where and why an argument might apply in one case but not another, and to where further research is needed to support the case.

Make critical choices

Select only the most compelling arguments 'for' and 'against'. For an undergraduate essay, there is unlikely to be space within the word limit for you to go into detailed analysis of all differences and points of interest.

Your selectivity provides evidence of the strength of your critical thinking skills; your tutors will be looking to see whether you can recognise the most salient arguments and material to include.

Reflection



Structured argument in essays

In your own essays:

- How clearly does your own position come across? (Do you tend to 'sit on the fence'?)
- Do you engage in a critical way with different perspectives on the subject – evaluating the arguments of those who have written about the subject?

Essays: Bringing the argument together

Structure your argument

- Use a separate paragraph to analyse each specific point or, if these can be stated briefly, each set of related points.
- Check that paragraphs are sequenced in the best possible order for bringing out your line of reasoning to your reader.
- Use the first or last lines of your paragraphs, and 'signposting' vocabulary, to help indicate the flow of your argument to the reader (see pages 163–8).
- Sometimes, it can be difficult to maintain a sense of clear direction when there are complex issues to analyse. If so, give an interim summary of the arguments so far.

Synthesis

It is likely that, in considering different perspectives or theories, you will find some aspects compelling and other aspects less so. You might feel, for example, that some arguments apply well to particular circumstances, but less so in others. You may feel that all arguments contribute something to the debate even if not in equal weight, but that none are entirely satisfactory in all respects.

Your ultimate position in the essay may be a combination, or synthesis, of the most compelling arguments from several different perspectives that you analysed. If so, avoid generalisations such as 'they are all helpful' or 'none are perfect'. Rather, be specific about what you would take from each perspective. Make a judgement about whether your synthesis also has limitations: you should subject your own synthesis to critical scrutiny.

Conclusions in essays

Essay conclusions shouldn't come as a surprise to the reader. Rather, they should appear to be the inevitable end-point of your line of reasoning. The purpose of the conclusion is to stand back from the more detailed reasoning and evidence that you presented in the body of the essay, and clarify the key messages that have emerged. This may include

reasons why it is difficult to form firm conclusions, such as gaps you had identified in the evidence.

Your conclusion draws together:

- your position, which may be a synthesis of other viewpoints;
- the most compelling reasons that support that position;
- the strongest counter arguments and a summary rebuttal of these;
- if relevant, it can refer to strengths or weaknesses in the evidence;
- if relevant, what specifically needs to be researched further in order better to clarify the issues or strengthen the arguments.

Give a sense of an ending

Make sure that your conclusion wraps up your essay neatly. It isn't appropriate to introduce new arguments or evidence here, as any new material should be subjected to critical analysis. If you start to analyse these, then you are, in effect, continuing your argument rather than concluding.

Your conclusion does not have to refer back, point by point to all the issues you have already covered, but it should at least allude to these and serve to reinforce your overall argument. Your conclusion should link back, clearly, to the points you raised in your introduction and, especially, to the essay title. If possible, find a way of doing this in your final sentence.

Reflection

Conclusions

Take a look at some of your own essays:

- Do you aim at making a synthesis of the best arguments on the issue?
- Does your final position on the issue come across strongly?



Citing and referencing your sources

It should be evident from previous sections that good written critical analysis will involve drawing on reputable sources of evidence.

It is part of the convention of good critical analysis, whether as a student, writer, artist, inventor or more generally, to acknowledge the sources that you use.

Citations

When you draw on someone's work or ideas in your writing, you should acknowledge this straight away at that point in your writing; this is known as a citation. Typically, after making the point, you write the surname(s) and date of publication: (Bloggs, 2022).

Alternatively, on some courses, you are asked to insert a superscript number in the text whenever you draw on a source, and then details of the source at the end of the page or essay, numbering this to match the superscript.

References

References are provided at the end of your work as a list of the full details of all those sources you cited.

Bibliographies

Bibliographies are a list of materials that you used as background, but didn't cite in your text.

'Referencing' in critical writing

For all academic writing, you are required to provide details, or 'references', of all the source materials used to produce your work. For students, as much of your work is based on reading, most references will be to academic books and articles. Depending on your subject, you may use other sources in the public domain such as research papers, newspapers, government reports, parliamentary speeches, websites, television or radio programmes, museum or gallery catalogues and brochures.

What is the purpose of referencing?

For the author of the original source

- It is a courtesy to those whose work you have used or drawn upon to give them proper acknowledgement.

For the reader

- It provides transparency about where your ideas and evidence were drawn from.
- It enables your reader to find the source quickly and easily.
- Readers can go to your source to check the accuracy of your use or interpretation.

The advantages to you

- It strengthens your argument if it is well researched and draws on the authority of reputable sources.
- You will be better able to recall where your ideas came from, either if you wish to use those sources in the future, or if the integrity of your work were to be questioned.
- It is a sign of your integrity to acknowledge your debt to others.
- As a student, there is the added advantage of demonstrating to tutors that you have engaged in background reading, as expected.
- For students, it is a convention that you are required to follow or there will be severe penalties.

You don't reference ...

- Common knowledge (names, dates and well-established facts, such as a writer's date of birth or that bees make honey).
- Conversations with friends and students, unless these were formally conducted as part of an agreed research methodology.
- Other students' essays or academic work, as you should not use these for your own work. The exception would be if these had been made available through the university, specifically for reference purposes.

What do I include in a reference?

It depends on the source

The detail that you need to provide varies depending on whether the source is a book, chapter in a book, journal article, newspaper article, government paper, manuscript, website, radio or TV programme, audio file and so on.

It depends on the style of referencing

The detail that you need to include, and the precise order in which to present this, will vary depending on the referencing style used for your programme of study. Your tutors will advise you which method is used. Typical styles are:

- Harvard (widely used);
- Vancouver (science and health subjects);
- Modern Language Association (MLA);
- Modern Humanities Research Association (MHRA);
- OSCOLA (for legal sources).

Typical information to include:

- authors' surnames and initials;
- date of publication;
- full title of the chapter, article or book;
- full title of the book or journal in which a chapter or article is found;
- the edition of a book (if not the first);
- place of publication and the name of the publisher, for books;
- series and volume number, for journal articles;
- location, month and year for conferences;
- Digital Object Identifiers (DOI) for internet pages.

Reference management tools

You can use free reference management tools such as Zotero, Mendeley, EndNote or others for fast, easy and accurate downloads and storage of all details. To compare the options, see: g2.com/categories/document-creation

Examples

See pages 254–6 and 274–5 for examples of citation and references.

How exact do I need to be?

In academic contexts, there are specific conventions for citing sources and referencing. Each type of source, from medieval manuscripts to blogs and tweets, needs to be cited in a very particular way.

Follow referencing rules exactly

You cannot normally pick and choose between referencing systems: whichever system is used on your course should be followed exactly. If in doubt, follow rigidly the examples that are provided by your institution.

'Exactly' for referencing means:

- using the correct referencing style for your programme;
- including a citation within your writing and the full reference at the end, or as a footnote, depending on the style of referencing;
- providing every detail required for the type of source and for the style of referencing;
- providing the information in the exact sequence required;
- using punctuation and abbreviations as stipulated, even down to the use of capitals, brackets, commas, etc.

What if I don't reference my work?

- Weak skills in citing your sources are penalised by poor marks or possibly even a fail. Check your references carefully at least twice.
- If you do not use citations and references correctly, it may appear that you are trying to pass off other people's work or intellectual property (their research or ideas) as your own. This is plagiarism.
- Universities have software and other methods for detecting cheating and plagiarism.
- Plagiarism is treated as an offence and receives severe penalties. You may have to redo part or all of your work for a capped low mark or a zero. You could be removed permanently from your course and college or university.

Summary: Critical analytical writing

- 1 Follow the conventions of critical, analytical writing.** Be aware of these so that you can keep checking and strengthening your work as you write.
- 2 Apply your critical thinking to your own writing.** Put your own work under at least the same scrutiny as you would when considering sources or others' arguments.
- 3 Keep your readers in mind throughout.** Your aim is to persuade them of your argument and demonstrate that it is well-founded. Put yourself in their shoes: what do they need to know? What would be too much detail?
- 4 Identify a topic that enables you to write a strong argument.** From the outset, keep in mind that the aim is to develop a strong line of reasoning. Evolve your position and reasoning based on your research into the topic.
- 5 Ground yourself well in the topic.** Before deciding on your argument, read around the topic. Identify the relevant themes. Be clear about variations and distinctions in how terms and issues might be defined and used in your sources or in different contexts.
- 6 Decide your position.** If your position is unclear, the argument will be weak and the reader is likely to be confused about what message you are trying to convey.
- 7 Set the scene for your audience.** Provide sufficient detail to orientate your audience, so it can make sense of your argument easily. Keep essential background brief. Be clear how you define any contentious terminology and how you interpret the title and key issues.
- 8 Use vocabulary that provides clear signposts to your audience.** Be aware of phrases that signal the direction that your argument is taking.
- 9 Analyse the title.** It is essential to focus on the exact wording of the title, and to keep this in mind as you research and write up your piece.
- 10 Understand how critical analysis applies to essays.** Academic essays or short student papers are exercises in critical reasoning. Be aware of the distinct role of each section of an essay, including citing and referencing your sources.
- 11 Avoid unexpected surprises.** Academic writing is not like a suspense thriller: your results and conclusions should be clarified from the start and follow logically from all you write – so the reader is expecting them.

Learning outcomes

This chapter offers you opportunities to:

- ✓ analyse arguments in two different ways: through mapping the structure of arguments of different complexity, and through making a critical evaluation of extended arguments
- ✓ understand what is meant by an 'argument map' and when you might use different versions of maps and tabulation
- ✓ compare two essays, to better identify the characteristics of good critical writing
- ✓ compare your evaluations of extended pieces of critical writing against a commentary, to check and develop your skills in evaluation
- ✓ utilise a structure for critically evaluating your own and others' writing.

Introduction

Being able to analyse and evaluate any piece of writing critically can help you in a multitude of ways, from reading academic texts, to checking the 'small-print' in contracts, to being aware of what you are agreeing to in 'terms and conditions' of purchases and agreements. It also means that you are better placed to read your own writing dispassionately and evaluate it in a systematic way.

Argument maps and tables

Arguments can appear to be logical even when they are not. It can sometimes be difficult to work out whether an argument works or not, even for experts. Mapping and tabulating arguments provides one way of analysing how the different components relate to each other and can be useful for checking whether conclusions follow logically from the reasoning.

This chapter provides examples of several ways of charting an argument, ranging from simple maps of the argument structures presented in earlier chapters, through to tables for extended arguments.

Evaluating critical writing

The logical relationships in an argument are only part of the what makes a strong written argument, especially for extended arguments such as written assignments or reports. These usually have to meet other criteria too, including taking on board the needs of an audience and the grading criteria for the assignment.

When critically evaluating writing, including evaluating your own writing before submitting it, you can analyse it against a list of criteria relevant to the context. In this chapter, you can compare two longer pieces of critical writing on the topic of student well-being, using a list of criteria provided. You can then compare your responses with short analyses against those criteria and with evaluative commentary.

Using argument maps

What are argument maps?

An argument map is a visual representation of the structure of an argument.

It can take different forms, depending on the purpose and on the complexity of the argument. Below, are some of the most common formats that you might encounter, along with some alternative ways of 'mapping' arguments for practical purposes such as writing assignments or reports.

Why use argument maps?

Whilst it is not essential to use a map, it can help you to:

- check whether you are clear about the discrete elements that contribute to an argument;
- see how parts of an argument relate to each other, such as whether they are separate, mutually supporting, consistent, challenges, responses to challenges, evidence, etc.;
- analyse whether arguments that you are drawing upon from others are as strong (or weak) as they first appear;
- plan out the best structure for a work report or essay, or for the discussion and conclusions sections of science reports.

Those studying subjects such as logic or philosophy use maps, especially coded argument maps such as those below, to tease out whether statements or arguments are completely logical.

Coding the argument

A typical way of showing argument structure is by coding the underlying arguments (known also as 'reasons', 'premises', 'claims' or sometimes 'assumptions') as P1, P2, etc. The conclusion (also known as the thesis or contention) is coded as C.

Independent reasons (Map 1)

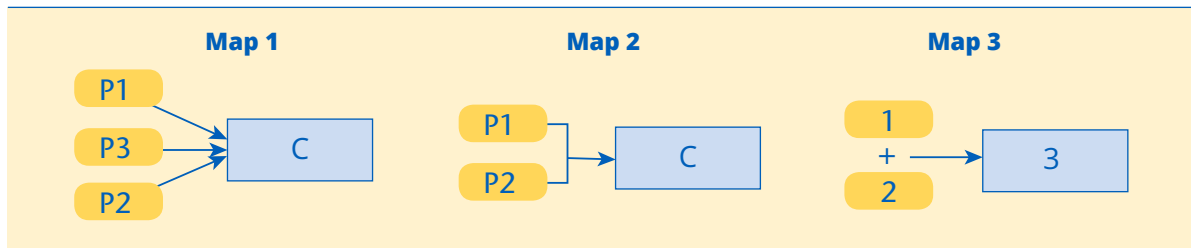
In map 1 below, three premises are given to support the conclusion. These are independent reasons (see page 65), which means that each could, on its own, support the conclusion.

Joint reasons (Map 2)

Sometimes, two or more reasons are dependent on each other; they are 'co-premises'. Each has to be acceptable in its own right and then considered jointly with the other(s) in order for the conclusion to be sustainable (see page 65). The lines that connect them would then appear as in map 2.

With numbers (Map 3)

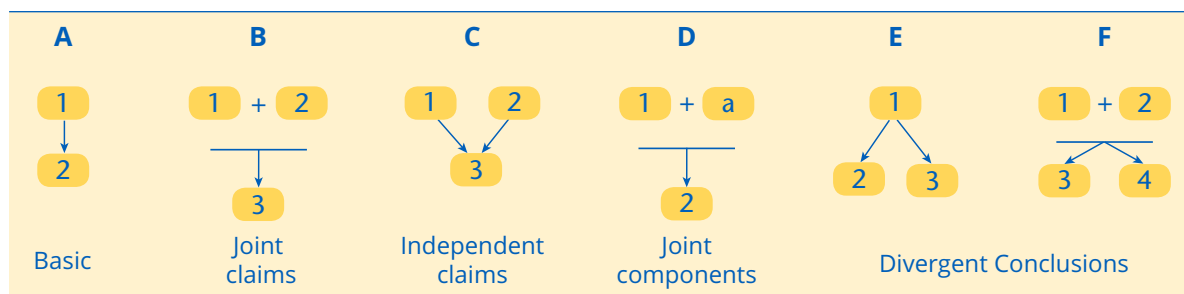
You might see these written, instead, with numbers:



Standard map configurations

Traditionally there were 6 standard configurations to show the nature of the link between premises and the conclusion (see A–F below); you might encounter these in discussions about argument. These are shown below with numbers, although the upper row in each box could be depicted with P1, P2 and the lower row by C (as in maps 1 and 2 above). They could also be written in verbal form as in map 5.

A horizontal line below two or more claims indicates that these have both to be true for the argument to be sustained. If there is no line, the claims can be considered independently of each other. In the most basic (A), one premise (1) supports one conclusion (2). B is the same as map 3 above. C is the equivalent of map 1 above. In D, a claim plus some other information are needed to support the conclusion. In E, one assumption or claim could support two different conclusions. In F, two reasons taken jointly could support two different conclusions. Obviously, there could be expanded versions of these, involving many sets of premises and/or conclusions.



Uses of the configurations

Distilling. Separating out the core issues from other information

Clarifying what is being said. Typically, these involve translating vaguely formulated claims, notions or opinions into more clearly defined structures.

Identifying flaws. The mapping process can reveal gaps and unwarranted assumptions, areas of potential doubt or confusion or 'grey areas' that need further investigation. It might be possible to resolve those different issues or the process might reveal that the argument is not defensible.

Settling contentious issues. Such configurations are useful when it is necessary to examine in detail either short arguments or contentious or unclear aspects of extended arguments.

Understanding. It can involve some thought or discussion, mulling over the material. Doing this increases familiarisation with the issues.

Limitations

Reductionist. They reduce all types of argumentation to a few types.

Scope. They do not show many aspects of argumentation, such as rebuttals, counter arguments, circular arguments, or more complex links between sets of claims. That is why you might see maps that add in words such as '*because of ...*' or '*unless ...*' or '*providing that ...*'.

Difficulty. In practice, even experts disagree about whether some claims are truly joint or independent.

Process rather than endpoint. The thinking process can be more useful in understanding the quality of the argument rather than arriving at a 'perfect' map.

Mapping interim conclusions

Intermediate conclusions (Map 4)

Sometimes, as we saw in Chapter 5, the premises that support a conclusion are themselves based on other sets of claims. This is shown in map 4 where C is the final or ultimate conclusion, supported by three premises. One of these, P1, is itself an intermediate conclusion, dependent on P4 and P5 both being acceptable first.

The relationship between P1, P4 and P5 is the same as that in configuration B (page 181). For more about intermediate conclusions, see pages 66–8.

Flow chart based on Map 4

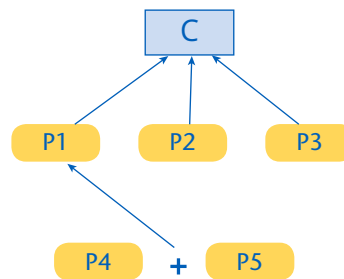
An argument map that looks like a flow chart can be useful for laying out complex relationships between sets of claims, reasons and conclusions, especially when there are joint (dependent) claims. Map 5 is a chart based on part of map 4. It shows one strand of an argument being made for action against global warming.

In map 5, it would not be clear why claim 1, on its own, is relevant to the intermediate conclusion. The conclusion makes more sense when both claims are considered together, as one joint reason.

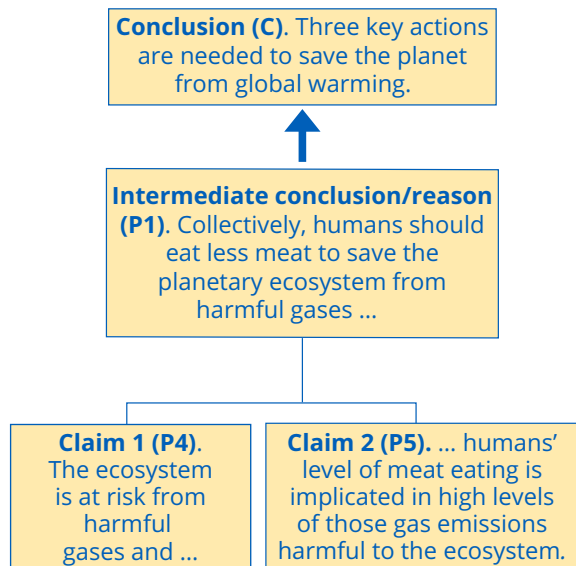
That does not mean, of course, that the argument is won. Some might disagree about the validity of the claims – if they have different data about the harmfulness of the gases, for example.

Also, a third claim is needed as part of this reasoning: it needs to be evident that there is no other way to reduce the effect of the harmful gases mentioned. If there were ways of harnessing the gases or nullifying their impact, for example, there might be no reason to change meat eating habits. Then, an alternative conclusion could be drawn, such as: *'World governments must invest in systems that manage the gases associated with meat consumption'*. Other counter claims might need to be addressed, such as whether all meat is equally harmful.

Map 4



Map 5

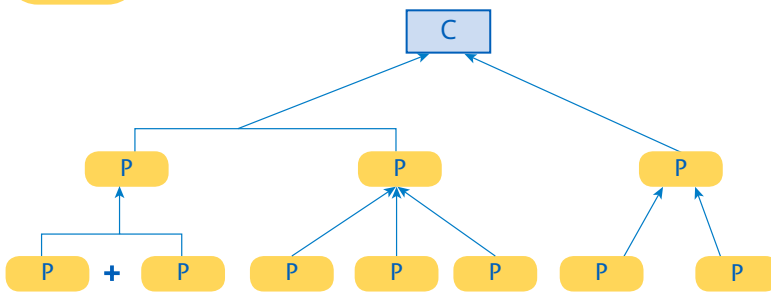


Argument maps for complex arguments

Complex arguments: Map 6a

Typically, arguments you encounter in higher education, business or government consist of multiple stages where each key reason is an intermediate conclusion based on chains of underlying claims. For example, as in map 5, one claim might be that data proves a particular point (such as high levels of gas) on the basis of which the premise is formed that a particular course of action is needed (to cut the high level of gas). This, combined with other reasoning, leads to a conclusion (the need to reduce meat consumption). If the data in the claim, or the interpretations of these used in the argument, were found to be weak, then the reasoning would be undermined. Argument map 6a illustrates sets of joint and independent reasoning; 6b provides the same relationships as a flow chart.

Map 6a



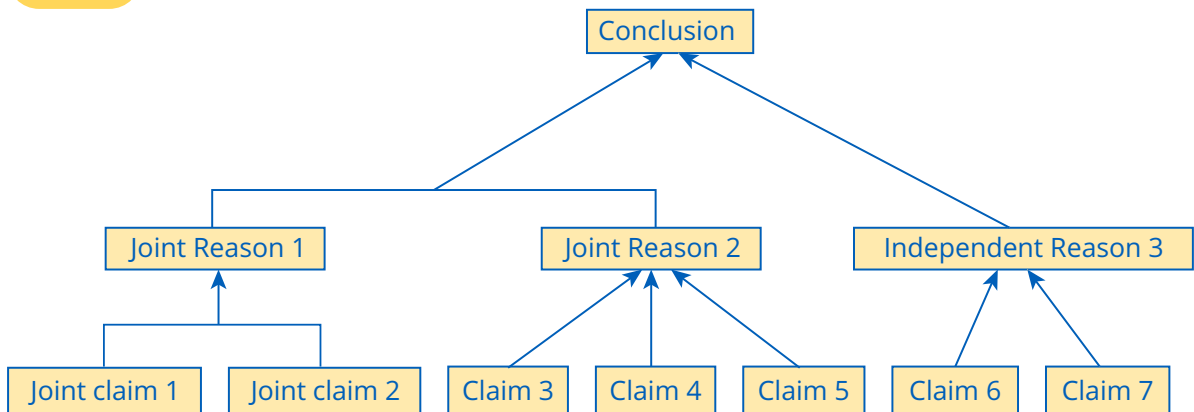
The conclusion in maps 6a and 6b is supported by two sets of reasons, Reasons 1 and 2 combined, plus Reason 3 separately. Either of the two sets of reasons, on its own, could justify the conclusion.

In turn, the strength or validity of each set of reasons depends on whether we can accept the underlying claims first. Reason 1 depends on both claims being acceptable. Reason 2 can be supported even if only one of the three claims is acceptable.

Complex arguments: Mapped as a flow chart

Flow charts can also function as argument maps. It can be useful to convert a map into a flow chart, or vice versa, to help clarify your thinking.

Map 6b



Mapping extended arguments

Mapping longer pieces

Longer pieces, such as an article, essay, talk or video, usually contain extended arguments that consider an issue from multiple dimensions. This can make it challenging to map them closely as, for arguments with many branches or layers, it is hard to keep track, especially if they use the numbering of map 4. It is also a problem if the argument is not structured towards its conclusion in a way that lends itself to the close logical mapping on pages 180–3.

For extended arguments that contain many parts or twists, it can be useful to combine more than one approach. You could apply coded maps (maps 1–4 and 6) to just part of a longer argument, such as when it is unclear to you whether the claims really do support the argument. You might prefer to use a flow chart, table or other graphic to map the argument as a whole. Some examples are provided on pages 185–94.

Counter arguments

Furthermore, in extended arguments, there are usually separate lines of reasoning in support of the conclusion and against it. Most advanced arguments assume that there are reasonable arguments against the proposition as well as those that favour it. There can also be arguments for and against each point in a chain of many intermediate conclusions.

This means that a map of the structure needs to clarify which arguments support the conclusion (and intermediate conclusions) and which refute or undermine it. This could be done by using different colours or shapes to indicate the arguments ‘for’ and ‘against’.

Alternatively, for arguments that have a strong element of reasons ‘for’ and ‘against’, you could use a ‘pros’ and ‘cons’ structure such as in table 1 (page 185). To help the argument structure stand out at a glance, charts, tables, boxes and headings can be used as well as colour, as in map 7, on page 185.

Addressing challenge

In extended arguments, it is not usually sufficient to list points ‘for’ and ‘against’. The arguments ‘for’ have to be defended – with good reasoning based on strong evidence. The challenges (points ‘against’ the contention) have to be taken seriously, and addressed fully.

Depending on the nature of the challenge, this might mean contesting the evidence base, or showing why the evidence has been interpreted incorrectly, or demonstrating that it does not apply in this case. This can be depicted as in map 7. Where an argument uses a given structure such as thesis/antithesis/synthesis, this could be represented as in tables 2 and 3 (page 186).

Mapping your own arguments

It is a good idea to map out your own arguments before starting to produce longer pieces. As well as clarifying your thinking, it can help identify material that, although interesting, does not further your argument.

Useful questions to ask

- 1 What is the overall structure of my argument? Is it:
 - a. mainly a ‘pros and cons’ structure?
 - b. thesis/antithesis/synthesis?
 - c. ‘defending a position’?
 - d. ‘weighing up multiple arguments to derive a conclusion’?
 - e. some other structure?
- 2 What kind of map, chart or table would work best to chart the arguments clearly?
- 3 For each piece of information that I have included, is it evident which argument or counter argument it is supporting? Is it evident how it supports a conclusion, intermediate conclusion or counter-argument? If not, does it have a clear purpose that supports the argument (such as defining terminology or providing essential background)?

Mapping arguments with counter arguments

Most arguments contain some element of 'for' and 'against', especially for student assignments. You might be familiar already with outline plans that use a 'pro and con' (for and against) structure as in table 1. This structure, in the form of a table, works best when:

- a decision, part of an argument, or a sub-conclusion needs to be clarified;
- you are weighing the merits of one proposition or option against alternatives.

Table 1: Pros and cons structure

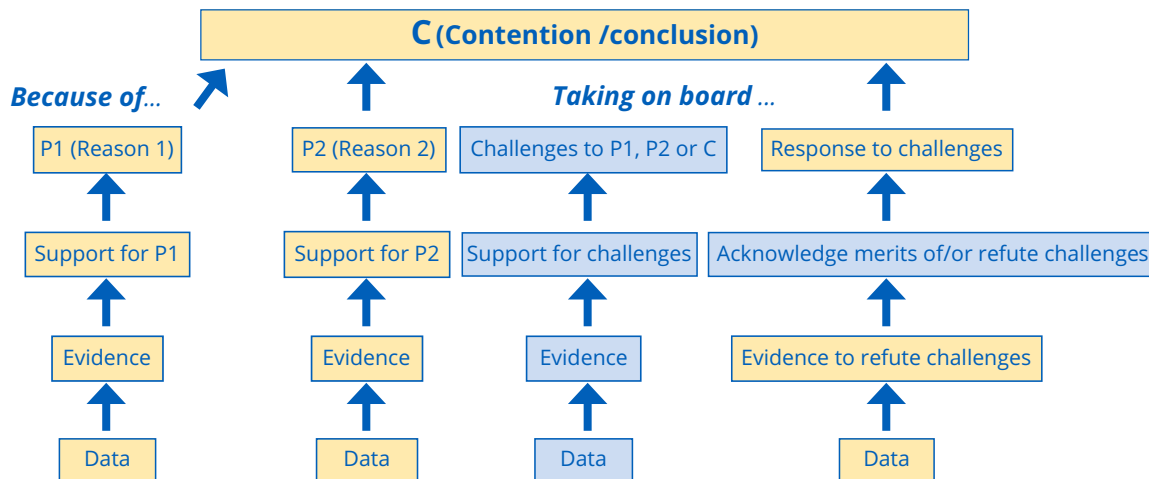
| Proposition (starting position/issue/question to decide) | | ← The main argument, decision or position that you are considering |
|--|--------------------------------|---|
| | | |
| Pros (Arguments 'for') | Cons (Arguments 'against') | ← Reasons (or arguments, or points) that support and challenge it. State who says so, and the year their work was published. |
| Argument or data/by whom/date | Argument or data/by whom/ date | |
| Argument or data/by whom/date | Argument or data/by whom/ date | ← Weigh up arguments on either side to check whether they support, undermine or refute the original proposition. You might need to strengthen, re-phrase, modify or reject the initial proposition. |
| Continue adding, if needed | Continue adding, if needed | |
| Conclusion | | |
| | | ← |

A blank, extendable template of this is available on the Companion site.



Reasoning that addresses challenges: Map 7

Typically, for a strong argument, you show you are aware of potential challenges to your position, reasons or evidence, and that you can provide further good reasons to counter these. For reports and assignments, the argument structure might resemble map 7. The conclusion is given **because of** Reasons P1 and P2, **taking on board** the challenges (shaded in blue).



Tabulating thesis/antithesis/synthesis arguments

When considering an issue for a report or student assignment, typically there is a theory, hypothesis or recommendation propounded by one 'side', which is disputed by another. The arguments are rarely so clear cut that all good or relevant points lie on one 'side'. This *thesis/antithesis/synthesis* structure (Table 2) is useful as it lays emphasis on identifying salient points from both the original proposition and counter arguments, drawing these together into a new proposition – the synthesis. You might hear this referred to as 'Hegelian dialectics' (see page 4). This argument structure has three main components:

- 1. The 'thesis'** – a proposition which provides a starting point for examining an issue. It could be a theory, claim, position in a debate, or a recommendation for action.
- 2. The 'antithesis'** – a counter argument that challenges the thesis and/or provides an alternative to it.
- 3. The 'synthesis'** – a new proposition you arrive at by drawing on both the thesis and antithesis. You combine the best of each, reducing or removing weaknesses, in order to provide a coherent, more compelling argument.

Table 3 shows one way of tabulating such an argument structure. It consists of:

- a summary of the thesis, antithesis, and synthesis (1, 2 and 3 on the chart);
- sets of arguments to support or challenge each of these (1a, 2a, 2b and 3a);
- the set of points (reasons) relevant to each heading (numbered i, ii, iii, etc.).

The argument would sound something along the lines of the words given in italics.

A blank extendable version is available on the Companion site.



Table 2: Thesis, antithesis, synthesis

| | |
|---|---|
| 1. Thesis (Summary of the starting position) | |
| 1a Arguments that support the thesis | |
| 2. Antithesis (Summary of the counter argument) | |
| 2a Points/arguments that challenge the thesis | 2b Arguments that support the counter argument (antithesis) |
| 3. Synthesis (Summary of your final position) | |
| 3a Points to support the synthesis. These include weighing up arguments made under 1 and 2 above and drawing from these to show why your new position is now the strongest. | |

Table 3: Thesis, antithesis, synthesis

| | |
|---|--|
| 1. Thesis (Summary of the starting position) | |
| <i>The best way to understand this issue (or: the logical answer/the best course of action, etc.) is XYZ.</i> | |
| 1a Arguments that support the thesis | |
| i. <i>The argument that best supports XYZ is ... (or XYZ is best/works/is useful/is right/is a strong argument because ...)</i> | |
| ii. <i>Also ...</i> | |
| iii. <i>A further argument that supports this position is ...</i> | |
| 2. Antithesis (Summary of the counter argument) | |
| <i>The case against XYZ, as proposed above, is that it is flawed/doesn't work/isn't logical/isn't supported by the evidence for the following reasons A stronger argument, that takes these points on board, would be PQR.</i> | |
| 2a Points that challenge the thesis | 2b Points that support the counter argument |
| i. <i>XYZ doesn't work when ...</i> | i. <i>PQR has wider applications ...</i> |
| ii. <i>XYZ doesn't deal with ...</i> | ii. <i>PQR addresses problems of ...</i> |
| iii. <i>Z isn't proved because ...</i> | iii. <i>PQR are all tested/proved</i> |
| 3. Synthesis (Summary of your final position) | |
| 3a Points to support the synthesis | |
| <i>XYZ works/is useful in these ways ... but not in these ways ... PQR works/is useful in these ways ... but not in these ways ... A new proposition (synthesis) which takes on board the strengths of these two propositions is XYPQ. This works because ...</i> | |

Defending a given position

There might be good reasons why you do not wish to use the thesis/antithesis/synthesis model as outlined on page 186. One might be that you wish to defend a position that is likely to come under strong challenge. In such cases, you might prefer to map or tabulate the argument as in table 4: this lays more emphasis on defending against challenges that can be anticipated.

Table 4: Defend your position

| | |
|--|--|
| 1. Present the thesis | |
| Summarise the main argument. | *** |
| 2. Make the arguments | |
| Provide a summary of the strongest arguments that support the thesis (that is, in favour of a theory, proposition, position, proposal, recommendation, etc.). | 1. |
| | 2. |
| | 3. |
| 3. Anticipate challenges | 4. Defend against the challenges |
| Raise potential arguments that could be used to challenge the thesis, including: <ul style="list-style-type: none"> ● counter arguments already raised by others (such as in research literature); ● weak points that you can spot for yourself. | Provide arguments that address the points raised in 3, in defence of the thesis. |
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
| 5. Identify merits in the counter arguments | 6. Manage the counter-merits |
| Identify any merits to the challenges raised in 3 if not already covered. Depending on your argument, you might find it easier to separate these out, or to incorporate them into stages 3 and 4. | <ul style="list-style-type: none"> ● <i>Either</i>: clarify why, despite these merits, the counter arguments do not necessitate changes to the initial argument. ● <i>Or</i>: clarify why aspects of the counter argument should be taken on board to modify and improve the argument. |
| 1. | 1. |
| 2. | 2. |
| 7. Synthesis/conclusion (Summary of your final position) | |
| Summarise your reasons for supporting or modifying the original argument (thesis/hypothesis or proposition), drawing on the strongest arguments made in 2–6. Be clear which arguments carry the most weight and why. | |

A blank, extendable version of this template is available on the Companion site.



Weighing your options: Multiple theses

In table 4, the starting point was a given position, which you then defended. On other occasions, you might need to weigh up several arguments from an equal footing. This requires a different argument structure, such as that mapped out in table 5.

Table 5: Weighing the options equally

| Position/thesis 1 | | |
|--|--|--|
| Propose and defend position 1 (or thesis 1) | | |
| 1a Make the arguments Provide a summary of arguments used to support the first thesis or hypothesis under consideration (i.e. theory, position, proposition, proposal, recommendation, etc.). Clarify the merits of this position. | 1b Anticipate challenges Raise potential arguments that could be used to challenge the thesis or hypothesis. | 1c Defend against the challenges <i>Either:</i> Acknowledge the merits of the challenges, if these need to be accepted <i>Or:</i> Provide arguments that address the points raised in 1b in order to defend the thesis. Clarify why these are not sufficiently significant to undermine the argument. |
| 2. Position/thesis 2 | | |
| Propose and defend position 2 (or thesis 2) | | |
| 2a Make the arguments Summarise arguments used to support the second thesis, or hypothesis, being considered, as for 1a above. | 2b Anticipate challenges Raise arguments that could be used to challenge the thesis, or hypothesis, as for 1b above. | 2c Defend against the challenges Accept or refute the challenges, as in 1c above. |
| 3. Position/theses 3 onwards | | |
| Repeat stages 1 and 2 for each position or thesis or hypothesis being considered. | | |
| 4. Conclusion/Synthesis | | |
| <ul style="list-style-type: none"> ● Weigh up the most significant arguments for and against each position. ● Decide which of the arguments is the strongest. ● Indicate whether a synthesis of two or more positions would provide a better alternative than those considered. Be clear why this synthesis avoids weaknesses of the other arguments and/or provides a more compelling argument that would be harder to refute. | | |

A blank extendable version of this template is available on the Companion site.



Finding the structure of extended arguments

Why do it?

When presented with an extended argument, it can take some time to analyse it in detail. You might do so for various reasons, such as for:

- understanding the strength or weaknesses in different argument structures;
- seeing clearly how the components of your arguments are currently structured – such as in assignments – and how they might be better organised;
- evaluating a debate or legal case;
- preparing a well-argued bid to attract finance, such as for a business or charity;
- identifying how an argument has been constructed to promote a political position;
- critiquing the quality of arguments presented in a talk, video or text.

Matching to purpose

Unless you are required to map arguments in a particular way, devise a map, chart or table that works best for you. It might take some trial and error to find the best fit. Working that out can, in itself, clarify your thinking.

Find the structure

For extended arguments, it can be hard to identify their structure. These steps can help.

- 1 Browse, view or listen to the piece more than once – to gain a sense of the overall structure first.
- 2 Identify the final conclusion. Write or paste that into a conclusion box for your map or chart. Use this to help you make decisions about the function of other material presented as part of the argument.
- 3 Go through the piece and identify every assertion (or point) that seems to support the conclusion. Make a list of these. If they are wordy, summarise each in a few words to bring out the main point accurately.
- 4 Identify the main counter argument(s). Note these down. Highlight them so that they stand out – in a box, or with bold, larger font size.
- 5 Go through the piece and identify every point that supports counter arguments.
- 6 For each set of points made in support of either a conclusion or counter argument, group these by theme.
- 7 For each group of points, identify which are intermediate conclusions and which are supporting reasons/evidence.
- 8 Identify the relationship between each point in each group: is it an independent reason or a joint reason?
- 9 Move (or write up) each point into a separate box. Space these out so that you can draw lines and arrows between them that indicate whether they are independent of each other or joint (such as in map 6a, page 183. Alternatively, organise the points into a table (pages 185–8).
- 10 Check that it is clear what are the relationships between each point, intermediate conclusions, and the overall conclusion.

Activity

Map the structure

Use the steps above to find the structure of a longer piece, the sample essay on page 251. You might find it easier to start by making a table similar to those on pages 185–8. Use the piece itself to help you decide the structure – rather than choosing a structure and trying to make the material fit.

Then have a go at organising the main points into an argument map. Compare your version with that provided in the example on pages 190–3. There is more than one way of doing this so check whether you identified the main intermediate conclusions and reasons rather than whether your map looks identical.



Tabulating an argument

If you need to create a detailed argument map of a longer piece, it can be easier to begin by organising information into a table. The one below details the structure of the sample essay on page 251. Note that, in this instance, the issue or thesis is provided by a statement proposed for discussion. The author does not agree with that statement, and structures the essay to show firstly why the thesis has merit, then to challenge it and provide alternative perspectives, and finally to propose points of synthesis. Arguments that support the thesis are in **cream**, those against it are **blue**. The synthesis and conclusions are in **darker yellow**.

| | | |
|--|--|---|
| Thesis 'Interventions focused on improving sleep are most likely to enhance the well-being (WB) of students in higher education'. | | |
| Author's conclusion Interventions focused on improving sleep are not those most likely to enhance the well-being (WB) of students in higher education. | | |
| Arguments in support of the thesis | | |
| Interim conclusion 1: Sleep-focused interventions have merit | | |
| Joint reason 1 Poor sleep is a widespread issue for students. | Joint underlying reasons/claims | Evidence base/data for joint reason 1 |
| | a) True across many countries | a) Peltzer and Pengpid (2014): 20,222 students/26 countries |
| | b) Students don't get the sleep recommended | b) Carter et al. (2017) less than rec. by National Sleep Foundation USA |
| | c) Many students experience poor sleep. | c) Hershner and Chervin (2014): 50% experience daytime sleepiness & 70% insufficient sleep. Li, L. et al. (2018): true for many Chinese students. |
| Joint reason 2 Poor sleep affects student well-being. | Underlying reasons/ claims | Evidence base/data for joint reason 2 |
| | a) General effects of poor sleep | a) Reported to be major concerns for students (Cottrell, 2019) |
| | b) Affects mental health | b) Lund et al. (2010); Friedrich et al. (2018) |
| | c) Negative effects on grades, mood, etc. | c) Kelly et al. (2001); Orzech et al. (2011); Friedrich and Schlarb (2018); etc. |
| | d) Linked to risky behaviours that undermine well-being | d) Trockel et al. (2000) |
| | e) Reduce life satisfaction. | e) Kelly (2004). |
| Joint reason 3 Sleep interventions are feasible/ can work. | Underlying reasons/claims | Evidence base/data for joint reason 3 |
| | a) Positive results for sleep hygiene tips/sleep education | a) Carter et al. (2017) |
| | b) Raise student awareness of behaviours that impair sleep | b) Li, Y. et al. (2020) recommend |
| | c) Combining mindfulness CBT, etc. could work. | c) Friedrich and Schlarb (2018): data from various interventions. |

Arguments against the thesis (antithesis)

Interim conclusion 2: Other interventions would be more effective

| Joint reason A | Supporting reasons (SRs) | Underlying claims | Evidence base/data | |
|---|---|---|--|---------------------------|
| Sleep-focused interventions are not the best way of improving sleep. | SR1 Sleep-focused interventions are less effective than might appear. | a) Students not very receptive to them – lifestyle reasons | a) Author deduction from continuance of the issue despite many interventions (Javek, 2023) | |
| | | b) Not used where most needed | b) Medical students – don't seek help for sleep (Medeiros et al., 2001) | |
| | | c) Improved sleep doesn't always help other WB issues | c) e.g. in a study, didn't resolve student anxiety (Morris et al., 2016) | |
| | | d) Sleep is not the WB priority for students. | d) 'all-nighter' behaviour continues as students stressed about study. | |
| | SR2 It would be better to address the underlying causes of poor sleep. | Underlying claims | | Evidence base/data |
| | | a) e.g. alcohol consumption has negative impact on both sleep and grades | a) Singleton and Wolfson (2009) | |
| | | b) Internal differences: finances, internet addiction, skipping class, etc. | b) Morahan-Martin et al. (2000); Choi et al. (2009); Li, Y.'s study of Chinese students (2020) | |
| | | c) e.g. academic/ psychological stress affects sleep. | c) Lund et al. (2010) | |
| Joint reason B Reducing 'study stress' would do more both to improve sleep and to enhance student well-being. | Joint SR3 Academic stress is a key concern for student well-being in its own right. | Underlying claims | | |
| | | a) Matters to students: globally | a) Cottrell, 2019 (on stress) | |
| | | b) Students report it as 'a key difficulty in coping with Uni' | b) Youthsight/UPP Report (2017) | |
| | c) Anxiety levels are linked to supportive teaching and feedback. | c) HEPI Student Survey (Neves and Hillman, 2019): 65% more likely to report high anxiety if lack good experiences; boost confidence: UUK (2021) | | |
| | Joint SR4 Addressing study stress could reduce need for sleep interventions. | Underlying claims | | Evidence base/data |
| | | a) Sleep problems are caused primarily by academic & psychological stress. | a) Lund et al. (2010) | |

| | | | |
|--|---|--|--|
| Joint Reason C Targeting 'risky clusters' could have greatest impact where most needed. | Joint SR5 Clusters of unhealthy/risky behaviours have greater impact on life and health (than sleep). | Joint claims | Evidence base/data |
| | | a) In developed countries: c 50% of illness/life impacts link to a cluster of 4 risky behaviours | a) (WHO, 2002; Buck and Frosini, 2012; Poortinga, 2007): cluster: smoking, low physical activity; alcohol (poor diet (+ impact on cholesterol & BMI) |
| | | b) 'Risky clusters' are relevant to student WB | b) Sprake (2018): 25%; Schmid et al. (2021): similar clusters |
| | | c) Being away from home contributes to these difficulties for students. | c) High rates of weight changes (Vadeboncoeur, 2016). Dodd et al. (2010): 60% low consumption of veg. & fruit daily. Rao et al. (2014): 50% lack regular exercise. |
| | Joint SR6 Students are more open to interventions about healthy choices. | Underlying claims | Evidence base/data |
| | | a) HEIs could promote cooking & low-cost healthy food | a) Sprake (2018). Recommends on basis of study |
| b) Students welcome campus-wide initiatives that remind them about healthy choices | | b) Rao et al. (2014) | |
| c) Easier to assimilate into student lifestyle. | | c) Author deduction | |
| Joint Reason D Improving the student environment would have greatest well-being impacts through reaching the largest number. | Joint SR7 'Unique factors' affect students' WB. | Underlying claims | Evidence base/data |
| | | a) 'Mattering' to peers affects student WB | a) Shine et al. (2021) |
| | | b) Students are affected by their accommodation | b) Schlarb (2017): c 90% of USA students share rooms; 41% lose sleep because of others' noise |
| | | c) Food arrangements differ from home. | c) Lugosi (2019); Ressa (2022)* |
| | Joint SR8 Environmental interventions would help with these factors. | Underlying claims | Evidence base/data |
| | | a) 'Mattering' can be assisted by enhanced environments | a) Shine et al. (2021) |
| | | b) sound-proofing & accommodation design could reduce noise & improve WB | b) Author suggestion |
| | | c) Design of eating environments affects WB. | c) Lugosi (2019) |
| | Joint SR9 Environmental interventions reach more students (than sleep-focused interventions). | Underlying claims | Evidence base/data |
| | | Large numbers use services on a sustained basis. | Lugosi (2019) |
| Greater impact: as environment affects student WB in many varied ways. | | Lugosi (2019) | |

Synthesis

Interim conclusion 3: Multi-factor approaches are likely to have the greatest impact

| Joint Reasons | Underlying claims | Evidence/relevant paragraphs |
|--|---|---|
| Sleep interventions have merit | A widespread problem for students, affects WB and some interventions work. | Parags 3–5 |
| <i>but</i> better if combined with other WB approaches | Sleep, exercise and nutrition are mutually reinforcing. | The Sleep Foundation (Newsom, 2020). Parag. 13 (plus 7 and 8) |
| <i>And</i> can benefit WB even when not the prime issue. | Reduced alcohol problems. | Fucito et al. (2017) – parag. 13 |
| | Helped WB in cases of high BMI and obesity. | Gildner et al. (2014) – parag. 13 |
| | Academic problems & stress are associated with poor sleep and other WB factors. | Parags 3–6 |

Conclusions

| | | |
|---|---|-----------------|
| It depends how one evaluates interventions. | E.g., addressing underlying causes, or behaviours most in need of address, stakeholder priorities, greatest numbers, etc. | Parags 8–12 |
| Multi-factor approaches to WB are more likely to reach those in need, & larger numbers. | Because they are mutually dependent, WB factors need to be considered in combination. | Parags 7, 8, 13 |

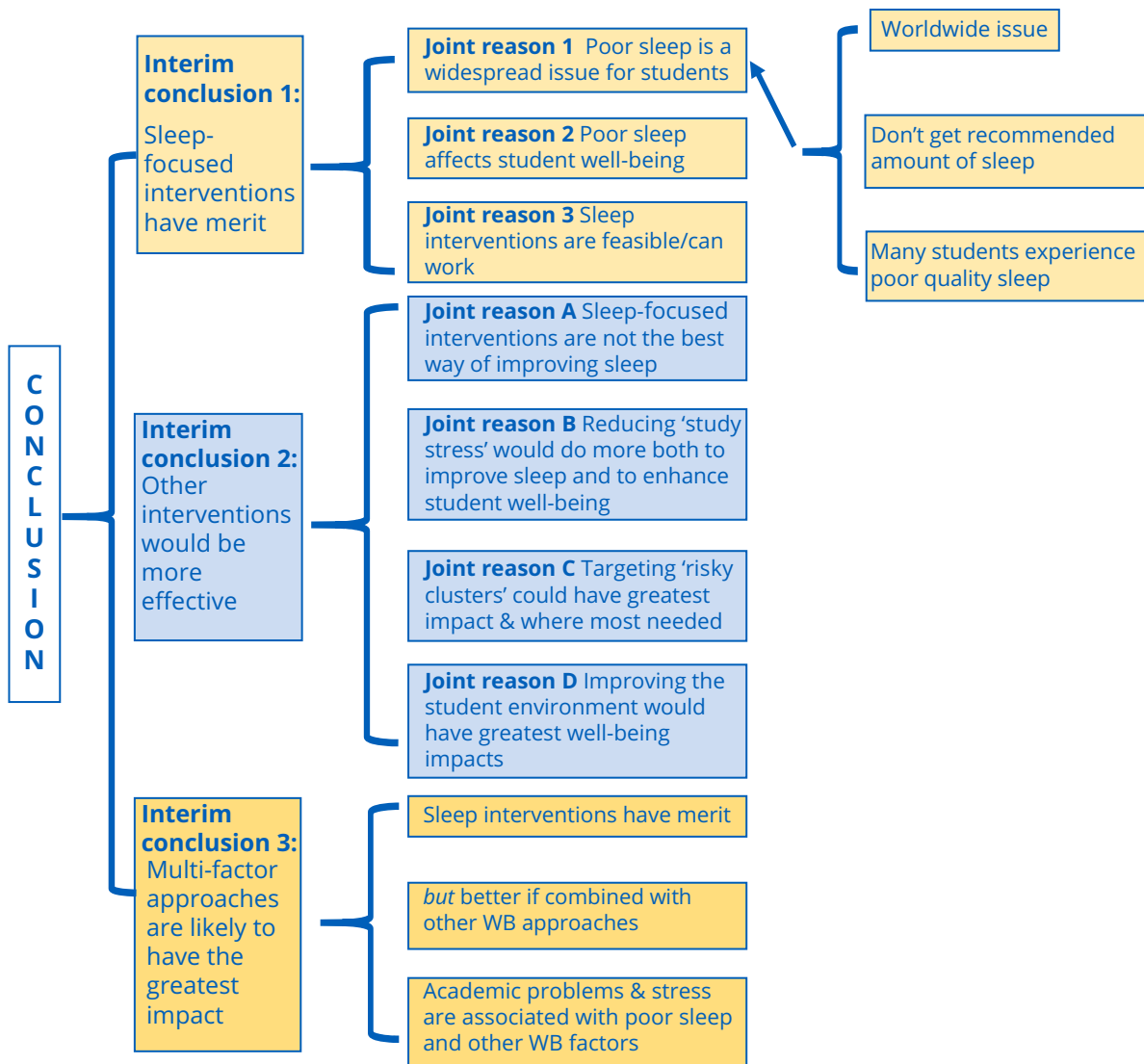
A blank extendable template of this is available on the Companion site.



Example: Mapping an extended argument

The map below is a visual representation of part of the table on pages 190–3, mapping the argument to the level of interim conclusions and the main reasons that support these. Such a map might be useful for mapping the overall argument of an assignment before starting to write it up. Alternatively, you could use such a map to analyse your first draft, to check whether to re-organise material before starting your next draft.

For Joint reason 1 below, the underlying claims are included to provide a sense of how the map would continue to be elaborated. When making any map, it is important to decide the level of detail needed for the intended purpose.



Decisions to make when argument mapping

Will it help?

The uses and limitations outlined for standard configurations (page 181) need to be taken on board for all maps and tables.

- A visualisation of an argument may contribute to understanding it.
- Mapping provides one form of practice that helps to develop and embed expertise in critical thinking.
- It serves as an assignment outline, helping to organise information and cluster relevant information together.
- It helps to structure an extended piece of work such as an essay.
- It can help to clarify particular aspects of an argument.

However, argument maps have limitations. For example, they wouldn't usually capture a range of argumentation devices used in visual media or evident in meetings, such as body language and tone, irony, sarcasm, humour, etc. If those aspects were relevant, they could be added to a map or table to indicate they were used.

Simplify or maximise?

Decide whether it will be more effective for you to use the simplest configuration such as to clarify key reasons and intermediate conclusions. This is useful if you have lost track of your argument.

Alternatively, decide whether you would benefit from more detailed mapping, identifying the arguments, intermediate conclusions and supporting arguments to several levels. This could include mapping out explicitly the arguments that make the underlying evidence base sufficient and necessary, or arguments for and against the evidence base itself. This is useful if you can't decide where all of your material fits.

Use mapping software?

Benefits

- Some software uses text boxes to group linked claims together, and different colour shading for claims and rebuttals.
- The maps look neater if submitted as part of a report or assignment.
- Useful for collaborative mapping and sharing. Some software includes forums to discuss argument maps.
- Some provide instant feedback so you can make immediate changes and/or learn from mistakes.
- Some include peer assessment facilities so students can evaluate each other's mapping on an argument.

Limitations

- They are only as good as your thinking. You may end up with just clearer diagrams of poor reasoning.
- They don't help with many of the mapping issues people find problematic, such as distinguishing between joint and independent reasons, identifying circular arguments and fallacies, etc.
- They can be more time consuming to use and alter than paper, pencil and eraser.
- They might not be compatible with packages used by others.

Want to know more?



Software for argument maps

Mindmap Argument Visualization: allows collaborative working on an argument map. Free.

<https://www.rationaleonline.com/> charges for use.

Extended arguments: Applying criteria

Applying criteria

Argument mapping provides one way of analysing the argumentation in a piece of work. It is not the only way. When analysing extended arguments within a single piece of work, you might wish to apply a wider set of criteria, depending on your purpose. For example, you might also be interested in the language used, whether the piece treats evidence in an even-handed way, uses good quality evidence, uses evidence in a fair and legitimate way and so on.

A 'piece' might be written, such as an essay, report, blog, wiki, review, article, book or other extended text, but it could also be an audio or visual equivalent, such as a video, webinar, lecture, podcast, speech or talk. Other criteria might be more relevant to your use of these, such as whether speakers interrupted each other, or visual images contradicted the verbal message.

Formulate a checklist

When you analyse a piece from a critical perspective, it can help to formulate a checklist of questions to direct your observation, listening or reading and for recording your judgements.

A good starting place for such a checklist is to apply the key questions listed opposite. Add other questions, if needed, as relevant to the context, your purpose, and the medium used.

Checklist for evaluating extended arguments

- 1. Is there a clear position on the topic/issues?
- 2. Does the piece address the core question it sets out to address (e.g. that is proposed by its title)?
- 3. Are good reasons presented to support the main position adopted?
- 4. Does a clear argument (line of reasoning) run through the piece from start to finish?
- 5. Are points presented in the best order as a logical sequence?
- 6. Do main reasons/key points stand out clearly?
- 7. Does the evidence support the conclusion?
- 8. Does the conclusion follow logically from the reasons and evidence presented?
- 9. Is the argument internally consistent (i.e. the piece is free of contradictions)?
- 10. Is all material relevant to the topic/core question? (Has inessential detail and description been cut?)
- 11. Does the piece consider alternative perspectives on the issue in a fair, even-handed way?
- 12. Is the piece free of emotive language (page 103)?
- 13. Is it free of flawed reasoning (chapters 6 and 7)?
- 14. Does the piece draw on good quality, reliable, relevant sources (chapters 8 and 9)?
- 15. Are all sources cited throughout, and then full details provided as a list of references (pages 176–7)?

A template using this checklist is used for the activity on page 197 and on pages 199–200 and 249. An extendable version of the template is available on the Companion site, too.



Critical analysis: Sample essays

Practice activity 1

This activity, page 249, enables you to analyse and compare two extended arguments on the topic of student well-being. These are the sample essays 1 (page 251) and 2 (page 261). Consider that the authors both had access, first, to the texts on pages 243–8. They then made choices about what to include, ignore or follow up from these texts.

Note that the texts on pages 243–8 were written solely for the purposes of this exercise – the authors are fictional. However, all sources referred to in the texts are authentic; their details are in the References so you can follow them up should you wish.

For this activity, you can use a checklist, make a commentary – or both. For details, see below.

Using the checklist

Use the checklist on page 250 to analyse the essays in a structured way.

- Consider whether, for each question, the best answer is *Yes*, *No*, *Mostly* or *Sort of*.
- Jot down brief comments or details.
- Compare your answers for each essay with those given on pages 257 and 265.

To complete the activity electronically, you can use an expandable template of this checklist as a chart on the Companion site at <<https://www.bloomsburyonlineresources.com/critical-thinking-skills>>. Alternatively, you can note your responses as a numbered list.



Making a commentary

As you read each essay, consider how far it meets the requirements for critical thinking covered in the book so far, and what an editor or tutor might provide as feedback if you submitted it as your final copy. You can do this as:

- lists of key strengths and weaknesses
- and/or sets of judgements about the texts that strike you as important (from the perspective of critical analysis).

Make brief notes on your device or in a notebook. Then, compare these with the commentaries on pages 258–9 and 266–9. The superscript numbers in the essays (e.g. cat¹) indicate that a note relevant to this part of the essay is provided in the commentary.

Practice activity 2

A second pair of essays, on the topic of global warming, is provided for practice. These use different sets of criteria. Commentary is provided for these in the margin. Jot down your comments about sample essays 3 and 4 in the margins, or in a notebook or on your device. Then compare these with the comments provided on the answer pages (276–80 and 285–89).

Bodies of work

There are occasions when you might need to follow and evaluate an argument across a body of work. A body of work is a set of pieces, normally on the same theme, produced by the same person or group. It can be interesting to see how an argument develops, or changes over time, as the author(s) consider the issue further and pursue new lines of enquiry.

Bodies of work: Questions to ask

- How does the argument change across the set of pieces – or over time?
- What reasons are given for this?
- What new findings or insights prompted a change in the argument?
- Does the current position on the issues, as adopted by its authors, continue to take account of arguments and evidence they had presented previously?
- Is the argument still developing? Are there still outstanding issues or themes that the authors state need further research?
- How do the arguments presented by this body of work compare with those in work by other people?

Critically evaluating your own work

Why evaluate your own work?

It isn't always necessary to make a detailed analysis of your work. It really depends on your purpose and what you want to achieve. Some good reasons for doing so are these.

- 1 The quality of your reasoning conveys a strong message about you – such as whether you have taken your work seriously and whether your reasoning is to be trusted.
- 2 Making a detailed evaluation gives you more control over the quality of the piece you are producing.
- 3 Making a critical analysis of several pieces of your work, over time, trains you to make more reliable evaluations, so that you can be more confident of your own judgements of what you produce.
- 4 You become more aware of your typical strengths and weaknesses. This enables you to play to your strengths in the future. It also pinpoints for you the areas where you should focus more carefully when making an argument or preparing an assignment in the future.
- 5 You can submit stronger pieces of work, which can benefit your grades or your applications for grants and funding.

Do tutors do this?

The commentaries provided for the sample essays (pages 258–9 and 266–9) are typical of the approach an editor, tutor or professor would take when you submit your work. It is possible that they will provide a similar detailed commentary or use a checklist. It is more likely that they will simply respond to the overall perceived quality of the piece, and identify to you a few of its more obvious strengths and areas for improvement.

Methods to use

There isn't one correct way to evaluate your overall piece of work. You might find it easier to make rough notes as a form of critical commentary in the margins of your text. You could use the comment facility in your word-processing package.

Alternatively, you can use the methods outlined in this chapter.

Self-evaluation with action plan

A structured checklist for evaluating the reasoning and critical skills you demonstrate in your own work is provided on pages 199–200. This provides guidelines, in the 'Action' column, on how to approach the analysis. An expandable, adaptable version is provided on the Companion site: you can select items to evaluate and jot down actions either for improving the piece of work – or to improve your critical thinking skills more generally.

Criteria to apply

To formulate your own criteria for analysing assignments, draw also on guidelines you have been given by the course such as:

- the 'brief' – or assignment outline.
- level descriptors for the year of study.
- learning outcomes for the course.
- marking criteria for the assignment.

Be fair to yourself

Don't just look for faults or for strengths. Make a balanced assessment. Do not be harsh with yourself if you find many aspects to improve: it is to your credit that you can spot these and it can enable you to do better. Everyone has aspects of their thinking that they can develop.

Reflection



Evaluating your work

- How systematic are you in the way that you evaluate your work at present?
- Which aspects of your work would benefit most from critical analysis?

Evaluating your work for critical thinking

You can copy this self-evaluation tool to use for future reports and assignments.

| Self-evaluation | Yes/No | Action |
|---|--------|---|
| 1 I am clear on my position on this subject and the reasons for my point of view. | | Write your position down as a statement in one or two sentences. If you cannot do so, this suggests that your position isn't yet clear in your own mind. If possible, also check whether your point of view is clear to a friend or colleague who knows little about the subject. |
| 2 My conclusion and/or recommendations are clear, based on the evidence, and written in tentative language where appropriate. | | Write your conclusions first. Read these aloud; check that they make sense. Imagine someone tells you that your conclusion is wrong. What reasons would you give to defend it? Have you included all these reasons in your writing? For language: see p. 169. |
| 3 The material included is the most relevant to the subject. | | Double-check that your line of reasoning meets the task requirements, such as meeting the project brief or answering the questions set for an essay. Does it match the statement you wrote about your position? |
| 4 All sections of the assignment or report are relevant to the exact specifications of the task. | | Read through each section or paragraph in turn, checking how the information contributes to your line of reasoning, leading to your conclusion or recommendations. Check that each meets the project brief, or is necessary to answer the set question. |
| 5 I have analysed the structure of my argument. Reasons are presented in the best order and lead clearly towards the conclusion. | | If not, write the reasons out in brief and consider how each is linked to the conclusion. Check whether the argument 'hops' from one point to another. Cluster similar reasons together and indicate how each contributes to the main argument or conclusion. |
| 6 The argument stands out clearly from other information. I have selected the best examples. | | Check you have not presented so much detail that the main argument is lost. An analysis of a few examples or details is better than a superficial approach to lots of material. Select carefully to meet the task requirement. |
| 7 My reasons are clearly linked to one another and to the conclusion(s). | | Check that each paragraph opens with a clear link to what has gone before or signals a change in the direction of your argument using 'signal words' such as those suggested in Chapter 10. |
| 8 My main reasons and key points stand out clearly to the reader. | | Highlight the sentence that sums up the main point or reason covered in each paragraph. If you find this difficult, it is likely that your reader will find it hard to identify your points. If large sections of a paragraph are highlighted, then it is probable that you haven't summarised its main point sufficiently. |

| Self-evaluation | Yes/No | Action |
|--|--------|---|
| 9 My facts are accurate. | | Don't rely on opinion or memory. Check that your sources are reputable and up to date. Investigate whether anything published more recently gives different information. Check that you have reported the facts accurately, and without distortion. |
| 10 I have included reference to relevant theories. | | Find out the schools of thought or theories related to this subject. Make a critical evaluation of these to identify where they support or conflict with your argument. |
| 11 I make use of other people's research as supporting evidence to strengthen my argument. | | Check what has been written or produced on this subject by other people. Include references to relevant items that best support your point of view. |
| 12 I have cited the source of information for evidence and theories to which I refer. | | Cite all references, in brief, within the text, and in full at the end of the writing. |
| 13 I include a reasoned evaluation of views that do not support my own argument. | | Find out what has been written that contradicts your point of view, and consider any other potential objections that could be raised. Evaluate these as part of your line of reasoning. Make it clear why your reasons are more convincing than opposing points of view. Identify any flaws, gaps or inconsistencies in the counter arguments. |
| 14 My writing is mainly analytical and contains only brief, essential descriptive writing. | | Check whether all sections of descriptive writing and background information are essential to understanding your reasoning or are part of the conventions of the type of report you are writing. Keep descriptions very brief, look for ways of summarising them and link them clearly to your main argument. Beware of wordy introductions. |
| 15 I have checked my argument for inconsistencies. | | Check whether any of the reasons or evidence you have used could be interpreted as contradicting what you have written elsewhere in the piece of writing. |
| 16 I have given clear indications of levels of probability or uncertainty. | | Check that your writing indicates your judgement of how likely it is that the conclusion is accurate and irrefutable. If there is a chance that research findings could be interpreted differently by someone else, use appropriate language to indicate a level of uncertainty or ambiguity. See page 169. |
| 17 My current beliefs are not unfairly distorting my argument. | | If any section of your assignment covers a subject where you have strong beliefs or interests, be especially careful that you have checked the evidence supports your reasoning. It is important that your arguments come across in a calm and reasoned way that will convince your reader. Check several times, and be careful not to include emotive language or poorly substantiated opinions. |
| 18 I have covered all the required aspects of the assignment. | | Check the assignment's details carefully. Tick ✓ aspects already completed so it is clear what else you must do. |

Summary: Mapping and evaluating arguments

- 1 Argument maps can aid critical analysis.** They offer visual representations that show how an argument is constructed.
- 2 Coding an argument simplifies the structure.** Removing extraneous detail helps to clarify the relationships of each part of an argument.
- 3 Six traditional configurations sum up key relationships in arguments.** These are useful starting points for mapping any argument, although they have some limitations.
- 4 Flow charts can also function as argument maps.** It can be useful to convert a map into a flow chart, or vice versa, to help clarify your thinking.
- 5 Extended arguments may need different mapping approaches.** It can be challenging to code long, complex arguments in their entirety although coded maps might help with sections of the writing or for a general overview of the main thrust of the argument.
- 6 Tables can make it easier to chart some arguments.** For longer arguments or those that address challenges, or which include syntheses and analyses of syntheses, it can be simpler to construct and use a table rather than a map.
- 7 Devise a map or table to suit your purpose.** It can take a little trial and error to find a map or chart that works well for identifying how the component parts of a given argument are currently structured and/or how they might be organised ideally. Working that out is a valuable part of the thinking process, and can clarify muddled thinking.
- 8 Decide whether mapping software will help.** Packages can be good for sharing, colourful graphics, instant feedback and can provide neater maps for assignments. However, they can be time-consuming and distract from the underlying thinking required.
- 9 Use criteria to evaluate extended arguments.** Use the checklist provided or draw up your own list of criteria to analyse arguments systematically.
- 10 Compare examples to gain a better sense of strong and weak arguments.** Use your insights to help you produce stronger arguments of your own, such as for assignments.
- 11 Make systematic but fair critical analyses of your own work.** Know where you are strong and what to improve. Gain confidence from developing your critical ability.

Learning outcomes

This chapter offers you opportunities to:

- ✓ understand what is meant by critical reflection and appreciate its challenges and benefits for academic study and professional practice
- ✓ understand how to undertake critical reflection and decide on the most appropriate approaches for your purposes
- ✓ formulate your own model of critical reflection
- ✓ understand the difference between phase 1 and phase 2 reflection
- ✓ know how to relate theory to practice
- ✓ recognise good and bad critical reflection
- ✓ understand how to present critical reflection to others, especially for academic assessment.

Introduction

It is easy to become caught up in everyday routine such that we lose sight of the reasons for thinking, feeling, believing and acting as we do. Diverse aspects of our experiences and emotional responses – and our interpretations of these – can become entangled in ways that may not be apparent to us. This can distort our perspective and block understanding, which isn't helpful to us in the longer term.

Critical reflection is used increasingly in professional and academic contexts as a means of focusing our attention back onto our own experience. Reflection in this context refers to specific kinds of mental discipline. It involves clarifying our thinking, deepening understanding and reinforcing learning in ways that, ideally, lead to transformation and change.

Although 'reflection' sounds as though it should be easy, in practice, there is a great deal of challenge in working with the raw material of our experience, and especially in doing so with integrity, in ways that support learning, and doing all this within a framework of academic conventions.

Also, critical reflection means applying critical approaches raised in former chapters. In effect, it involves bringing an objective eye to your experience, and using this to formulate reasons that:

- account for your behaviours, emotions and responses to events;
- and/or how to change these;
- and why you should do so.

You are creating arguments and drawing conclusions about yourself. Your reasoning should still be logical and based on valid, acceptable evidence. Bringing that level of objectivity to personal experience is challenging – which is why it is useful to triangulate it with evidence from others, observing outcomes and drawing on theory.

This chapter helps you to understand what is required when undertaking critical reflection for academic and professional purposes. It provides structures that can help you to negotiate the various phases and processes of critical reflection, from initial selection of a topic through to presentation of your reflection for assessment.

What is critical reflection?

More than just 'thinking'

In everyday language, the term 'reflection' is used loosely to refer to:

- being engaged in thought;
- vague musings or day dreaming;
- going back over an event in our minds.

Critical reflection for academic and professional purposes is different from this. It is structured, focused and conscious, with the end purpose of developing our understanding and directing our future action. If you undertake critical reflection as a requirement of your programme or profession, there are likely to be expectations about the form this takes and how to present it.

Critical reflection: Characteristics

There isn't a single kind of critical reflection, but typical characteristics include:

- 1 **Selection:** select an aspect of experience, learning or professional practice for analysis.
- 2 **Changing perspective:** analyse experience from different angles and different levels of detail.
- 3 **Returning to experience:** once, periodically, or frequently, as best fits the issue.
- 4 **Analysis of own role:** look at reasons for, and consequences of, your own actions, rather than those of others.
- 5 **Drawing on received wisdom:** make use of theory, research, professional knowledge.
- 6 **Deepening your understanding:** look actively for meaning, recognising what is significant, and learning from this.
- 7 **Using insights to effect change:** use your new understanding to do things differently in the future – ideally to the benefit of others as well as yourself.

These are examined in more detail below.

'Actions' in this context refers to all salient behaviours, speech, feelings and thoughts, including such matters as body language, assumptions that influence behaviour, failure to take action or resistance to taking action.

1 Selection

Effective critical reflection is an intensive activity that takes time, mental energy and often, too, emotional energy. Realistically, you won't be able to bring the same level of critical analysis to all areas of your experience. Select one or two areas where that kind of investment of your resources will bring the best returns for you. See pages 208 and 217.

2 Changing perspective

In our everyday routine, we tend to observe our actions from a given perspective and level of detail, referring mainly to our own opinions. It would be difficult to function on a day-to-day basis if we didn't do so. For critical reflection, we look to develop understanding partly by altering our focus, using different levels of detail from those employed on an everyday basis – as if zooming in and out with a camera lens to see surroundings with fresh eyes.

Analysing in detail

This means putting our experiences under a magnifying lens so as to identify component parts and contributing factors. For example, by clarifying an exact sequence of events, we might identify potential causes and effects overlooked at the time. Alternatively, we might recall things that we said or did that did not seem significant at the time but which take on new meaning when we reconsider the context, our motivations or anxieties. We can use these observations to elicit patterns and themes.

What is critical reflection? (continued)

Considering the bigger picture

This means standing back to look at our experience from broader perspectives, as if through a wide-angle lens:

- actively searching out themes or patterns within our reflections;
- testing our personal experience against published theories, research and professional knowledge;
- considering the influence of broader political, social or ideological contexts.

3 Returning to experience

The appropriate timing and frequency will depend on what you want to gain from your critical reflection. You could select:

A significant, one-off, incident to analyse in detail, to help understand better what happened and your own role and reactions.

A recurrent situation to reflect on after each occurrence, so that you build your observations, your sense of potential cause and effect, and of your own role.

An issue or theme, and return to this at frequent and regular intervals so that you can identify patterns in your actions and emotional responses over time.

A particular project or challenge, and record your observations and reflections over its duration. Draw conclusions about your own role and actions, the reasons for these, their consequences for the project, yourself or others, and for future action.

4 Analysis of your own role

Critical reflection requires you to look at your own experience – it is not intended to be an occasion to blame others or focus on their actions. Depending on the context, this means looking at such aspects as:

- the impact or consequences of what you did or didn't do – and why;
- the reasons for your actions, moving beyond superficial and immediate reasons to look at latent fears and motivations, displaced emotions, assumptions you had made, and whether these helped or hindered the situation;
- changes in the way you acted or responded over time.

5 Drawing on received wisdom

For critical reflection in academic contexts, you are expected to relate your own experience to theory. Ways of doing this are addressed on page 210.

6 Deepening your understanding

Critical reflection is more than detailed observation or a narrative of events. It involves active working with the raw material of your experience so as to make sense of situations and events, their dynamics, your own role within them and the influence of the broader context. This means sifting through your reflections, selecting key insights and identifying why these are of significance to your performance in study or work, the way you work with others, or your life generally.

7 Using insights to effect change

A key aim of critical reflection is to transform the way you see the world, or an aspect of it, such that you think and act differently. Change of some kind is an implicit aim: this may be a small change but one that will make a difference to you or others. It often means owning responsibility for one's own role in contributing to events, which can be challenging but also liberating. At its best, reflection can have a transformative quality, with a profound effect upon your being and sense of self, others and the world around you.

Why engage in critical reflection?

Challenges of critical reflection

Although we may be aware that we would benefit from putting time aside for reflection, it is not easy for most of us to do so. It takes commitment and discipline because of the following factors.

- *Distractions*: There are usually more compelling things to distract us.
- *Confusion*: We may confuse everyday, unfocused 'thoughtfulness' with the more purposeful and structured critical reflection required.
- *Feelings*: If we select difficult material, this can bring its own challenges such as uncomfortable feelings, unexpected emotional responses, or unwanted conclusions about our own role – it is natural to want to evade these.
- *Skills*: It takes skill to balance a critique of experience with the requirements of academic writing, especially relating to the personal and the theoretical.

It can help to know that these challenges are not unusual. Managing such challenges forms part of the purpose of undertaking critical reflection – and contributes to the sense of achievement.

The benefits of critical reflection

A helpful mental discipline

Critical reflection develops a mental discipline that brings diverse and often unexpected benefits – potentially the transformative results referred to above. Academic or professional requirements for critical reflection are helpful in that they provide an external incentive, and often a framework, that we may otherwise lack for undertaking such in-depth analysis.

The more we create a routine for critical reflection, the more we gain in terms of self-management, critical observation, emotional maturity, and in actively using experience to the benefit of ourselves and others.

Space and time for development

When we commit ourselves to critical reflection, we need to create appropriate conditions, such as making the right mental and emotional space and focusing on ourselves in ways that we wouldn't do otherwise. It helps us organise our time and enables different types of thinking.

More effective study and learning

You can use your own learning as the focus of critical reflection. Stepping back from study, you can benefit from reflecting on your attitudes to learning, your strategies, the effectiveness of these for different subject matter, and what assists or prevents you from achieving well.

You can better understand your own performance through looking critically at:

- your educational history and its impact on achievement and self-belief;
- how your current attitudes and study strategies evolved, and whether these best fit your current context;
- whether your self-perceptions assist or hinder your performance;
- whether, unconsciously, you sabotage your own performance;

if you wish to pursue this in more depth, a wide range of materials are available in *Skills for Success – Personal Development and Employability* (Cottrell, 2021).

To support professional practice

Critical reflection enriches professional practice. By developing your understanding of what you are doing and why, and the consequences of your actions, you are better placed to manage new and unexpected situations in a professional manner that also supports your own needs. This is explored in more detail on pp. 219–20.

Decide your approach and purpose

Considering your approach

Because of the challenges identified above, it can be difficult to:

- get started on a piece of critical reflection;
- keep going with it once started;
- give shape to your reflective thinking so that it becomes meaningful;
- come back to it over time to see what it is really telling you;
- work with your reflective material productively and creatively so that you can learn from the experience and use it.

Some people generate their best reflective thinking by working in impromptu ways, using the moment, and letting the creative flow direct their thoughts. If this is true of you, then go with what works best for you. In that case, you may not need to use a formal approach until you come to shape your final reflective summary for an external audience.

However, for many people, especially those for whom critical reflection is a relatively new activity or one for which they need encouragement to keep going, it is easier to use a more structured approach. This gives a starting point and direction and helps you to produce stronger, more focused critical reflection.

In general, if you spend time early on elaborating what you wish to gain from your critical reflection and the approach you will take to best achieve that outcome, then you are likely to reap benefits in terms of the quality of your reflection and effective use of your time. This chapter outlines some key considerations for formulating your approach.

Reflection



Improving your approach

How could you produce better critical reflection by:

- Working in a freer, creative way?
- Using a structured approach?
- Spending more time thinking about how to approach a piece of critical reflection?

Deciding on an approach

Key considerations are:

- 1 purpose;
- 2 type of desired outcome/output;
- 3 focus;
- 4 model of reflection to employ;
- 5 your methodology;
- 6 audience;
- 7 relating experience and theory.

These are examined in detail below.

1 Identify your purpose

Start by deciding what it is that you want to achieve from undertaking this reflection – in terms of knowledge, understanding or performance. For example, for particular aspects of your study, life or work, you might want to understand:

- why something went well, and whether the lessons learnt could apply to other situations;
- why a particular situation arose or unfolded the way it did;
- why things don't seem to work out as you hoped or expected;
- why your contributions to seminars or at work aren't as effective as you would wish;
- why you think or react the way you do in particular circumstances.

Once you are clear about your purpose, it is easier to decide on other aspects of your approach, such as the expected outcomes, an appropriate focus, your methods and the model to use.

Reflection



Purpose

How would you benefit from clarifying the purpose of each reflective session?

Decide outcomes and outputs

2 Decide on type of outcome

Before you start your reflections, consider how you will make use of them. Desired outcomes should have a specific end-point relevant to the purpose you identified (page 207). So, if your purpose was: 'To understand what I could do to make the group work better', the desired outcome might be 'The group spends more time on topic and less on gossip'. The outputs might be 'a list of suggestions for new ground rules for the group'. This will help you to decide the form that you want your conclusions to take.

Outputs are usually items, such as:

- A list of lessons learnt?
- A critical, analytical piece of writing based on your reflections?
- Recommendations for personal action?
- Guidelines for future action?
- Instructions for future action?
- A combination of these?

If you are undertaking reflection as a requirement of your programme of study or professional practice, you may be given guidance about how to write up these outcomes and/or thoughts.

Reflection

Outcomes and outputs

What kinds of outcomes and outputs are expected for the reflection you are expected to undertake for your programme or profession?

3 Select a focus

Select a meaningful focus for your reflection. Choose a particular incident or type of incident, or a recurring issue, concern, set of relationships, or similar that you consider relevant to achieving your purpose above, (page 207).

You need to select a focus that is relatively challenging, so that there is sufficient material to enable you to develop your understanding.

However, the focus should be sufficiently narrow so that you can examine it from multiple perspectives yet without being too superficial.

4 Choose a model of reflection

There are various models of reflection that you can draw upon to provide a framework for your reflection – though this isn't always required or necessary. Particular frameworks may be preferred within your discipline or professional area. If not, you may find it helpful to draw upon one or more of the models outlined on pp. 215–19.

Reflection

Using a model for reflection

- Is a particular model of reflection recommended for your course or professional area?
- Do you feel that using a model to structure your reflections would stimulate helpful reflections, or do you feel using a model would stifle your creativity?

5 Method

There isn't a single method of critical reflection. You need to consider:

- whether there is a required methodology for your discipline;
- if you have a choice, the method that will help you engage most effectively.

The following considerations may help you to select what will work best for you.

How best to record your reflections?

For your purposes, would it be better to record your initial reflections on paper, in a notebook, blog or electronic record? Would you prefer to record them digitally?

Approach: Method and audience

With whom?

In relation to your identified purpose, are you likely to develop your deepest insights if you do this entirely on your own, or if you use a colleague, friend or peer group to open up your thinking?

Consider who you trust to give you honest and relevant answers. How will you reassure others that they can give you honest feedback that you will accept in good faith and without making it awkward for them? Using a formal, timed, more structured approach can help.

Frequency and regularity?

For the purpose and outcomes you have identified, would it be better to undertake critical reflection on a weekly basis, or more or less frequently? Would you gain most by planning specific times each day, week or month, or making notes as and when there are new developments for you to consider?

First steps/prompts?

Consider how you will get started on your reflection. Would you work best by:

- jotting down your thoughts as they come, and then going back over these for further consideration?
- using the same set of questions each time, in order to structure your thinking sessions?
- using a theory as a starting point?
- discussing an event with a colleague, and then jotting down your thoughts?
- applying a model of reflection in a systematic way on each occasion?
- using a template to guide your reflection?

Working the material

Your initial reflections will generally provide raw material, or phase 1 reflections, that will require further work. Consider when and how you will work with your initial reflections so as to arrive at deeper understandings through phase 2 reflection (pages 212–14).

End-point

Consider how you will draw your thoughts together towards conclusions. What format will this take? For example, you may be required to submit a blog or journal that contains your developing ideas, and a piece of reflective writing that draws together key insights and conclusions.

Reflection

Methodology

- Which aspects of your methodology do you think you need to develop the most?
- How will you go about this?

6 Audience

If you are undertaking critical reflection for your own purposes, then you can decide on the format it takes. However, if you are required to share it with a tutor, peers, work supervisor, assessors, or others, consider how you will adapt your written account in order to take your future audience into consideration.

This may include:

- using different content and styles of writing for phases 1 and 2 (see pages 212–14);
- including only information and reflections that you are comfortable for others to read;
- providing a well-structured and referenced critical summary;
- ensuring confidentiality and anonymity for anyone referred to in reflections – and permission to use workplace material.

Reflection

Confidentiality

- What kinds of information would you not feel comfortable sharing with your peers, tutors or others?
- What kinds of confidentiality issues are there in general for the kinds of reflection you might be asked to undertake for your course?

Approach: Relating experience and theory

7 Relating theory and practice

For critical reflection on experience for academic work, you are expected to relate experience to received wisdom or 'theory'. You can approach this in different ways, some of which are listed below.

Check the research basis first

When selecting an area of experience for critical consideration, choose an aspect for which you know there is published research. Ideally, there should be research findings that support different theoretical perspectives. If not, it may create difficulties when you come to write up your reflections for assessment. It is much harder to undertake reflection and then start looking for relevant theory and research.

Update yourself on the issues

Investigate the research findings and accepted professional practice for the area you have selected for reflection. Read reputable journals or recently published books on the subject, and find out what key issues are being addressed in that area. What are the 'hot topics'?

Ensure that you are aware of:

- established and new theories related to 'hot topics' or to other areas that you want to investigate through your critical reflection;
- research that supports these;
- any criticisms of that research;
- the direction of debate on these issues within your subject discipline or profession.

In this respect, your background reading will be similar to that undertaken for other kinds of academic work. See Chapter 9.

Do your experiences support the theory?

Consider when and how your own experiences match or do not match what you would expect from the key theories you have selected to draw upon. If there isn't a good match, consider the reasons for this, such as differences that there might be in the context or data. What is true of one situation may not be the case in your own.

Do theories support your findings?

It is possible that you will develop insights or draw conclusions on matters that were not covered in the initial research items that you used. If so, investigate whether there are theories or research findings that support or contradict what you have found. It adds weight to your own position if you can relate your conclusions to a broader research base. Research into the broader social, political and cultural issues may also help.

Learn from the experts

Use reputable sources of research and their conclusions in order to throw light onto areas of practice or study that you find difficult. Consider what these sources offer you in identifying ways of doing things differently. For example, theories of how memory works may help you in preparing for exams.

Your analysis and your consideration of salient theories should help you to understand better:

- what has been happening up to now and why;
- why you, personally, act as you do and the impact of your actions;
- how wider issues impact upon the everyday and the individual;
- how you can act differently so as to bring about different outcomes.

Decide your approach: Summary checklist

| Aspect | Decide ... |
|-----------------------------|---|
| Purpose | What is it that you want to understand or do better as a result of this reflection? |
| Type of outcome and outputs | <p>What specific outcomes do you want to achieve? What form will your reflections take, as outputs, such as:</p> <ul style="list-style-type: none"> ● A list of lessons learnt? ● Recommendations for personal action? ● Guidelines for action? ● Instructions on applying what you have learnt? |
| Focus | What will provide a meaningful focus for your reflection (a particular incident, recurring issue, concern, set of relationships, etc.) that you consider relevant to achieving your purpose above? What makes it worth the time and emotional effort to focus on this? |
| Model of reflection | <ul style="list-style-type: none"> ● Are you expected to apply a particular model of reflection? If not, would adopting or adapting an existing model help you to structure your reflection? ● Would it help to design your own model? |
| Method | <p>How will you go about your reflection – if you have a choice?</p> <ul style="list-style-type: none"> ● <i>Recording</i>: On paper, in a notebook, blog or electronic record? ● <i>With whom</i>: Individually? With a colleague or peer? In a group? ● <i>Frequency</i>: Weekly? Daily? As needed? A one-off reflection? ● <i>When</i>: As a daily log or blog? At a particular time of day? ● <i>First steps/prompts</i>: How will you get started on your reflection (see phase 1 reflections on pp. 212–13)? Would it help to use free association? Using a series of questions or a template to provide structure? Using a theory as a starting point? Comparing and contrasting with another example? ● <i>Evolution</i>: How will you develop your initial reflections (see phase 2 reflection, p. 214)? ● <i>End-point</i>: How will you draw your thoughts together towards a conclusion? |
| Theory | <ul style="list-style-type: none"> ● Which theories or research are you going to draw on to bring insight and more depth to your reflection? ● How will you go about relating experience and theory? ● Are there broader social, political, cultural, ideological, economic or technological issues that you could research that would provide helpful additional perspectives? |
| Audience | <p>If your written reflection will be seen by peers, tutors or others, how will you adapt it to achieve the following?</p> <ul style="list-style-type: none"> ● Make the key points stand out? ● Ensure confidentiality? ● Ensure you are reasonably comfortable with them seeing any personal information or reading about personal feelings? |

An expandable template based on this summary is available on the Companion site. This can help structure your approach when getting started on a new piece of critical reflection.



Reflection phases 1 and 2

The process of reflection can be considered in terms of two distinct phases;

- Phase 1: Generating ideas and raw content;
- Phase 2: Analysis and synthesis.

Phase 1: Generating ideas and raw content

First-phase reflection refers to jotting down reflections when the details, thoughts and emotions are still fresh, recording these as a stream of initial thoughts. These might be captured in a notebook, file, blog, digital recording or whatever best suits your way of working.

Characteristics of phase 1

- Immediate: written whilst still fresh in the mind.
- Chronological: written 'as it happens' so it may read as an unfolding story.
- Emotional: it provides a chance to explore your feelings – and more emotion may arise as you identify what was happening for you emotionally and why.
- Detailed: likely to contain information and details that seem relevant at the time but which may become less significant as time goes by.
- Fragmented: different things will appear to be significant at different times.

Phase 2: Analysis and synthesis

It is this aspect of reflection that brings depth to your thinking and learning. It is most likely to be phase 2 reflections that are assessed or gain the most marks. It should be clear how phase 2 reflections relate to your phase 1 reflections. In effect, you consider both the issue and yourself in relation to the issue.

Characteristics of phase 2

- Holistic: you are looking back over an experience, event or project *as a whole*.
- Distance: you stand back to gain perspective. For example, you look at the feelings that were evoked without becoming caught up in them to the same extent.
- Analytical: you analyse your reflections critically.
- Synthesis: you bring together disparate and scattered thoughts and analyses into more rounded judgements and conclusions.
- Extrapolation: you are engaged in a process of teasing out meaning, insights and significance.

At phase 2, you work with your reflections as a whole, looking for significant trends, patterns and conclusions. You may benefit both from sitting quietly with these for a while to see what further thoughts emerge, and also from working with them actively, asking questions of yourself, and drawing out the implications of what you have learnt.

Understand yourself in relation to the issue

At both phases, but especially for phase 2, you need to consider your own role and actions, the impact of these at the time or later, and the consequences of these for yourself or others. For example:

- How well did you handle a situation? How good were your decision-making and other skills?
- How did your views and your understanding develop through the process of reflection?
- What difference will your new understanding make to how you approach similar issues in future?
- What further training, research, reflection or support would help you to develop personally and professionally?

Examples of phase 1 reflection

For a project for their degree in medicine at the University of Leeds, Sophie and Charlotte created a resource to help parents and carers communicate with young children about cancer. They each completed a weekly reflective log. The following examples from their logs illustrate the flavour and range of phase 1 reflection.

Their feelings as they undertook new tasks and stretched existing skills

I am slightly worried about my computer abilities and unsure how to create professional looking graphics which could be used in the resource ...

Evaluations of their current experience

My experience of dealing with bereavement in children is minimal and it is an area that I feel I will have to research in order to help me develop a greater understanding.

Their feelings about dealing with such a sensitive and difficult issue

Although I was excited about the prospect of filling this apparent need and helping parents, I was also anxious about tackling a major topic such as cancer.

Meetings with the tutor

We arrived at the first session with ideas which we had created individually, with a view to discussing these and narrowing them down to create a specific project brief. I felt apprehensive prior to the meeting as both my partner and I were coming up with individual ideas and had not agreed a direction for the project. After ... I felt less anxious about the project.

The research they undertook

... we found many study and journal articles, mainly from the BMJ, which focused directly on this issue. This encouraged me to proceed ... as initially I was concerned that there would not be much literature for us to base our research on or to indicate that this would be a worthy project. My experience of dealing with bereavement in children is minimal and it is an

area that I will have to research in order to help me develop a greater understanding.

Their responses to their reading

I was shocked to read that many parents put off telling their children about cancer. As a result, children find out themselves through overhearing conversations and finding leaflets around the house.

Lessons they learnt as they went along

I was taken aback when I realised that producing visually appealing cards was not the main aim of the project. This was slightly disheartening as I was looking forward to [that] ... I then began to understand that the thought process, rationale and development of ideas were more important than creating storyboard cards. With hindsight, it perhaps would have been more useful if [we] had decided on a specific idea ... prior to the meeting.

How their ideas developed week by week

This week we also considered how the resource may not only help children but also individuals themselves ... After looking at the fairytale card game, I realised we had missed many important aspects of the story. We then began to reorganise our ideas more logically ... [and] discovered new ideas ...

Recognising contributions from the team

My partner and I definitely complemented each other in other ways. She had a wider vocabulary ... I was better at ...

Broader social and cultural issues

... religion, language, ethnic origin and family situation. Upon thinking about and discussing this issue, I have realised that ... these differences in culture are likely to result in different methods of coping with bad news and different family situations and support networks. All these need to be thought about and addressed in our resource ...

Examples of phase 2 reflection

Sophie and Charlotte drew together their learning in a reflective summary and project report which drew upon, and developed, selections of material recorded in their weekly logs. Some examples are given below. This phase 2 reflection synthesised their reflections, drawing together:

- how their thinking developed, and the effects of this on their project;
- how they made use of research;
- the broader lessons they learnt;
- changes to the way they viewed their future professional roles as doctors.

How and why their assumptions and goals changed over time

Reflecting back to the beginning of the project, I had fixated in my mind that I wanted to create a resource that looked professional and useable ... this initial aim actually hindered me from thinking more deeply about the concept behind the cards ... I slowly realised that ... the cards did not have to look aesthetically perfect – the more important element was what the card represented.

Research that informed their thinking

Barnes et al. (2000) stated that most of the mothers included in their trial of breast cancer ... were not offered any advice on how to break the news to their children. Many stated that they would have welcomed this opportunity. ... This is also supported by Kroll et al. which states that research is needed to aid physicians and parents as to what age-appropriate information to give children and at what stage of the disease.

How they learnt from past personal experiences

I have also been forced to revisit some issues which I learnt about during my mother's illness. ... The fact that this project has reminded me of those issues ... has helped me greatly in thinking through some of the topics which need to be addressed in our resource in order for me to help others.

The deeper lessons extrapolated

I think one of the most important aspects that I take away from this project is the effect of cancer not merely on the individual but on their whole family and people close to them. I began this project with a scientific knowledge of cancer and its effects, but I take away ... an insight into how cancer changes people's lives.

Before this project, I had never considered ... that different family set-ups can affect the way in which we cope and rely on people. Your culture definitely has a huge impact upon the way you view and deal with disease and adversity. I think that as a doctor, it is vital to bear this in mind and adapt your advice accordingly.

Personal awareness and change

From completing this work for the resource pack, it has made me very aware of a lot of cultural influences which direct me to choosing a certain type of image. I have never before thought about the fact that a picture I might choose to represent a certain issue could convey a completely different meaning to someone from a different culture than me. I think it is important that I have learnt about this as it will make me think twice about using certain images or words in the future.

Suggested changes for the profession and the reasons for doing so

I also think ... we have identified an important fact, that clinicians should look into increased involvement with their patient's family ... it is greatly appreciated by patients and their families. This will have a knock on effect ... as they may feel more comfortable coming to you with subsequent problems ... [with] medical benefit as it can allow for the problem to be addressed and treated earlier, both minimising the effect on the patient and reducing cost and time for the NHS.

Whether a patient is at home or in hospital it is a doctor's duty to ensure that they have enough information and resources about their cancer. [Otherwise] people are more likely to put off telling their children about their cancer ...

Models of reflection

What is a model of reflection?

Models provide frameworks that can assist and structure the process of reflection. From a practical perspective, models of reflection vary in complexity, depending on how many steps, or stages, they use to break down the process of reflecting on experience, and how many prompts or cues they provide as potential memory joggers for each stage.

The underlying concept

Reflective models share three basic assumptions. These are that we can:

- 1 think back over our experiences;
- 2 understand them at a deeper level; and
- 3 use that understanding to do things differently in the future – that is, to effect change through learning.

Staged models

Stages present a nominal order for considering different aspects of an experience. Each stage serves as a useful reference point, prompting a different approach to working with an experience. In practice, you are likely to move fluidly between these stages and to include material not covered explicitly by them.

Three-stage model

There are various three-stage models, such as Borton (1970) and Driscoll (1994), that, in essence, simplify the reflective process to:

- 1 What?
- 2 So what?
- 3 Now what?

These map onto the basic assumptions described above broadly as follows.

- 1 *What?* Go back over the experience and identify what happened.
- 2 *So what?* Describing your experience is not enough – you need to work out why this is significant. What do you now understand better?

- 3 *Now what?* Now that you have a better understanding of your experience, what will you do with the insights gained? How will you be different? Or do things differently?

Multi-stage models

It is a complex process to work usefully with experience so as to learn from it. There are many potential components, from identifying what is relevant, exploring personal feelings and understanding other people's perspectives, through to the insights gained from research findings, or a consideration of sociological, political or other dimensions.

Any of the above components, and others, could be extracted for particular emphasis. This could be framed either as a distinct 'stage' within the model or as a distinct set of prompts. For example, Gibbs (1988) provides a model that includes a separate stage on feelings, whereas other models such as Boud et al. (1985) do not, but build consideration of feelings throughout the reflective process.

Prompt-based models

Johns and Freshwater (1998) have developed a model that is popular for professional practice in nursing. This provides prompt questions that relate, broadly, to five different ways of knowing:

- Empirical: the tested knowledge base, such as scientific research.
- Personal: knowing how feelings and motivations influence your actions.
- Aesthetic: knowing how to make meaningful, creative, unconscious responses in the moment.
- Ethical: knowing what it is right to do.
- Reflexive: knowing how to apply learning gained from experience.

The Core Model

The Core model of reflection (Cottrell, *Skills for Success*, 2021) is a multi-staged model with optional prompts. It can be flexible, so can be used as outlined, or adapted by changing the stages and prompts. See pages 217–18.

Deciding on your model for reflection

Before launching into your reflection, consider the following.

Are you required to use a model?

Do you have to draw on a particular model of reflection for your programme? If so, ensure that you understand its rationale so that you can apply this to your own reflection.

Do you want to use an existing model?

If you have a choice about whether you apply a reflective model, consider whether you would find it helpful to draw on one that already exists, to help give structure to your approach and thinking. If so, research the various alternatives available. The references on page 215 provide a good starting place.

Would you prefer to design your own model?

Alternatively, you can design your own model. The advantages of designing your own model are not only that this should better fit your own purposes and circumstances, but that you also gain practice in planning reflective activity. You could also design your own model through active, critical engagement with existing models. This would deepen your understanding of what critical reflection is about.

Designing your own reflective model

Your own model can be as simple or as complex as you find helpful for motivating you and generating deep and useful reflection. You may wish to adapt your model depending on how well it works for you.

Concept

You would need to take on board the underlying concept outlined on page 215.

Characteristics

You would need to ensure your model addressed the characteristics of reflection outlined on page 204.

Adapting a staged model

You can adapt an existing model to suit you. Consider whether you work better with a small number of overarching stages or with additional stages that draw your attention to areas that are significant to you or your subject discipline or profession. You could adapt either the three-stage model (page 215) or the Core Model (Cottrell, 2010, 2021) outlined on page 217. Alternatively, investigate other models and adapt one of those.

Prompts

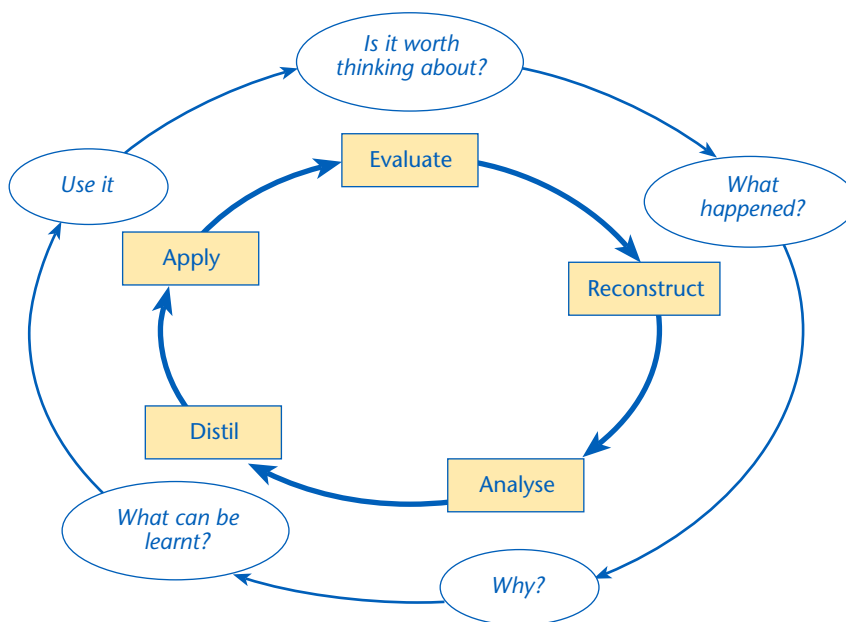
Consider whether you would benefit from a list of questions to serve as prompts for each stage of your model. Listing these can help you to decide what it is that you really want to address through your reflection. If you wish to use the Core Model for reflection (page 217), you can build from the prompts provided there. Alternatively, a fuller list of prompts is available in *Skills for Success* (Cottrell, 2021).

Name the stages and the model

Naming the stages of your model helps to make it your own. On a practical level, it also helps to clarify whether the stages are distinct and likely to work well together. It will be easier for you to recall the stages whenever you undertake your reflection.

Once you have named your stages, the distinctive character of your model should be clearer to you. Give your model a name that reflects this.

The Core Model for critical reflection



The Core Model of Reflection (Cottrell, Skills for Success, 2010, 2021).

Core Model: Stages and prompts

The Core Model for critical reflection consists of five stages, with question-based prompts to support each of these (Cottrell, 2021). You can adapt, select from or delete these stages. You can add further stages if you feel that a particular prompt or set of prompts merits separate attention, either for your own purpose or because these are especially important in your discipline. The five stages are described below.

1 Evaluate

The kind of critical reflection described in this chapter is, as we have seen, intensive, time-consuming and potentially emotionally demanding; you need to select a focus. Given the demands that it makes upon you, it is worth spending

time critically reflecting upon your choice and the direction that you are taking. As this is so important, the first stage of your reflection is a critically evaluative one, examining your purpose and focus and deciding whether these will really yield the best results.

Examples of prompts useful for this stage

- Does this provide enough challenge and material – or have I gone for too easy an option?
- Is this too challenging? Am I too angry or affected by this to address it at this time or as part of an academic assignment?
- Am I ever likely to be in a similar situation again? If not, what will I gain from focusing on it now?

The Core Model for critical reflection (continued)

2 Reconstruct

Each time we go over an event in a reflective way, the account is likely to vary. That is why this stage is referred to as 'reconstruction'. This is typical phase 1 reflective activity. We are putting together, again, the events, feelings, details as we now recall them. Going over an event in detail can bring up unexpected reminders or draw attention to items that we may not have noticed previously.

Input from others about the event, or perspectives gained from our reading about the subject, may lead us to reconstruct the event in a slightly different way with different aspects coming to the forefront or gaining a new emphasis or significance. If we write these down and return to them, the differences between one account and another may strike us as significant.

Examples of prompts useful for this stage

- What was I aiming to achieve through my actions, what I said, or what I didn't do or say?
- Did this work out as I expected?
- How did I feel when X happened, and how did I respond?

3 Analyse

Examine your reflective materials, your thoughts or your notes, from different angles. Interrogate your material. Answer your prompt questions. Compare your emerging findings with those expected from your reading or training. Question whether you are really confronting your own motivations and taking on board the difficult messages. Take a walk. Talk to a peer about what you are finding. Jot down new thoughts. Sleep on them. Sit quietly with your reflections. Go back over everything again. In other words, work with your material in many ways, so as to encourage fresh insights to emerge.

Examples of prompts useful for this stage

- Which actions or omissions were most significant in the way events unfolded?
- What were the consequences of unexpected or difficult feelings?
- What interpretations or theories help to make sense of what happened?
- Were there deeper roots to this than were apparent at the time?

4 Distil

If your analysis helped to make sense of your experience, then it should be a relatively easy next step to draw out the lessons learnt. Your analysis may have generated many thoughts, of different levels of significance. Draw out the most relevant and synthesise these into a workable set of key ideas or conclusions.

Examples of prompts useful for this stage

- What worked well that I could use again in the future?
- What were the trigger points? How would I manage those differently?
- How does my way of approaching matters or thinking about them help or hinder the desired outcome?

5 Apply

If you have really arrived at new understandings and drawn lessons for yourself, then the logical next step is to consider how you will make use of that learning before you forget it. This may mean that you need to bring others on board so that they understand why you want to do things differently, and are prepared to support you.

Examples of prompts useful for this stage

- To what kinds of situations will I apply these insights?
- What support will I need?
- Who else needs to be on board? How will I persuade them of the benefits?

Applying reflection to professional practice



Why reflect on practice?

Critical reflection has long been used in health-related, caring and teaching professions, and its value is recognised increasingly in other areas such as management and business. There are a number of reasons for this, such as:

- it anchors theory in meaningful, concrete experience, helping to bring it alive;
- it gives recognition to learning gained in non-academic contexts;
- it provides a bridge between practical experience and academic study;
- it helps develop understanding of difficult work situations, improving professional practice;
- it helps with work-based appraisal where self-reflection is often a requirement.

The workplace as a resource

Work contexts offer rich resources for meaningful study. However, there are ethical considerations that you must take on board.

Ensure that you retain confidentiality and anonymity with respect to workplace information. You may be able to use examples if names and details are removed in such a way that the workplace and individuals cannot be identified, or if you gain written permission.

You will need permission to use workplace documentation if it is not already in the public arena. It is likely that your programme will ask you to consider the ethical implications of the focus you have selected and the material you will be using.

Challenge your own previous practice

Use your critical reflections to challenge your previous thinking, assumptions and actions. Re-examine these in the light of what you have read. If you find that this, in itself, raises difficult issues, reflect on where these difficulties lie, how they have arisen, and how you will address them. Talk to your tutor or your workplace supervisor about any complex issues or concerns.

Reflection

On the knowledge base

Your workplace practice is likely to be based, at least in part, on theories, research or established professional wisdom. You can build your own expertise and understanding by drawing on these as part of your critical reflection.

- **Select a relevant theory** or piece of research that relates to your work context.
- **Identify what it would mean in your context.** What, in summary, do the theory or research findings propose? If this theory or research were to be applied to your work context, what would you expect to happen? What would you expect to see, hear, feel, experience, understand better, etc.?
- **Check whether it applies.** In practice, do the theory or research findings apply to your context as expected? How do they throw light on your own experiences? In what ways do they help – or not help – you to make sense of your professional practice?
- **Identify probable cause.** If the theory or research findings do not seem to apply as expected, how do they differ? Why is that likely to be the case? For example, are you working with a different client group than that used for the initial research? Are other conditions different? Do any other theories throw light on your findings?
- **Support for change.** Do your reflections suggest that any change is needed in your workplace – such as a review of procedures or a change in expectations? How do research findings or established theories support your case?

Reflection and professional judgement

Following procedure

In clinical practice and workplace settings, there are usually set procedures and customary working practices that you are required to follow. These have an important function in ensuring that everyone knows what to do, that teams can work together, and that health, safety, security, quality assurance, statutory obligations and other requirements are met.

When procedure isn't enough

However, from time to time, situations arise that make it difficult or inappropriate to follow procedures exactly. This requires you to use your initiative and make a judgement call – sometimes on the spot. Many poor outcomes in the workplace arise because people don't have sufficient understanding of the relation between theory and practice. This means they are unclear:

- when to deviate from procedure;
- what to do in situations where no procedure yet exists;
- how to read a situation so as to make an appropriate decision for action.



John was a stickler for following protocol to the letter.

Making good judgement calls

If you have a good grasp of the knowledge base and working context that underpin everyday practice, you are better able to make a good call when needed. You are more likely to:

- understand why the normal procedure was established;
- understand the assumptions that inform normal procedure;
- be able to identify whether these apply in the current context;
- judge whether the procedure itself can be adapted or over-ruled;
- evaluate what aspects of the normal procedures still need to be met;
- make a decision that meets the requirements of the current situation;
- feel more confident about making good decisions and taking the initiative.

Reflection

Non-routine action

The following prompts can assist you in reflecting on how you act when routine responses may not be appropriate.

- What is the usual course of action in this kind of instance?
- What is the rationale for that routine procedure (i.e. what are the reasons for doing things that way)?
- What was different in this instance such that it was difficult or inappropriate to follow usual procedures?
- Which aspects of procedure had to be adhered to? Why were these essential?
- Which aspects could be adapted or over-ruled? Why is that the case?
- Did you stick to the routine or adapt it? Why was that?
- Did it work well? What were the immediate effects? What were the consequences?
- What, if anything, would you do if this situation arose again?

Good and bad critical reflection

From what you have read already, you will have started to formulate a sense of what constitutes good reflection. The following table highlights the differences between good and poor critical reflection.

| Aspect | Good critical reflection | Poor critical reflection |
|----------------------------------|--|--|
| 1 Experience | Draws on personal, group or workplace experience as a means of testing out theory or learning new lessons, looking at experiences with a critical eye. | Assumes 'experience' is an end in itself; that one's own experience is typical of others' without good evidence that this is so; that experience equates to 'insight', without bringing a critical eye to it. |
| 2 Personal responsibility | The best critical reflection demonstrates integrity both in focusing on one's personal role, such as the assumptions brought to a situation or actions taken or omitted, and in taking responsibility for the consequences of these. | Poor critical reflection finds ways of deflecting blame onto other people or the context itself for the way events unfolded. Alternatively, personal responsibility is addressed in a superficial way, so that the relation of action to consequence is not considered in depth. It is also poor practice to assume personal responsibility and guilt for matters that are not simply down to oneself. |
| 3 Focus | Selects a focus such as a particular time-period, set of events, specific kinds of incident or examples of interactions. | Rambles around or covers too many dimensions so it isn't clear what is the focus of the reflection. |
| 4 Scale | The focus is broad enough to offer challenge and meaningful insights but can be reasonably explored within the timescale and word limit. | Is either too narrow to provide the insights needed or too broad to look at things in any depth. |
| 5 Direction | However it may start, good critical reflection begins to take direction as the person starts to identify, and then focus on, selected themes for closer attention. | Rambles or hops about rather than finding a direction. |
| 6 Depth | Delves below the surface: it picks up on initial thoughts and insights, analysing these further with the aim of gaining deeper insights or broader applications. | Is superficial. It doesn't demonstrate any interest in burrowing beneath the surface to understand more. |
| 7 Challenge | Usually tackles a difficult area or enters difficult terrain, such as matters that are personally difficult, or issues that are complex and don't lend themselves to easy answers. | Tends to stay within safe territory or deals with difficult issues in a superficial way or doesn't seem to take the person forward in their understanding. |

Continued overleaf.

Good and bad critical reflection (continued)

| Aspect | Good critical reflection | Poor critical reflection |
|---|--|---|
| 8 Theory | Draws on relevant theoretical standpoints, research, or established professional practice in ways that demonstrate how these have helped understanding. Where relevant, it relates the particular incident to broader social and political issues. | Draws only on the person's own ideas, experiences and anecdotes, or makes superficial passing references to theory and research. |
| 9 Criticality | Brings a searching, critical eye to the focus of the reflection, to emerging insights, and to any theories or sources of information. This criticality is used to take the person forward in their understanding of the core emerging issues, such as by challenging their own ideas and actions, or showing how their experience supports or challenges existing knowledge. | Is preoccupied mainly with describing situations, content or events. May include critical analysis but this doesn't seem to be used in a way that really develops an understanding of the core emerging issues. |
| 10 Insight | The reflection takes the person forward in their understanding, such that they can make more sense of their situation, work or study, manage better within it, do things differently, apply understandings to new contexts, etc. | The reflection gives little indication that the person has moved forward in their understanding of the context or issue, or self-knowledge. |
| 11 End-points (extrapolated conclusions) | The process of reflection may take the person in many different directions. However, by the end, they have stood back, drawn out the key messages of what they have learnt, and summarised these as conclusions or recommendations. | The reflection reads more as description of a process or rambling free association. The lessons learned are not drawn out clearly as conclusions or recommendations. |
| 12 Audience (if reflection is to be shared) | If this is to be used in academic, work or public contexts, the writing up of reflection demonstrates a sound understanding of ethical considerations and stylistic or academic conventions that may apply. Issues of confidentiality have been addressed appropriately. | The reflection is submitted or made public without all due care being taken to ensure that confidentiality and other data protection issues are addressed; little thought is given to how to make the reflection manageable for others to read. |



Reflection

The quality of your critical reflection

Using the table above, consider your own critical reflection.

- What do you think are your areas of strength in producing good critical reflection?
- Which aspects do you need to improve?

Presenting your reflection to others

Logs, blog, journals

It is likely that your initial reflections will be written primarily as phase 1 reflection in a journal or blog. If you are asked to submit these as part of an assignment, then read through them following the guidelines in the Audience sections of pages 209 and 222. Amend them accordingly, deleting or blocking out material that you decide not to submit. If your initial reflections are very lengthy, it may be advisable to edit these, or to highlight the salient parts, to help your reader manage the bulk and identify the most relevant sections.

Reflective summary or essay

Typically, you will be asked to produce a critical reflective summary, essay or report. This tends to carry the most weight in an assignment with multiple parts. It merits time and attention so as to do justice to what you have learnt. It is important to bear in mind the following.

Academic conventions

Ensure that you apply the usual academic conventions. See pages 151–53.

Referring to theory and research

You may have provided an outline of your background research as part of a project report or made reference to different theoretical perspectives within your phase 1 reflection. However, it is essential that you also relate theory to practice within your reflective summary or essay, bringing a critical eye to these, and making clear how they influenced your reflection and practice.

Examples: Making use of theory

Example 1: Business student

When interviewing these participants on their employment history, details of their personal lives emerged. I hadn't expected to become preoccupied by my own anxiety. Smith (1992)

feels that for sensitive topics, there should be an experienced co-leader present 'to adequately monitor the group's comfort level'. I had thought this to be an extreme position for business settings but these interviews made me think again. My difficulty with Smith's suggestion is that having someone present with only that role might be off-putting to the group – and make them feel spied upon. One alternative might be to use two interviewers ...

Example 2: Education student

A number of authors draw links between feeding and teaching (Coren, 1997; Williams, 1997). Salzberger-Wittenberg (1983) notes that the processes involved in learning and digestion are similar, i.e. taking in, absorbing and producing. ... Within education, 'spoon-feeding' is often used as a metaphor for poor practice, encouraging shallow learning and 'regurgitation'. My reflections on my teaching are that the process is considerably more complex than I had believed. I shall demonstrate that ...

Common errors to avoid

When relating theory and practice:

- Avoid putting all references to theory in the opening paragraphs and then forgetting it. If you summarise the research at the outset, make sure that you refer back to it at relevant points throughout the essay.
- Avoid referring to theory without directly linking it to your reflections.
- Avoid reproducing at length the content of theory, such as *Freud said X. He also said Y. He also said Z*. Rather, be specific about how the theory or research is useful or limiting in explaining why something happens.

Summary: Critical reflection

- 1 Critical reflection is still about reasoning.** The focus of the reasoning and conclusions drawn from it is oneself and one's context or experiences.
- 2 Critical reflection is a structured, focused conscious process.** It has particular characteristics that differentiate it from just general thinking. Academic and specific professional courses will also have set their own criteria.
- 3 Learn from putting your experience under scrutiny.** Analyse it as objectively as you can, applying critical thinking approaches, in order to learn more from it.
- 4 Analyse your own role.** Use critical reflection to understand your own contribution and role in events, and what you could do differently in order to achieve more desirable outcomes for yourself and others. Avoid focusing on what other people did wrong or could do better.
- 5 Decide your approach.** Don't just launch in. Be more strategic. Pause to consider your purpose and desired outcomes and outputs. Select a useful focus, relevant methodology and ways of conveying your insights, suitable to your audience and purpose.
- 6 Relate your experience to theory.** Use theory to help you choose where to focus, to make sense of your experiences and insights, and to draw connections between your individual experience and wider contexts.
- 7 Differentiate between phase 1 and phase 2 reflection.** Use your initial thoughts about the raw material of your experience to go deeper and draw reasoned conclusions. Taking a break between phases can increase objectivity and help to manage emotional responses.
- 8 Consider applying a model to guide your reflective process.** Apply one of many existing models, or devise your own, drawing from these. The Core Model of Reflection provides a way of designing a model, or process, that best suits your circumstances.
- 9 Apply critical reflection to your professional practice.** You can draw on practice in reflective thinking to gain insights on your working life and career development. This can help with work-based appraisal and decision-making. It can also help you make sound decisions when taking the initiative.
- 10 Become more confident at making decisions and using your initiative.** Using a critically reflective methodology can help you to make better judgement calls.
- 11 Be aware of the differences between good and bad critical reflection.** Use this to strengthen your own reflective practice.
- 12 Be judicious in how you present your reflection to others.** Consider the context and audience. Select and edit carefully what you include, drawing appropriately on theory to throw light on the points you are making.

Applying critical thinking to career planning and employability

Learning outcomes

This chapter offers you opportunities to:

- ✓ know how to apply critical thinking to your own professional and career development
- ✓ be able to apply critical thinking skills to the process of applying for jobs
- ✓ recognise the value of critical thinking to employers
- ✓ understand how to articulate your critical thinking abilities to employers
- ✓ think critically about your own performance, to help with future job applications.

Critical thinking for professional life

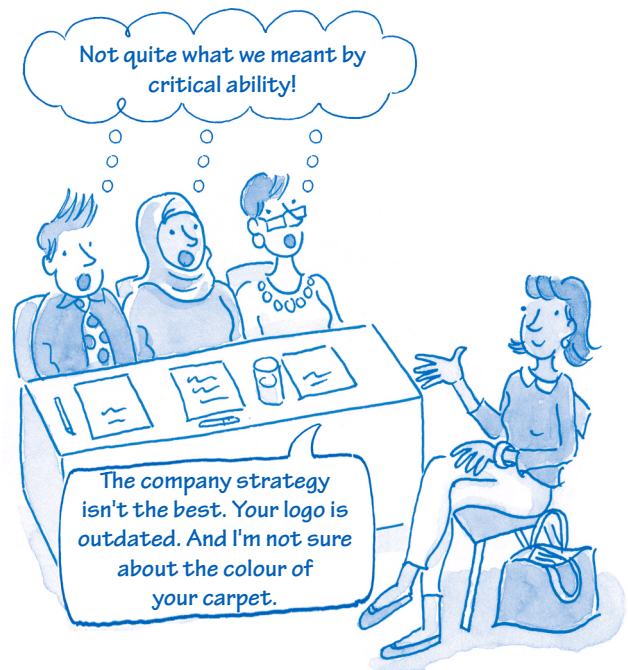
Critical thinking skills are highly valued in the workplace, nationally and internationally, and can make the essential difference to the development of your career and success in the job market. This means that it is useful to develop your critical abilities, in order to help with:

- many aspects of professional life;
- activities set as assessment tests for many kinds of job;
- identifying good examples of how to apply criticality usefully in the workplace – helpful when applying for jobs and answering questions in job interviews.

It is also well worth putting time aside to bring a critically analytical and reflective approach to your consideration of the world of work and your place within it. You can apply your critical abilities to key questions such as:

- Am I considering the issues that I should in order to further my longer-term life, career or work-related aims?
- What will my career pathway look like?
- What kind of jobs should I apply for?

- Are my job applications as good as they could be?
- What am I learning from my experiences of applying for jobs that will help me in the future?



Thinking critically about your life and career planning

The criticality of work decisions

Most people need to refresh their job-hunting and application skills when looking for work, as trends in the labour market change over time. It is also useful to step back from time to time and think critically about your life and work decisions 'in the round', as you, too, may have changed.

The decisions you make about work will, for many years, affect almost all of your waking life:

- how each day is spent and where;
- the kinds of people you get to meet;
- the conversations you will have;
- the life opportunities that open or close;
- what you wear, eat, see, hear, and feel;
- how much time you have for yourself;
- your health, well-being and happiness.

That is why it is worth giving time to thinking through how your decisions about work and your career will affect other aspects of your life – and the role that you want work to play in your life.

What matters to me most?

Considering what you want from life in general terms might seem rather abstract, especially if you need a job soon and feel you have few choices. However, you can improve your short-term decision-making by thinking critically about what you want from life in the longer term, the roadmap to achieving it, and how your current decisions could help or hinder in achieving your goals.

Ultimately, decisions about your career path will be particular to you, your circumstances and your considerations of such issues as family, friends, relationships, lifestyle, working life and so on. For example, if being creative, or engaging in sport, community work or politics are important to you, then check that jobs you apply for are compatible with furthering those ambitions. If you will have family responsibilities, will you be able to meet these in jobs that require long days, irregular hours or business trips abroad?

Understand the commitment



Whilst a particular job may suit you in the short term, it is unwise to commit to a career until you research what it really means on a day-by-day basis. There isn't much point becoming excited about a job that sounds prestigious, or has a good salary, if you loathe the people, working hours, tasks and commitments that come with it.

Reflection

Lifestyle and values?

- What do you value most in how you spend time? What kinds of jobs would enable that?
- In which sorts of jobs are you most likely to meet and work with the kinds of people you like?
- What other values are essential to you that should inform your career decisions?

Thinking critically about your life and career planning (continued)

What is my next step?

This is an important first question. Many graduates take a year or more experimenting with jobs, locations and life-styles. Some take a gap year to travel, develop their creative practice, or work as interns or volunteers. Such an approach can be helpful if you don't have a clear idea yet about what you really want to do.

However, even if you have a fixed idea about how your future career will pan out, it is still useful to pause and reflect critically about your future. Is that career route still best for you? Is it still feasible? Does it inspire you? If your reasoning supports your hypothesis about your career, and there is evidence to back that up, that is good to know. If your critical reflection demonstrates some uncertainties, then it can be useful to explore these before committing further time and expense.

Reflection

Next steps?

- What are the options open to you for how you spend the first year after graduating?
- Are you more interested in getting straight into a graduate career route? Or taking a break before following a career route? Or developing your own business? Or engaging in further study?

If you are not sure of the impact of such choices on your career development, speak to a careers adviser at your university or college. They will be able to help you to explore your options.

Ultimate role

If you do have a clear idea about the kind of job or role that you wish to achieve at the peak of your career, then that can be helpful in giving a sense of direction. In this case, speak to a careers adviser at your university about the routes that you can take that are most likely to make that a reality.

Reflection

Plan towards ideal job roles

- What kind of profession or senior role would you like to aim for?
- What qualifications would you need for this? How long do these take to achieve?
- What kinds of interim jobs and roles would take you to where you want to be? How long would it be expected that you would spend in each?
- What kind of timeframe is needed to achieve your goals?

Which sector and profession?

If you have studied for a qualification that leads into a particular professional area, you may wish to continue on that track. However, if this feels an unwelcome obligation, apply your critical thinking skills to analysing the job market for other jobs that reward the attributes you have developed.

Conversely, if you want to work in a particular sector and your degree doesn't seem to lead to the obvious careers in that field, there may well be many other good jobs in that sector that need your skills. Most businesses, whether in finance, arts, care or engineering, need a range of skills: technical, management, IT, creative, marketing and so on. Around half of graduate jobs are open to graduates irrespective of degree subject.

Activity

Labour market research

Find out:

- The best websites for jobs that interest you.
- The number of those jobs available, where they are located, and typical starting salaries.
- What skills and attributes are needed for these jobs.

Self-evaluation: Thinking critically about your career path

It can be a challenge to know where to start thinking about a career pathway, whether or not you already have a job. Everyone has a different starting place. You may also feel quite differently about your career options as you progress through your course or once you try out a new job in a particular field. Self-evaluations can provide a useful starting point.

Critically evaluating statements, giving thought to your responses, can draw attention to aspects you might have overlooked in the past. Reflecting about your ratings, and the reasons that underlie them,

can assist you in drawing conclusions about your career path and actions you should take.



The following self-evaluation provides a starting place for such critical reflection, enabling you to analyse your own career awareness in terms of key components.

- For each statement below, rate yourself on a scale from 0–4 where 0 is ‘not true at all’ and 4 is ‘very true’.
- Jot down your thoughts as you go – such as actions you can take, things to investigate, or matters you could follow up further with a careers expert.

| A | Career and lifestyle choices | Rating ☹ 0 1 2 3 4 ☺ | Your thoughts and observations on your ratings |
|---|--|-------------------------|--|
| 1 | I have thought through, in detail, what kind of job would best suit me. | | |
| 2 | I have a good sense of the professional path that I want to follow. | | |
| 3 | I have a good sense of the kind of life and lifestyle I want, and jobs that fit with that. | | |
| 4 | I am aware of the kind of demands that go with the jobs that interest me. | | |
| 5 | I have a good sense of the kinds of jobs available that match what I am looking for. | | |
| 6 | I am clear about the full range of job choices open to any graduate. | | |
| 7 | I am clear about the jobs open to graduates only with my kind of degree. | | |
| 8 | I am clear whether I prefer to work for an employer <i>or</i> have my own business. | | |

| B | Qualifications | Rating ☹ 0 1 2 3 4 ☺ | Your thoughts and observations on your ratings |
|---|---|-------------------------|--|
| 1 | I am clear what qualifications are required for the kind of career I want. | | |
| 2 | I am currently studying the right course for the kinds of jobs or career I want. | | |
| 3 | I am aware of any further qualifications I may need to achieve to reach my goal. | | |
| 4 | I am aware of the requirements of professional bodies that are relevant for careers that interest me. | | |

Self-evaluation: Thinking critically about your career path (continued)

| C | Experience of employment | Rating ☹️ 0 1 2 3 4 ☺️ | Your thoughts and observations on your ratings |
|---|---|---------------------------|--|
| 1 | I am aware that I am more likely to get a job interview if I have had a job before. | | |
| 2 | I am aware that I am more likely to get a job interview if I am in work already. | | |
| 3 | I have a good track record of work experience already. | | |
| 4 | I have gained a good understanding of the demands of the 'real life' workplace. | | |
| 5 | I have experience of work relevant to the career or jobs that interest me. | | |

| D | Skills | Rating ☹️ 0 1 2 3 4 ☺️ | Your thoughts and observations on your ratings |
|---|--|---------------------------|--|
| 1 | I have a good portfolio of skills and experience to draw upon. | | |
| 2 | I am clear how to articulate my current skills in ways that resonate with employers. | | |
| 3 | I am aware of the skills that employers are looking for in areas that interest me. | | |
| 4 | I have strong written communication skills. | | |
| 5 | I have addressed any weaknesses I had in my use of grammar and punctuation. | | |
| 6 | I have the skills necessary to run my own business. | | |

| E | Experience of applying for work | Rating ☹️ 0 1 2 3 4 ☺️ | Your thoughts and observations on your ratings |
|---|---|---------------------------|--|
| 1 | I know where to look for jobs that interest me. | | |
| 2 | I have had success in applying for jobs. | | |
| 3 | I have learnt good lessons from the process of applying for jobs. | | |
| 4 | I know how to make a sensible selection of jobs to apply for. | | |
| 5 | I know how to make a strong written application. | | |
| 6 | I know how to do well at assessment centres. | | |
| 7 | I know how to do well at interview. | | |

Thinking critically about your career: Taking action

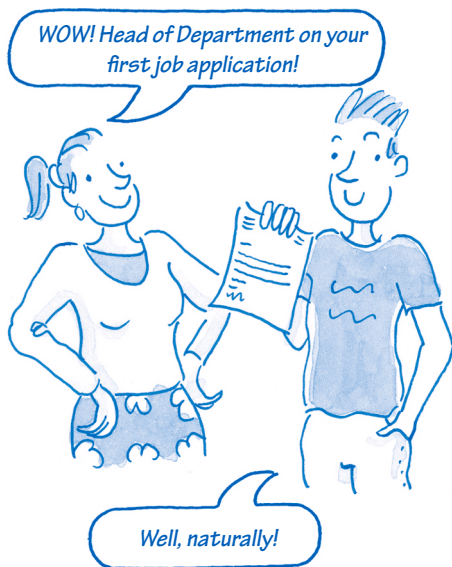


One important dimension of thinking critically about your career is acknowledging the power of your own actions – or ‘agency’. This will affect your options and the outcomes of your career. That is especially so at key moments such as when at university, at graduation, or at a cross-roads in your professional life. Use the table below to identify, with a ✓, the actions you consider would be useful for you at this time.

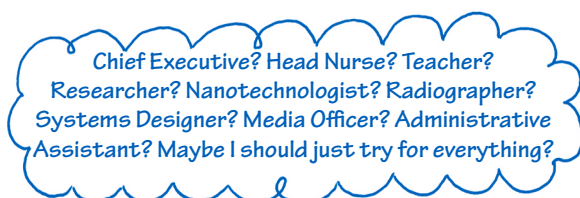
| Careers Preparation 'To Do' list | Top priorities from my Careers Preparation 'To Do' list |
|--|---|
| <input type="checkbox"/> See a Careers Adviser at my college or university. <input type="checkbox"/> Use a specialist text to assist my career development in more depth. <input type="checkbox"/> Check that I have the right qualifications for the career path I want to follow. <input type="checkbox"/> Browse job websites to get a sense of the jobs that are available and what attributes are requested. <input type="checkbox"/> Find out more about what employers say about graduate skills. See pages 234–37. <input type="checkbox"/> Gain any work experience (if I haven't had a job recently). <input type="checkbox"/> Gain work experience in a relevant field. <input type="checkbox"/> See if there are jobs available on campus. <input type="checkbox"/> Find out more about setting up a business of my own. <input type="checkbox"/> Find out how to grow and develop my current business. <input type="checkbox"/> See if there is an enterprise module that I could study as part of my course. <input type="checkbox"/> Find out about prizes and schemes for promoting enterprise where I am studying. | <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> |
| <p>If in employment now</p> <input type="checkbox"/> Make more effective use of the staff appraisal or review scheme where I work now. <input type="checkbox"/> Consider going for promotion in my workplace. <input type="checkbox"/> Speak to my employer about opportunities for development in my workplace. <input type="checkbox"/> Make better use of my employer's training schemes. <input type="checkbox"/> Express an interest in work that would widen my experience, outside of my usual job. <input type="checkbox"/> Look for ways of showing initiative and taking on responsibility. | <p>Others (list here)</p> |

Applying critical thinking when looking for a job

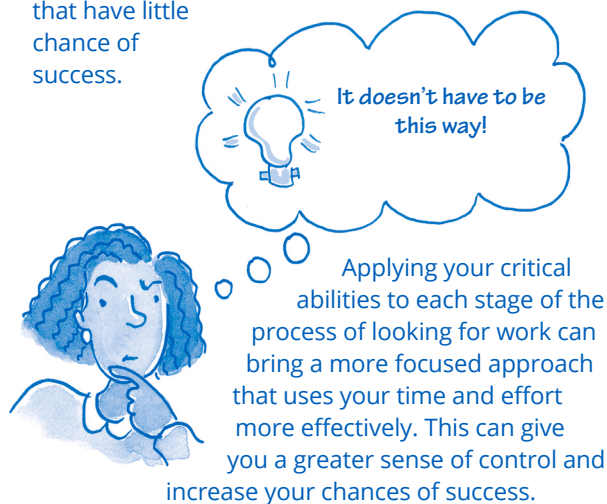
It may be that you find, apply for, and gain the ideal job with your first application. That would be great, but it isn't usually the case, especially if you are ambitious about the kinds of jobs you go for.



Failed applications can deplete your motivation and even undermine your sense of self-worth.



Typically at the point where you are applying for a job, there are many pressures at play. These might be life changes, a need to earn a living or gain a higher income, pressure to prove yourself to others, move home and so on. At such times, it is all too easy to get caught up in the process, applying for many jobs, using time and energy on applications that have little chance of success.



Apply your critical thinking abilities

- Evaluate your best job options on the basis of the evidence, selecting the right job vacancies on which to spend your time.
- Use the clues: examine the 'person specification' and other employer information closely to identify what the employer is looking for; use that information in order to make a strong application.
- Read critically: interpret the person specification sensibly, in the context of other information provided about the level of responsibility that goes with the role.
- Select the best evidence about your own attributes to match the person specification.
- Check that you have demonstrated why you should be considered for the job, based on the person specification.

More detail about what this means, in practice, is provided on the next page. If you have already made job applications, consider whether you used your critical faculties to best effect at each stage of the process.

Critical consideration of the 'best fit' jobs for you

What am I looking for?

Before launching into job applications, consider critically what is essential to you in the job you will accept. Just as when you conduct information searches for academic study, you are more likely to find what you want if you know what you are looking for.

What kind of job best suits me?

- *Working for myself or for others.* Am I more suited to running my own business? Do I want to work for a large organisation? A small company? The private, voluntary or public sector?
- *Type of job.* Am I looking for a graduate job that makes use of my degree? Or a starter job to develop experience, expertise and skills? A part-time job to bring in money whilst I pursue my studies? Promotion in my current profession?
- *Roles and sectors.* What kind of roles am I aiming at this time around? What wouldn't I consider? Are there any work sectors that I prefer – or would not consider?
- *Geographically.* Where would I be prepared to work – and where not? How much travel or commuting am I prepared to accept?
- *Financially.* What salary am I aiming for? What is realistic? What is the lowest salary I will accept?
- *Work culture.* What kind of work environment am I looking for? What workplace values are important to me – or would I find unacceptable? How far do matters such as driving up profits, customer service, professionalism, teamwork, or social responsibility matter to me? Excite me? Drive me to do better?
- *Lifestyle.* What kinds of hours am I prepared to work? Am I prepared to work evenings? Weekends? To commute daily? Do I want to travel in my work?



Reflection

The right kind of job?

- Jot down your answers in response to the questions opposite. Which factors matter most to you?
- Consider what your answers suggest about the kind of job that would work for you.

Use time effectively before applying

Apply close critical reading skills to all the information available about a job you are considering. Look at the 'evidence' in full, and reflectively, before deciding whether to apply. More information about this is provided on page 233.

Checklist: Before applying

Before spending time on an application, consider whether you can say 'yes' truthfully to all of the following.

- Do I really know enough about this job?
- Is this really the kind of work I am looking for?
- Does it suit my minimum requirements?
- Can I see myself in this job role?
- Am I eligible for this job: do I meet the person specification?
- Could I really do the work required?
- At interview, would I be able to sound convincing that I want, and can do, this work?
- Would I really accept the job if offered it?
- Will I learn much through this application?
- Is it worth spending time on this application?

Use the clues: Information provided by employers

Get into the employer mindset

When putting together your application, first put yourself in the employer's shoes. Deploy your critical thinking skills to consider:

- What kind of person do they want to employ?
- What will they expect of the successful job candidate once employed?
- How will they use their own critical abilities to select the job candidates they want?
- How would a busy employer go about 'weeding out' the least suitable job applicants in order to spend more time considering those applicants that look like a good match to what they need?
- What does all this tell you about what to include and emphasise in your application?

What the employer wants: The clues

Employers are busy people. They don't want to waste their own time nor that of applicants. They make information available so that potential applicants can select themselves in, or out, of the application process. They expect applicants to look very carefully and critically at:

- the job advertisement;
- the job description;
- the person specification;
- background information.

Typically, an employer will want to see that you:

- are capable of finding the information available;
- understand what it means;
- can interpret it in the light of the job role;
- use information effectively and consistently.

Job advertisement

The brief detail in the initial advertisement can signal such things as:

- the reason why the job has arisen now;
- the aims of the organization;
- the level of seniority associated with the role;
- the scale and scope of the job;
- the personal attributes and characteristics that are most important to the role.

Job description (JD)

This tells you what the successful job applicant will have to do. Read it critically to decide whether:

- this is the right level of job for you now – or too senior or junior than would be suitable for you at this point;
- you would be able to 'hit the ground running' from day one and deliver on all, or almost all, of the substantial responsibilities. Employers don't, usually, want to hear that someone could do the job if they were trained to do it. They prefer someone who is 'job-ready'.

Person specification (PS)

The person 'spec' is where you need to focus the most when writing your application as this usually constitutes the list of criteria that employers use to select candidates. Deploy your critical reading skills to analyse exactly what is meant by each of these in the context of this job.

- Do you meet all items designated as 'essential'? If you can make a sensible case about how you meet all of these, you have a reasonable chance of progressing to the next round of the process. Ultimately, the candidate that best meets these attributes will get the job.
- Consider carefully how you meet any attributes designated as 'desirable'. These are generally used to decide between candidates when many applicants meet the 'essential' criteria.

Clues in the 'background material'

- *The application pack*: what message does it convey about the company and the role?
- *The employer's website*: what can you find out about company values, mission, structure, strategies, plans, financial reports?
- *Public information*: there may be useful information about the employer on the internet, such as social network sites, and that held by government bodies or the Charity Commission.

Where do job applicants go wrong?

Understanding where others go wrong can provide a useful steer on where to apply your powers of critical analysis when applying for a job yourself.

1. Not using the evidence available



- a) They don't seem to have read the material provided and thought critically about what is needed for the particular role.
- b) They contact employers for information already available in the pack or on the website.
- c) At interview, they ask questions for which they could have found out the answers themselves.
- d) Their application or answers reveal they have misunderstood what the job is really about.

2. Not following instructions!



- a) They don't follow, exactly, the instructions about how to complete the application forms.
- b) They either don't send documents required, or provide documents that are not needed.
- c) They submit applications after the deadline.
- d) They don't arrive in good time at assessment centres or for interviews.
- e) They don't answer, in a precise way, the questions asked at interview.

3. Taking 'short-cuts' unhelpful to me as the employer



- a) They go about things in ways that inconvenience the employer, adding to the time it takes them to process the application.
- b) They refer the employer to a CV, additional document, or an earlier paragraph, rather than providing information in the location requested.

- c) They ask employers to make special arrangements such as changing interview dates or using Zoom or Microsoft Teams, rather than changing personal arrangements.
- d) They merge responses to several aspects of the person specification into one answer. This can make it harder for the selectors to allocate points, either because items get overlooked or because of the way information is presented on the employer's recruitment system.

4. Making empty statements



- a) They paraphrase the person specification as a statement of fact without providing examples. For example, if the employer asks for 'excellent people skills', they write such things as: 'My people skills are excellent' or 'I am told I have good people skills' or 'I have always had to use good people skills in my work.' That doesn't provide the evidence needed.
- b) They make broad statements about the world, their beliefs, or values, in response to questions that call for 'good knowledge and understanding' of the sector or job – rather than giving examples of how they would have developed this through experience at work.

5. Vagueness about details



- a) They omit detail that would enable employers to know they really meet all essential criteria.
- b) They refer to what 'we ...' or 'the team ...' achieved in such a way that the employer can't gain a sense of their personal contribution.
- c) They omit detail that would enable the employer to gain a sufficient sense of the level of seniority and personal responsibility for achievements.

6. Stating one thing; demonstrating the opposite

- a) They claim good communication skills but do not communicate convincingly that they are a good match for the post.
- b) They state they have good communication skills or good 'attention to detail', but their application is poorly phrased, contains errors, or doesn't appear well proof-read. This undermines their credibility and can be taken as evidence that they don't meet the criterion.



7. Lack of attention to detail

- a) They do not address every aspect of the person specification (so lose points).
- b) They omit information requested, such as dates, salaries, qualifications, references, etc.
- c) They submit an incomplete work history – leaving gaps open to the employer's imagination.
- d) They make silly mistakes such as spelling errors, or getting the company name wrong.



8. Appearing more interested in themselves than the employer

- a) They describe their skills and qualities without making it clear to the employer how these are relevant for the job for which they are applying.
- b) They talk about longer-term ambitions which are not manifestly in the interest of the business.
- c) They appear to be over-interested in holiday entitlements and benefits, asking about this when information is already provided.
- d) They apply for a full-time job whilst having their own business as well – so it isn't clear about their commitment to the job.



- e) They appear more concerned about getting a job than in this particular employer and role.
- f) They state, in interview, that they didn't have time to make a good application and/or to research an aspect of the company.
- g) They appear to criticise the employer, such as by saying that it was hard to find information on their website.
- h) They appear insensitive to, or ignorant of, the nature of the business and the demands it would make of employees.

9. Not applying for suitable jobs

- a) They apply for jobs that are manifestly well above their current grade.
- b) They apply for jobs where the salary is much higher than they are paid in their current role (usually an indication of a senior post requiring significant experience).
- c) They assume that a job that requires skills and job-based experience is one that they could do simply because they care about the area or have life experience.
- d) They apply for jobs that don't really interest them, so that they don't really sound convincing about wanting the job.



10. Not tailoring applications/responses

- a) They recycle information that they have used on a previous application, without adapting this sufficiently to suit each application.
- b) They submit applications that contain details that were clearly written for a different job application.
- c) They simply send in a standard CV and hope that that will suffice.
- d) They write brief answers on application forms and assume that the employer will use the CV to fill in any gaps.
- e) They provide incomplete information in interviews, assuming the employer will refer back to the application documentation (which they rarely do).



Where job applicants go wrong: Examples

Using the errors outlined on pages 234–5 as a guide, identify where each of the candidates below is going wrong. There may be more than one error in each case. What advice would you give them? When you have thought critically about these, see pages 317–8.

Example 1: Serina

It is April, and Serina is applying for a teaching post in a primary school. She will graduate this year with the relevant qualifications. The advert says that interested candidates can attend an open evening to be held on April 20th. The start date for the new job is given as August 14th. Serina and her friends have already booked a holiday overseas for three weeks in September. She contacts the employer to enquire:

- Will the school consider newly qualified teachers?
- Is it possible to visit the school before applying – such as one weekend?
- If she gets the job, could she delay starting in the post until October?

Example 2: Arno

Arno is a recent graduate in Sports Journalism. He has struggled to find a job that suits his circumstances so is widening his net. He applies for a post as deputy-director of student services at a university. The person specification asks for 'significant experience' in managing a service budget, and leading one or more student services, such as Counselling, Disability, Financial Advice, Accommodation, or International Office. Although he hasn't the exact experience requested, he writes a detailed application arguing that:

- He is a recent student so has a good understanding of what students need.
- He ran a student Judo Society so has experience of leading and inspiring others.
- He managed the Judo Society budget (£500).
- He worked part-time over the summer in the International Office at his university.

Example 3: Kim

Kim is a final year business management student, and keen to find a job. He has written dozens of applications. One is to Kiaru Holdings for a graduate internship. The fifth item in the person specification asks for 'Ability to work independently and as a member of a team.' Kim's response to this section is:

I am told I am easy to get on with and I enjoy working with others. As a student, I have undertaken several projects that called for good team working. I am an avid sports player and a keen member of several societies such as the Radio Society. I believe I would be able to transfer these skills easily for the role at Kiaru Holdings and be a good team member.

Example 4: Lizzy

Lizzy is a Social Policy student applying to Gener8, a large national energy company, based near the capital. The job advert asks candidates to submit an application form online, with a covering letter, without a CV. The person specification includes requirements for a person:

- Educated to degree level in any subject.
- Excellent communication skills.
- Willing to travel and work flexible hours.

In her covering letter, Lizzy's writes:

I am excited by this opportunities, especially as I have always wanted to live in the capital. I grew up in a small town but my university is in a large city and I really like city life so would be flexible about moving to the capital. I will be graduating this summer a degree at university level 2.1 in Social Policy. I would love a job with MTZ-Co. I am delighted attach my CV which outlines the skills I gained through study degree and my part-time job as a store supervisor for 18 months and a volunteer care worker 10 months.

Employer demand for critical thinking skills

A global demand

Employers, globally, want graduates who have developed critical thinking abilities. They need people who can bring an open mind, be self-reflective, able to assess issues fairly from multiple perspectives and challenge conventional ways of thinking about the business (Diamond et al., 2011).

Reports on skills gaps around the world, decade after decade, place critical and analytical skills high on the list of skills most in demand (World Economic Forum, 2018 and 2020; Care et al., 2017). In Europe and elsewhere, employers regard these skills as important to decision-making, self-regulation and avoiding mistakes (Penkauskienė et al., 2019). The WEF (2020) found that employers identified critical and analytical skills as being of increasing importance, alongside active learning, problem-solving and self-management.

In the UK, surveys of employers indicate ongoing demand for critical thinking skills and associated abilities such as problem-solving, judgement and decision-making (CBI and UUK, 2009; Lowden et al., 2011; Bakhshi et al., 2017).

In the USA, a survey undertaken for Cengage (2019) found that 67% of employers looked for applicants with critical thinking abilities; these ranked fourth behind listening skills, attention to detail and communication. As more jobs become automated, these 'human' skills carry more of a premium.

The *India Skills Report* (Wheebox, 2021) comments specifically on the importance of critical thinking skills to the Indian labour market. Similarly, these are identified as essential 21st-century skills for employability in the Asia-Pacific region (Suarta et al., 2017). Critical thinking is listed, after 'innovative thinking' as the soft skill second most in demand for those seeking jobs in China (Thompson, 2017).

What do employers mean by 'critical thinking'?

When reading job advertisements and employer descriptions of skills needs for their business, you may note that the term 'critical thinking' is applied

in different ways from one employer to the next. That means it is important to check exactly what is meant for each role. Depending on the job role, employers may be looking for employees who can apply critical thinking in the following ways:

- Horizon-scanning with a critical eye, spotting problems and opportunities quickly, then taking the initiative in finding viable, creative solutions.
- Critical reflection of personal professional practice, generating improvements.
- Critical evaluation of communications and interactions with colleagues, clients, etc.
- Making good work-related decisions, based on a sound and speedy evaluation of the context/data.
- Bringing a critical eye to business plans, new proposals, designs, changes in policy, etc.
- Analysing data, identifying what is significant.
- Being open to new ideas and perspectives.
- Applying systematic analytical skills to matters relevant to their business.

Whatever the role, employers value employees who can think sensibly for themselves, recognising when they need to investigate an issue further. They want to feel confident that whoever they employ can be trusted to get on with things, using common sense in a critical way that is right for the business context, without having to be asked. Such skills are associated with minds that are used to thinking about issues from varied angles, formulating and testing out ideas or hypotheses, hunting out information, and drawing on evidence in a suitably selective way to make sound decisions. In other words, they want the kind of skills that are usually developed through academic study or critically reflective professional practice.

Want to know more?



For more about developing your skills in active learning, problem-solving and self-management, see Stella Cottrell, *The Study Skills Handbook*. For employability skills and self-management, see Stella Cottrell, *Skills for Success*.

How critical thinking skills are useful in work roles

Critical thinking skills are at the core of most graduate jobs, regardless of the field. They support a range of related skills and personal qualities, such as those listed below.

- **Problem-solving skills:** the ability to generate a range of solutions, evaluate these and apply the best one to a situation.
- **Ability to make decisions under pressure:** the more well-developed your critical thinking skills, the better you are able to make quick decisions that are grounded in an analysis of what the situation demands.
- **Better communication with others:** if you are able to make sense of what is required in a work situation, you will be in a better position to communicate this clearly to colleagues and other stakeholders such as customers, patients, funders.
- **Better empathy with others:** good critical thinking skills increase your ability to see a situation from multiple perspectives and to appreciate others' viewpoints. This is particularly valuable in roles where relationships with others are central, such as service industries, sales, nursing.
- **Increased confidence:** knowing you can apply your critical thinking skills to any work situation increases your confidence in your ability to perform the role.

Reflection

Transferring criticality

How could you apply your critical thinking skills more systematically to help you with new situations and problems that you encounter?



'When I started my job as a communications officer, I hadn't done anything quite like that before. I was well-practised at analysing texts as a student so I decided to apply the same underlying critical skills in my work role.

A lot of the time that just means that I ask critical questions of whatever is in front of me – such as "What message are we trying to get across, here?" "Do we need to alter the way we present that for different audiences?" "The graphics look great, but do they add to, or detract from, the message we want to convey?" "What evidence have we got that people will access messages using the media we have been using?"

'As a nurse, everything I do requires me to observe, analyse, evaluate and take action. If a patient tells me that they are in pain, there is a whole list of things that I run through quickly in my head:

- What is the source of the pain? Is it from a known condition or injury or could it be a sign of something new?
- Is the patient showing physical signs of being in pain such as sweating or hand-wringing?
- When did they last have pain medication? What would the possible implications be of giving them a dose at this point, e.g. side effects, overdose?
- What is my patient's experience at the moment? Could I also ease their pain by spending a few minutes talking to them or suggesting another option such as meditation to help them manage the pain?'



Demonstrating critical thinking to employers

How do employers check for critical thinking skills?

If employers are interested in critical abilities, they will look at how you demonstrate these through:

- Your approach to the application process – does it reflect a critical analytical mind?
- Your awareness of how critical thinking skills are relevant to the world of work generally, and their business in particular.
- The examples you give of how you applied critical thinking in practice.
- Whether you come across as someone they would trust to think wisely about the kinds of problems and issues that will arise in the job.

Articulate strengths in relevant ways

When applying for jobs that require critical thinking:

- Think through, logically, what the job is likely to entail. What kind of day-to-day problems will you have to deal with? How would you deal with these, drawing on your critical abilities?
- Identify occasions when you have already used the kinds of critical thinking skills that will be needed in the job role – such as analysing data, writing reports, investigating issues, identifying solutions, reflecting critically on how you worked with others, etc.
- Draw parallels for yourself between ways you have applied critical thinking skills already, and the way these skills might be needed in this job. Make sure that these then come across in your application and answers at interview.
- Be as precise as you can in matching the skills you have to the work context, especially in terms of scale and complexity.

Critical thinking and empathy

For some roles, you need to apply critical thinking skills in an empathetic way. During the application process, the employer may be looking to see:

- Whether you have been able to recognise the needs of their business.

- Your understanding of their customers, clients, patients or stakeholders: how your experience or skills will be of value to them.
- Your consideration of other personnel: how your needs might impact on others.
- Difficult situations and how you would respond to the needs and feelings of others when a situation is challenging.

Criticality and forward thinking

When asking for critical thinking skills, some employers are looking for employees who:

- are pro-active in scanning the horizon to see where opportunities and issues lie;
- can present opportunities in a report that balances potential benefits and risks;
- think ahead – and spot where potential problems might emerge.

Substantiate your claims



Provide evidence that demonstrates your critical abilities. A good application provides:

- at least one longer, and preferably two or three examples altogether, of when and where you have best demonstrated the attribute;
- and, if feasible, a sentence that sums up other instances to demonstrate the breadth of your abilities;
- all worded succinctly and precisely.

'In preparing an exhibition of my art work for the public, I used good critical judgement in selecting works that created the best overall effect. I wanted local people to attend so reflected that in where and how I promoted the exhibition. I provided commentary that made the work meaningful to the community. This was successful, resulting in good attendance and positive feedback.'

Checklist: Critical self-evaluation of job applications

Apply your critical thinking skills to your own job applications and performance. Use the checklists below:

- before submission to make sure your application is as strong as possible;
- during the process, to make sure you remain focused on the requirements of the employer;
- afterwards, whether successful or not, to help you to be even better next time.



| A. Job application checklist | | Done ✓ |
|------------------------------|--|--------|
| 1. | I demonstrate my suitability at every stage of the application process | |
| a) | I am careful that skills I claim are demonstrated throughout the application process | |
| b) | I demonstrate good communication skills in ALL contact and writing | |
| c) | I have read my application carefully, rewording anything that is poorly phrased | |
| d) | I have checked that my online presence is suitably edited and helpful | |
| e) | I have updated my online profile, if relevant (such as my Linked-In account) | |
| 2. | I demonstrate that I am interested in what the employer needs | |
| a) | My application conveys a general awareness of the business and job requirements | |
| b) | I avoid talking about longer-term ambitions that are not in the employer's interests | |
| c) | I don't sound keen about being 'away from work' (on holiday, homeworking, etc.) | |
| d) | I have clearly taken care with my application at all stages | |
| e) | I avoid criticisms of the employer, its processes, information, website, etc. | |
| 3. | I have used carefully all the information made available by the employer | |
| a) | I have read carefully ALL the information provided by the employer or agency | |
| b) | I have checked the information available on the internet about the employer | |
| c) | I have not requested information already provided or available online | |
| d) | I am clear about what this job involved before making an application | |
| 4. | I have followed the application instructions exactly as asked | |
| a) | I have completed ALL sections of the application forms, leaving no blanks | |
| b) | I am submitting ALL the documents required | |
| c) | I have removed anything that is not required | |
| d) | I am submitting my application in the method required | |
| 5. | I avoid broad statements and 'empty' answers | |
| a) | I avoid simply repeating or paraphrasing the requirements in the specification | |
| b) | I avoid making broad generalisations about life, the world, the economy, etc. | |
| c) | In referring to team achievements, I make clear what my personal contribution was | |

| A. Job application checklist | | Done ✓ |
|--|--|---------------|
| d) | For ALL requirements, I give examples to demonstrate relevant experience/abilities | |
| e) | My examples of experience clarify the scale of tasks and level of seniority involved | |
| 6. I demonstrate throughout that I pay close attention to detail | | |
| a) | I have provided all information requested (dates, salaries, qualifications, etc.) | |
| b) | My work history dates follow on exactly from each other, with any gaps explained | |
| c) | I have checked that essential information is accurate – such as the company name | |
| d) | I have checked my application carefully for errors, typos, spelling, etc. | |
| 7. I have focused on the person specification (PS) | | |
| a) | I have addressed every aspect of the PS | |
| b) | I have taken every item in the PS seriously and in full so I don't lose points | |
| c) | I have treated each item in the PS separately, so it stands out from other items | |
| 8. My application is tailored to this particular job and employer | | |
| a) | I indicate how my skills and experience are relevant to this particular job | |
| b) | I have adapted my CV and material to match this job | |
| c) | I have removed any information that refers to different applications | |
| 9. I avoid 'short-cuts' that create a poor impression | | |
| a) | I have taken care not to contact the employer unnecessarily | |
| b) | I provided all information in the sections where it was requested | |
| c) | I have taken care not to ask the employer to look at other sections or documents | |

| B. Preparing for each stage of the process | | Done ✓ |
|--|--|---------------|
| 10. I prepare well for assessment centres' exercises and interviews | | |
| a) | I have checked the kind of exercises that will be provided | |
| b) | I practise similar exercises several times so I am well prepared | |
| c) | I reread all employer and job information before meeting employers or agents | |
| d) | I prepare a list of possible questions and ideal answers, and practise these aloud | |

| C. Learning from the experience | | True ✓ |
|--|---|---------------|
| 1. | I take up all offers of feedback on my performance in job applications | |
| 2. | I take the feedback seriously, as helpful guidance for the next application | |
| 3. | After interviews, I jot down the questions I was asked, to help prepare next time | |
| 4. | I reflect for myself on where I could do better next time | |

Summary: Applying critical thinking to career planning and employability

- 1 Critical thinking helps with life and career planning.** It helps you to identify the right questions for making the best decisions for your future.
- 2 Apply critical thinking skills to your own circumstances.** Think through the reasons that underlie choices you are making. Are these based on good evidence?
- 3 Think critically about your career path.** Research jobs that interest you. Use self-evaluations to explore your reasoning and assumptions about yourself and potential futures.
- 4 Make a prioritised 'To do' list.** Use your critical thinking abilities to identify the actions needed to achieve your goals. Select your priorities. Thinking is good; action is also needed.
- 5 Make use of your current workplace.** If you have a job, check whether you are making the most of the opportunities for promotion, training and gaining useful experience.
- 6 Apply critical thinking when looking for jobs.** Make use of skills you have developed such as selectivity when making applications, close reading of the 'person specification' and making a strong, reasoned argument about your suitability for the post.
- 7 Learn from constructive critical reflection on your previous experience.** Learn from all job applications you have made, whether successful or not. Use relevant questions to structure your thinking about what job would suit you best.
- 8 Check for assumptions.** Use your critical abilities in looking for assumptions and connotations in order to gain a clearer sense of what employers are really looking for. Use the clues provided, such as on their website, in the person specification and job description.
- 9 Avoid common mistakes.** Know what these are. Use critical self-reflection to consider which ones you are most likely to fall into. Decide how you will ensure you avoid them.
- 10 Be aware of different employer interpretations of 'critical thinking'.** Gain a sense of how the term is used in jobs or roles that interest you.
- 11 Articulate your critical thinking and strengths meaningfully.** Use vocabulary and contexts that demonstrate to employers that you are aware of how your abilities are relevant to their business. Think logically about what is required. Substantiate your claims.
- 12 Make a fair critical evaluation of yourself as a job applicant.** Use a detailed checklist to consider how well you undertake each step in the process.

Texts for activities in Chapters 8, 9 and 11

The following texts have been written solely for exercises in this book, and the authors of each piece (given at the end of each in italics) are fictitious, created for the same purpose. However, citations within the texts refer to actual sources available online. These are included in the References section of this book, should you wish to use these for yourself.

Text 1

It has been argued for some time that there is a strong link between well-being and attainment and now there is proof. A 2021 study by Woolf and Digby from Oxford Impact found that 109 UK students (87%) and 53 international respondents (90%) all identified well-being as a priority in their institutions, showing this is a worldwide concern. Factors such as past trauma, if not addressed, can affect how well students achieve now.

The survey showed that integrating education on well-being into the curriculum had significant benefits not just for academic achievement, but also for the transition of pupils on to later stages of their educational journey.

Jade Smarte, 'Student well-being helps academic success'. Review of Woolf and Digby (2021) on ARC102StudentWiki. Entry for 24 October 2022 by first year student to an online wiki-based collection of class reviews of set reading material.

Text 2

Almost every scholarly study of meditation has found positive impacts. I was interested to find that Crowley and Munk (2016) say students who meditate become more aware of others' needs as well as improving their own mental well-being.

Studies show mindfulness can lead to increased empathy and better interpersonal skills and, according to Galante et al. (2021), feeling much more positive than those in control groups. Medlicott et al. (2021) found 'significant improvements' in students' sense of well-being and resilience if they meditated regularly, as

well as stronger commitment to their academic goals and higher ratings of their coping abilities. Chaix et al. (2020) even found improved immune function – arguably useful to students mixing in new contexts. Shapiro et al. (2008) and Cottrell (2018) summarised multiple studies covering tens of thousands of people, identifying benefits in self-compassion, concentration and ability to manage stress.

If more mindfulness training was available for students, it would significantly enhance their well-being.

Why mindfulness is best. 27 Jan 2023. Article by Xavier Delaunay, written for his website. Delaunay is a study counsellor who also runs private courses in meditation.

Text 3

'Risky' behaviour clusters amongst higher education populations will create long-term health and well-being problems. A number of studies have identified the impact of 'risky clusters' of unhealthy behaviours on the social prevalence of disease (Liu et al., 2013; WHO, 2002).

The World Health study (WHO, 2002) identified that the cluster of alcohol consumption, smoking, low intake of fruit and vegetables and too little physical activity accounted for 29% of the 'disease burden' of industrialised nations in Asia, North America and Europe. By disease burden they mean disability-adjusted life years (DALYs). However, as those four behaviours are also associated with high cholesterol, overweight and obesity, the total disease burden is closer to 50% (Buck and Frosini, 2012). Schmid et al. (2021) found that chronic disease is strongly associated with high BMI, low exercise and higher alcohol intake ...

In the UK, over 75% of students in one survey showed a significant weight change over 8 months of their first year (Vadeboncoeur et al., 2016). 50% reported weight gain (mean gain +3.5kg) whilst 25% of students lost weight (mean loss -3.2kg). The weight gain was 4.6 times faster than the

Texts for activities in Chapters 8, 9 and 11 (continued)

average for young people aged 20–25 in Scotland (Lean et al., 2013) and 3.5 times faster than for young adults in the USA (Lewis et al., 2000). ... This suggests that universities could do more to promote a healthier level of weight.

However, it is not clear that obesity is really an issue for students. In Vadeboncoeur's study, it is unclear whether the apparent weight increase could just be attributed to age, given the relative youth of first years at university, many of whom were achieving a more healthy weight. Indeed, Sprake et al. (2018) challenge the stereotype of students on poor diets and engaged in binge drinking. Sprake found that around 73% of 1,448 student respondents reported daily consumption of self-cooked meals made from raw produce and only 25% ate junk food every day. Most participating students engaged in health-promoting behaviours such as good nutrition and exercise levels.

However, Dodd et al. (2010) looked at a cluster of 5 lifestyle risk factors in a HEI in the UK in 2008 and found a more concerning picture. They used a health and lifestyle survey with over 400 students to collect data on levels of perceived psychological stress, physical activity (PA), fruit and vegetable intake, binge drinking, smoking as well as demographics. This found three risk factors of concern: 70% of participants didn't meet recommended levels of physical activity; 66% consumed less than daily recommended amounts of fruit and vegetables, and 56% engaged in binge drinking at least once a week. In addition, psychological stress was high, especially amongst female students. Sprake et al. (2018) also found a significant minority of around 25% of students engaged in a similar cluster of risky behaviours ...

Kim, T., Meah, A., Jarrow, P. et al. (2022). 'Clusters of risky behaviours in undergraduates and the long-term implications for health and life expectancy'. Journal of Student Health, Psychology and Behaviour, 26, 3, 77–92. Extract from article.

Text 4

The importance of sleep to health and well-being has been well-documented. Sleep is essential to neuroendocrine and cardiovascular function and regulating glucose, and lack of sleep affects social interactions, health, and quality of life (Li, Y. et al., 2020). Our immune systems function best when we are asleep. Sleep quality is correlated with students' psychological well-being (Zhai et al., 2018) and is associated with other factors that impact negatively on well-being such as smoking and alcohol abuse, violence, and self-harming behaviours including suicide ideation (Vail-Smith et al., 2009; Trockel et al., 2000). In recent years, there has been much discussion of stress as a factor of student life; poor quality sleep affects students' ability to cope with stress (Li, L. et al., 2018). Sleep is essential to learning, not least in laying down new memories.

Support services can help, such as by adopting proposals by Carter et al. (2017) for health education programmes that explain the effects of sleep deprivation and offer tips on good sleep hygiene. Also of interest to Support work professionals, are recommendations by Li, Y. (2020) on educating students about the consequences of insufficient sleep and poor sleep patterns. Interestingly, Li and colleagues found that skipping class, gambling, drinking alcohol and not taking exercise all had a poor effect upon sleep. They concluded that risks to students would be reduced if they could be induced to change such behaviours and to feel more positively about themselves and key relationships in their lives. ... As support services, we should make it a priority to ensure that students understand the importance of sleep to them in all facets of their life, and to promote within our colleges and universities the kinds of strategies that will make it easier for them to get the sleep they need.

Extract from Kate Calhoon and Muraid Almeny (2022). 'The impact of sleep on student life', in The Journal of Optimal Student Support (JOSS). 16 (3), 45–53.

Texts for activities in Chapters 8, 9 and 11 (continued)

Text 5

Whilst it is recognised that food plays an important role in health and mental health in terms of nutrition (Aubrey, 2014), other aspects of food experience are also important to student well-being. In particular, the eating environment can affect whether and how students access good food, as well as promoting or inhibiting healthy eating. It impacts on levels and types of social engagement, and can either increase student stress or bring restorative effects. An integrative review of design and service interventions undertaken by Lugosi (2019) made a number of recommendations in this respect. These ranged from consumer surveys and mapping consumer journeys, to creating better zoning to accommodate different kinds of eating behaviours such as eating alone, in groups, for pleasure, or when working. Lugosi argued that students could be included more in the design of services and menus, and that social interactions and 'hosting behaviours' could be enabled through multi-meal deals. Ciliotta-Rubery (2016) refers to the psychological benefits and increased intercultural competence that can derive from good student food behaviours and from policies that promote these.

Margarita Ressa (10 April 2022) 'Good food, good mood?' Blog article by health professional with expertise in student nutrition.

Text 6

The *HEPI / Advance HE Student Academic Experience Survey* (Neves and Hillman, 2019) shows that student well-being remains lower than well-being among the general population of young people in the UK. The Survey reveals a strong relationship between students' ethnicity and their levels of anxiety. It also showed that students with fewer experiences of good feedback and helpful teaching staff were 65% more likely to report high levels of anxiety than those students with positive experiences of these.

Arturo Pine and Gil Messa (2022). Meeting student needs: priorities for action (London: Zhop Press). Extract from a chapter in their book by experts on student experience.

Text 7

Being unhappy or lacking positivity is not necessarily a sign of poor mental health. Mental health is not the same as 'well-being' and well-being is not reducible to 'mental health'. These are both too often associated with ideal states such as 'positivity', 'happiness' and 'mastery'. In real life, it is to be expected that there will be times when we are unhappy, unwell, stressed or experiencing emotional difficulties. Indeed, Galderisi et al. (2015) remind us that people with good mental health experience such states. Also, it would not be a sign of good health if we felt positive and happy about things that should be evoking other feelings – such as when we notice acts of cruelty. Similarly, whereas excess pressure and anxiety can undermine good mental health, we can learn to value some stress, as an aid to performance.

Dr B. Ali. Understanding our mental states. Extract from a government information site on mental health. 9 May 2022.

Text 8

The sleep project at uni could be helpful for some people but I can't lie, I am likely to stick to all-nighters even though I am a classic case of dragging myself through the afternoon I am so tired. Then there are parties – so I don't think anyone I know will follow sleep hygiene recommendations – we all like to hang out late. Maybe the money from the project could be better spent – such as on more security staff on the night shifts, something we have been campaigning for this year.

*Mika, Mika_*OZ_3409, 1 May 2022. Comment from a student to a media item read online.*

Texts for activities in Chapters 8, 9 and 11 (continued)

Text 9

Improving sleep habits is the route to better educational achievement. Over 80% of US college students say their academic performance is negatively impacted by loss of sleep (College Resources USF, 2018). Poor sleep is widespread amongst students. It raises the question: if good grades matter to students, why does sleep not matter to them more?

We have known for some time that grade point averages (GPAs) for U.S. students are affected by sleep. In 2001, Kelly et al. looked at the GPAs of students who slept too little, that is, had less than an average of 6 hours sleep a night. As they predicted, those with too little sleep were also much more likely to get a low GPA. After considering a range of behaviours that affect GPA, such as exercise, eating habits, time management, social support and part-time work, Trockel et al. (2000) found that of all of these, sleep habits, especially wake-up times, were of most significance.

Move on a decade and the situation remained the same. Gaultney (2010) identified 27% of college students surveyed were at risk of a sleep disorder – especially from having too little sleep and inconsistent sleep patterns across the week and weekend. These students were also at much higher risk of failing academically. ...

But is sleep alone the issue? According to Medeiros, our chronotype – whether we are morning or evening types, can also make a difference. Medical students who classified themselves as ‘evening’ types were more likely to sleep badly in ways that affected their academic performance. ... Grades are not the only issue. Health is also affected. The US government guidance associates insufficient sleep with a wide range of chronic conditions, such as obesity, heart disease, type 2 diabetes, and depression. See https://www.cdc.gov/sleep/data_statistics.html.

Sal Panesar, 'Sleep: Will we ever learn the lessons?'. Sleep researcher in article for online newspaper, NationalNewsTribune. 19 March 2022.

Text 10

One question facing institutions of higher education is where their responsibility for students' well-being starts and ends. Clearly, there are legal requirements for organisations with regards to protecting the health and safety of students, staff and others, and for meeting the reasonable needs of those with disabilities, including mental health. Those responsibilities vary by country. However, an abundance of surveys and reports hit managers' desks each year, arguing for ever higher levels of support for well-being, from a moral rather than legal perspective. As finance leaders, we also need to consider what is the moral right to ensure that students and staff are supported to thrive as healthy and happy members of our communities.

In this context, it is pertinent to consider the financial implications of such demands. For example, if inadequate support for well-being means students are more likely to leave early in their course, this could impact on institutional income. Poor support could have similar effects on reputation, recruitment and therefore on income. On the other hand, support costs can outweigh the cost of the fees in some cases. Further, there are other new demands on organisational income, not least for higher levels of teaching staff, improved estates and greener energy. Hard choices have to be made.

A problem for finance departments is in deciding which out of many competing arguments for spending is likely to offer the best results for students and the best for value for money. Some reports argue that mindfulness is the solution, whilst some make the case for healthier eating, different teaching schedules, or environments that uplift the spirits.

A recent conference of finance managers considered an article by Hershner and Chervin (2014) which detailed the negative consequences of sleep for students whilst highlighting the prevalence of the problem. According to the report, 70% of students have insufficient sleep and 50% experience daytime sleepiness. This is

Texts for activities in Chapters 8, 9 and 11 (continued)

associated with lower grade point averages and a range of negative impacts. The authors surmised that changes to class schedules, sleep education, online classes, encouraging naps and other policies that promoted good quality sleep could benefit both student learning and health. These would not necessarily incur much extra cost.

Andy Lysatte (2022). 'Value for money and wanting the best for student well-being'. Blog entry by a finance director of a UK university for the 'Finance Leaders in UK Tertiary Education Network, FLUKTEN. 18 Oct. 2022.

Text 11

... After that scary 'near miss' with my exam, I wondered whether anything was being done to help this universal problem of student sleep and 'all-nighters'. I discovered there are masses of reports, surveys and papers on this subject. Who knew? Some unis have tried out various schemes. For one project, students took part in two long discussions about information, case studies and sleep logs they were given⁽¹⁾. In another, when students listened to just a 30-minute lecture about sleep hygiene, that improved their sleep for several weeks⁽²⁾. There are experiments where students did mental exercises to help them from being kept awake by worry or 'racing minds'⁽³⁾. I made a list of ideas to try out, and found out a lot about sleep hygiene. What has worked best for me so far has been staying away from my laptop and other screens before bed. Reading. Writing down things that used to get me angry or worried in the night, so there is no need to think about them. And especially doing three deep breaths whenever I find my mind racing at night. I am less tired (most days!) and more alert. And I have had a great night's sleep!

- 1 Kloss, J. D., Nash, C. O., Walsh, et al. (2016). '“Sleep 101” program for college students improves sleep hygiene knowledge and reduces maladaptive beliefs about sleep'. *Behav. Med.* 42: 48–56.
- 2 Brown, F. C., Buboltz, W. C. Jr. and Soper, B. (2006). 'Development and evaluation of the

sleep treatment and education program for students'. *J. Am. Coll. Health*, 54: 231–237.

- 3 Digdon, N. and Koble, A. (2011). 'Effects of Constructive Worry, Imagery Distraction, and Gratitude Interventions on Sleep Quality: A Pilot Trial'. *Applied Psychology: Health and Well-Being*, 3: 193–206.

Tom Javek. *A great night's sleep at last! Student blog.* 20 January 2023.

Text 12

Parents obviously are concerned about the transitions of young people into higher education and especially the effects of homesickness and loneliness on stress and academic achievement ...

Yet when Diehl⁽¹⁾ attempted to quantify loneliness in German students, she found that although nearly a third (32.4%) were moderately lonely, just 3.2% were severely lonely. Those students were likely to feel depressed and anxious so potentially at risk.

And who was most lonely? ... Students taking social studies, or of immigrant backgrounds, or of low physical activity. Students living alone and not in relationships were the most emotionally lonely In England before the Covid pandemic, figures were very similar, around a third of students felt lonely during the course of a week, though around one in six felt lonely every day⁽²⁾ ...

So, can HEIs help to alleviate loneliness? Well, Diehl's report recommended institutions offer more structured sport activities, to increase the numbers engaged in physical activity ... It advocates setting up support networks and self-efficacy courses to combat anxiety and depression. Such measures, they argue, could help students develop habits that would prevent lifelong loneliness. ... Institutions could provide more structured opportunities for new students to get to know others. That could be through cooperative learning approaches. Others have suggested engaging students in using games and apps to counter social isolation ...

Texts for activities in Chapters 8, 9 and 11 (continued)

But, is this where we need to focus? Well, of course HEIs should intervene to help counter loneliness where feasible. But, we need to compare this with other student well-being issues. Let's look at data from the US national college health assessment, ACHA. Here we can see the big issue for students is academic stress. Almost a third (32%) said their academic work or grades suffered because of stress and 21% because of sleep difficulties⁽³⁾ compared to only 4% for homesickness. This compares with, say, the 20–30% of 'chronic loneliness' reported in the general US population found by Louise Hawkley⁽⁴⁾. Loneliness (and actually, even finances, which we thought would feature highly), were reported as having less impact on reported well-being even than colds and flu (13.5%), work (12.9%) and internet use/games (9%). Games, yeah. So maybe engaging even more students in games is not the best way forward!

In fact, if we look at who the ACHA report tells us receives professional medical help, we find students are most likely to be treated for allergies (20%) or sinus infections (17%). So that raises some interesting questions about food and environment. More concerning for me, is that although over 84% of US students say they are in good health, more than 70% reported eating 2 or fewer portions of fruit and veg a day. Not '5 a day' there! And only

3 in 5 students report a healthy weight/BMI. So, I would argue that diet and nutrition are key areas for concern.

- 1 Diehl, K., Jansen, C., Ishchanova, K., and Hilger-Kolb, J. (2018). 'Loneliness at Universities: Determinants of Emotional and Social Loneliness among Students'. *International journal of environmental research and public health*, 15(9), 1865.
- 2 Busby, E. (2019). *One in six students say they have no 'true friends' at university*. 25 March 2019 17:09. <https://www.independent.co.uk/news/education/>
- 3 American College Health Association (ACHA) (2017). National College Health Assessment II. [Annhttps://www.acha.org/documents/ncha/](https://www.acha.org/documents/ncha/)
- 4 Hawkley, L. C., and Cacioppo, J. T. (2010). 'Loneliness matters: a theoretical and empirical review of consequences and mechanisms'. *Annals of behavioral medicine: A publication of the Society of Behavioral Medicine*, 40(2), 218–227.

Svetlana Goncharova, Prioritising the priorities for student wellbeing. 17 Sep 2023. Extract from a transcript of a YouTube talk by Head of a recognised student charity in England.



Practice 1

Sample essays 1 and 2

The first two practice texts are sample essays on the role of sleep in student well-being. Directions for this activity are provided in Chapter 11, page 197).

A checklist to guide your analysis of both essays is provided on pages 250 and 260.

For each of these two essays, a completed checklist and set of comments are provided, so that you can compare your own answers. Essay 1 is stronger than essay 2 as a student assignment. Consider the commentary for both, reflecting on why one would gain a higher grade than the other.

Essay 1. Read through essay 1 (pages 251–6). Complete a copy of the checklist provided on page 250. (This checklist is also available on the Companion site.) Alternatively, write a short critical commentary on the essay. You can, of course, do both. Check your responses with the example provided on pages 258–9.

Essay 2. Do the same for essay 2 (pages 261–4). Check your responses with the example provided on pages 265–9.

Practice 2

Sample essays 3 and 4

These two sample essays are on the topic of global warming. A slightly different approach to analysing these is provided, using lists of prompts to guide your analysis.

Essay 3 is on pages 271–5. Essay 4 on pages 282–4.

Essay 3 is stronger than essay 4 as a student assignment. You might find it helpful to reflect on why essay 3 would gain a higher grade than essay 4.

Practice 3

Sample essays 5 and 6

A further set of essays is provided for analysis on the Companion site. These are on the topic of the ‘Great Chain of Being’.

Practice 1

Evaluating extended argument: Essay 1

Use the checklist to evaluate the essay on pages 251–6. For more detail, see Chapter 11, page 197.

| Checklist for critical analysis of extended arguments | | |
|--|-------------------------------|---------------------------|
| Aspect | Yes/No/ mostly/ sort of | Comments/details/examples |
| 1 Does the piece take a clear position on the topic/issues? | | |
| 2 Does the piece address the core question it sets out to address (e.g. that is proposed by its title)? | | |
| 3 Are good reasons presented to support the position adopted? | | |
| 4 Does a clear argument (line of reasoning) run through the piece from start to finish? | | |
| 5 Are points presented in the best order as a logical sequence? | | |
| 6 Do main reasons/key points stand out clearly? | | |
| 7 Does the evidence support the main reasons given and the conclusion? | | |
| 8 Does the conclusion follow logically from the line of reasoning? | | |
| 9 Is the argument internally consistent (i.e. the piece is free of contradictions)? | | |
| 10 Is all material relevant to the topic/core question? (Has inessential detail and description been cut?) | | |
| 11 Does the piece consider alternative perspectives in a fair, even-handed way? | | |
| 12 Is the piece free of emotive language? (page 103) | | |
| 13 Is it free of flawed reasoning? (pages 92–108) | | |
| 14 Does the piece draw on good quality, reliable, relevant sources? (See pp. 109–128.) | | |
| 15 Are all sources cited throughout, and then full details provided as a list of references? | | |

An expandable version of this checklist is available on the Companion site.



Sample Essay 1

'Interventions focused on improving sleep are most likely to enhance the well-being of students in higher education'. Discuss.

(Word limit: 2000 words plus references)

- 1 There have been increasing concerns about student well-being in recent decades and especially about what has been described as a student mental health 'crisis' (Kadison and diGeronimo, 2004). Many surveys and reports attest to large numbers of students being affected by impaired 'well-being' or 'mental health'. It is difficult to evaluate the nature and severity of student well-being issues because terminology is used inconsistently and results are conflicting, not least because most studies are based on small, self-selecting cohorts making it hard to draw generalisations (Barkham et al., 2019). This essay maintains that, whilst sleep interventions have merit, the thesis that they are 'most likely' to enhance student well-being cannot be sustained. Other interventions would be more effective, especially if one considers such matters as the approaches most likely to be adopted by students, those most needed, those likely to reach the largest numbers and the underlying causes of impaired sleep. Additionally, as sleep problems rarely occur in isolation, interventions would be more effective if they addressed multiple, inter-related factors.
- 2 The term 'well-being' is used in diverse ways. The New Economics Foundation defines it broadly: 'how people feel and how they function, both on a personal and a social level, and how they evaluate their lives as a whole' (NEF, 2012). It is often used interchangeably with 'mental health', confusing the issues (Galderisi et al., 2015). Barkham et al. (2019) argue that it is crucial to differentiate between students' general well-being needs and the particular requirements of those with serious mental health diagnoses. This essay uses 'well-being' in the broader sense, including health, mental well-being, and social, cognitive, emotional, psychological and physical factors but not acute mental health conditions.
- 3 Sleep is problematic for students worldwide, so it would seem logical that interventions would be useful. In a study of 20,222 undergraduates from 26 countries in Asia, Africa and South America, Peltzer and Pengpid (2014) found that a nocturnal lifestyle and sleep disorders were widespread, especially amongst those with other life disadvantages and/or who engaged in a cluster of risky behaviours (tobacco use, heavy internet use, gambling, skipping breakfast). Most US students surveyed using the Pittsburgh Sleep Quality Index (PSQI) did not get the minimum amount of sleep recommended by the National Sleep Foundation (Carter et al., 2017). A study by Hershner and Chervin (2014) found 50% students experienced daytime sleepiness and 70% insufficient sleep. Li, L. et al. (2018) collated data from 76 studies covering 113,000 Chinese students: 24% experienced sleep disturbances, 24% insomnia and 20% sleep dissatisfaction.
- 4 Sleep disorders are not just widespread but also have an impact on student well-being. Poor quality sleep promotes anxiety and affects abilities to cope with stress and academic work, all of which are concerns for students (Cottrell, 2019). Sleep deprivation and daytime sleepiness are associated with lower grades/GPA, academic failure, poorer learning, impaired mood, idealising suicide, and even increased risk of motor vehicle accidents (Kelly et al., 2001; Orzech et al., 2011; Friedrich and Schlarb, 2018; Hershner and Chervin, 2014). Other risky behaviours that undermine well-being, such as fighting, smoking and alcohol abuse, are also associated with poor sleep (Trockel et al., 2000). Poor sleepers report 'significantly more' problems with both physical and mental health (Lund et al., 2010). Friedrich and Schlarb (2018) found insomnia, nightmares and impaired sleep quality were associated with a range of student mental health issues. Conversely, sleep length was found to correlate positively with students' life satisfaction (Kelly, 2004).

Sample Essay 1 (continued)

- 5 Given the potential negative impacts of poor sleep, researchers have suggested interventions to improve student well-being. Carter et al. (2017) concluded that students could benefit from receiving health education focusing on the effects of sleep deprivation and from tips for good sleep hygiene. Similarly, Li, Y. et al. (2020) argued students could be made more aware of how inadequate sleep might affect them, the assumption being that this would change their sleep habits. Friedrich and Schlarb (2018) analysed 27 studies of psychological interventions to improve students' sleep. Their conclusion was that a number of approaches, including cognitive-behavioural therapy (CBT), mindfulness and hypnotherapy, sleep hygiene and relaxation all had an impact though effects varied. They recommended using a combination of such interventions. Such studies suggest that sleep-based interventions could benefit student well-being.
- 6 However, whilst sleep-focused interventions have merit, other well-being interventions could be more effective. Sleep-focused approaches are not even the best approach for improving sleep. Sleep problems remain widespread amongst students despite many kinds of targeted intervention (Javek, 2023). There have been attempts to end 'all-nighters' (Kloss et al., 2016), but it is not surprising that these fail as lost sleep is not the priority from students' perspective, academic issues being of more concern. Moreover, students most in need, such as medical students, are the least likely to seek help for sleep (Medeiros et al., 2001). Further, even when sleep is improved by such interventions, it doesn't necessarily improve related well-being issues such as anxiety (Morris et al., 2016).
- 7 One reason for the ineffectiveness of sleep interventions is that they don't address the underlying factors. Singleton and Wolfson (2009) found alcohol consumption had a negative impact on both sleep and GPA so addressing alcohol abuse could be a better first intervention. Sleep problems for some Asian students have been associated with high internet addiction (Morahan-Martin et al., 2000; Choi et al., 2009). Li, Y.'s study of Chinese students (2020) found many factors including perceptions of self and relationships, gambling and skipping class predictive of poor quality sleep. Addressing such underlying factors directly would seem the better route to improving both sleep and other factors that impact on well-being.
- 8 Significantly, Lund et al. (2010) argued that sleep problems are caused by primarily by academic and psychological stress, more so than factors such as alcohol, caffeine, sleep routine or exercise. Stress, and especially study-related stress, is a perennial concern in its own right for student well-being worldwide (Cottrell, 2019b) as well as being implicated in impaired sleep. In the Youthsight/UPP Report (Neves and Hillman, 2017), 59% identified 'stress of studying' as the key reason for difficulties in coping at university. Almost a third of US students feel stress affects their grades (ACHA, 2017). A *HEPI student survey* (Neves and Hillman, 2019) shows students were 65% more likely to report high levels of anxiety if they had few (or no) experiences of good feedback and helpful teaching staff. Interventions that attack the causes of academic stress, such as by providing supportive teaching and feedback and boosting academic confidence (UUK, 2021), would lessen anxiety, decrease harmful behaviours and improve sleep. Thus, reducing 'study stress' would do more to enhance student well-being – and reduce the need for sleep interventions.
- 9 A different perspective arises if one considers the effectiveness of interventions by how well they target those most in need. That itself could be defined in different ways. One key consideration in developed countries is that almost half of illness and life impacts there are associated directly or indirectly with a cluster of four unhealthy behaviours (WHO, 2002; Buck and Frosini, 2012; Poortinga, 2007). This includes smoking, alcohol, low physical activity, eating too little fruit and vegetables, and associated impacts on cholesterol and weight. It is worth considering whether such unhealthy clusters of behaviour affect students. This does seem to be the case. In a more recent study by

Sample Essay 1 (continued)

Sprake et al. (2018), although a large majority (73%) of UK students were conscientious about diet, exercise and healthy behaviours, around a quarter engaged in 'clusters' of risky behaviours such as high consumption of meat, take-away meals and alcohol, smoking and 'unfavourable lifestyle'. In the USA, similar clusters are associated with high body mass intake, BMI (Schmid et al., 2021). Targeting students engaged in 'risky behaviour' clusters could have greatest impact where most needed.

- 10 Furthermore, being newly away from home creates particular well-being issues associated with those risky clusters. In the UK and USA, first year undergraduates gain weight faster than in the general population: over 60% of students in the USA gain weight and 75% in the UK show a significant gain or loss (Vadeboncoeur et al., 2016). One study found that 60% of students ate less than two helpings of fruit and vegetables daily (Dodd et al., 2010) and another found that around half did not exercise regularly (Rao et al., 2014).
- 11 HEIs could make food-related interventions to improve student well-being: the authors of studies recommend they promote cooking, make low cost healthy food easily available and prompt healthy choices (Sprake et al., 2018; Rao et al., 2014). Significantly, students seem more receptive to such interventions: Rao (2014) found students welcomed and used campus-wide initiatives that reminded them about making healthy choices. Arguably, such interventions can be assimilated relatively easily into student lifestyles, which could enhance effectiveness.
- 12 Interventions focused on improving the student environment could have most impact on well-being by reaching the greatest number and addressing their distinct needs. In the USA, medically, students are most likely to be treated for allergies (20%) or sinus infections (17%), raising questions about food and environment (ACHA, 2017; Goncharova, 2023). Affective issues such as 'feeling that you matter' to peers are 'unique' well-being factors for students, that Shine et al. (2021) argue institutions could address when improving the student environment. Exposure to noise pollution is another such factor. According to Schlarb et al. (2017), c 90% of US students share rooms. Of these, 41% lose sleep because of others' noise. Environmental interventions such as sound-proofing and accommodation design would enhance the well-being of large numbers. The communal eating environment, too, has multiple effects on levels of student stress or well-being (Ressa, 2022). Lugosi (2019) argues that interventions that improved campus food environments and services would improve student well-being from many perspectives, social, emotional, academic and psychological as well as nutritional. It could enhance socialising, reduce isolation, raise self-esteem, encourage study discussions, and save study time lost in queuing. Environmental interventions could have the greatest impact because of the variety of ways the student environment affects well-being and the large numbers using services on a sustained basis.
- 13 As the consideration of nutritional and environmental factors suggests, it is not helpful to consider separate well-being factors in isolation. That is also relevant to the kind of sleep interventions used and their relative impact. The Sleep Foundation explains how exercise, nutrition and sleep are mutually reinforcing (Newsom, 2020). Diets that lack key nutrients or contain too many calories make it harder to sleep; poor sleep stimulates the brain to make poor nutritional choices. By contrast, exercise reduces appetite, improves sleep and reduces disease. Furthermore, for reasons that are unclear, even when sleep does not appear to be the prime issue, improving it can enhance well-being: Fucito et al. (2017) found that improving sleep behaviours reduced alcohol problems. Gildner et al. (2014) found sleep interventions enhanced well-being in cases of high BMI and obesity. Even academic problems, a cause of academic stress, are associated with poor sleep and other well-being factors. This suggests that sleep interventions might help in a range of circumstances and clusters, especially if sleep is considered in combination with other factors. Multi-factor approaches are likely to have the greatest impact.

Sample Essay 1 (continued)

- 14 It has been argued that there are numerous ways of evaluating which kinds of interventions would best enhance student well-being. Given that impaired sleep is a widespread student well-being issue, it seems logical to target it for interventions, and these work for some students. However, student stakeholders seem more receptive to interventions focused on making health choices for food and exercise, so those are likely to be more effective. From a different perspective, interventions that address clusters of risky behaviours could have greatest impact as they target those most at risk. As environmental changes have the greatest reach, an argument could be made for these. Alternatively, if one considers what students themselves consider to be the greatest well-being concern, then the focus should be on academic stress.
- 15 It is also essential to consider two further issues. Firstly, that interventions need to be tailored to cohort, taking on board differences such as course of study and demographic profile. Secondly, many well-being factors, including sleep, diet, exercise, academic stress and risky behaviours, are mutually dependent, and interact in multiple ways. That is true of sleep, academic stress, risky behaviours and environment, so multi-factor approaches could be most effective in terms of need, stakeholder priorities and numbers. Therefore, interventions focused on improving student sleep are not those most likely to enhance the well-being of students in higher education'. **Words: 2045.**

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* NB Where text is marked *, this is a text from pages 243–8.

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Evaluation of sample essay 1

| Checklist for critical analysis of extended arguments | | |
|--|-------------------------------|---|
| Aspect | Yes/No/ mostly/ sort of | Comments/details/examples |
| 1 Does the piece take a clear position on the topic/issues? | Yes | Argues that sleep interventions are not likely to be the most effective, especially if used in isolation. |
| 2 Does the piece address the core question it sets out to address (e.g. that is proposed by its title)? | Yes | Remains focused on this throughout. |
| 3 Are good reasons presented to support the position adopted? | Yes | Several reasons provided, with supporting claims. |
| 4 Does a clear argument (line of reasoning) run through the piece from start to finish? | Yes | This can be seen in the tabulations of the argument on pages 190–3. |
| 5 Are points presented in the best order as a logical sequence? | Yes | There is a progression from consideration of sleep-focused interventions to consideration of other issues and interventions. |
| 6 Do main reasons/key points stand out clearly? | Yes | They are each introduced by a topic sentence or reinforced by a sentence at the end of the paragraph. |
| 7 Does the evidence support the main reasons given and the conclusion? | Mostly | More could be given to support the assertion that students are not receptive to sleep interventions. See also weakness point 5, page 259. |
| 8 Does the conclusion follow logically from the line of reasoning? | Yes | The conclusion is clear, and follows from the arguments presented. |
| 9 Is the argument internally consistent (i.e. the piece is free of contradictions)? | Mostly | See weakness point 4, page 259. |
| 10 Is all material relevant to the topic/core question? (Has inessential detail and description been cut?) | Mostly | The introduction could be more concise, especially with respect to definitions. See also weakness point 4, page 259. |
| 11 Does the piece consider alternative perspectives in a fair, even-handed way? | Yes | It draws on many sources to consider the issue from diverse perspectives. |
| 12 Is the piece free of emotive language? (page 103) | Yes | It presents points in a detached way that comes across as objective. |
| 13 Is it free of flawed reasoning? (pages 92–108) | Mostly | The writer avoids obvious flaws. However, see weakness 4 (page 259). |
| 14 Does the piece draw on good quality, reliable, relevant sources? (See pages 109–28.) | Yes | The writer has researched the topic well, using mainly articles from peer-reviewed journals. However, see General point 2, page 259. |
| 15 Are all sources cited throughout, and then full details provided as a list of references? | Yes | A complete list of references is provided. Sources are cited correctly in the text. |

Commentary for sample essay 1

Essay 1 is stronger than Essay 2 (pages 261–4). Having a sense of its strengths and weaknesses should help you to see more easily flaws in the argumentation of sample essay 2.

Strengths

- 1 **Takes a clear, informed position.** The author has specified, from the introduction onwards, what position the essay takes on the issue. It is evident why the writer holds the position taken: good reasons are given, backed by evidence.
- 2 **Strong introduction.** Paragraph 1 provides a clear, concise outline of the author's position and the overall structure of the argument. The reader then knows what to expect, and the kinds of reasons that will be put forward to defend the position taken.
- 3 **Defines terminology.** In paragraph 2, the author defines how key terms such as 'well-being' are interpreted in the essay. This helps the reader to understand the argument, and to anticipate what will or won't be covered.
- 4 **Clear line of reasoning.** This is summed up at the end of paragraph 1 and again in paragraph 14, and can be tracked through the essay.
- 5 **Focus.** The essay remains focused on the question and line of reasoning throughout. It doesn't wander off onto other topics.
- 6 **Autonomy.** The author has used research to formulate their own position – and has not simply assumed that the essay must agree with the thesis/statement provided in the title/by the tutor.
- 7 **Well structured, organised and signposted.** There is a clear structure to the essay. The key proposition of the title is addressed first, and then alternative perspectives and the synthesis. Similar points are grouped together. Steps in the argument are logically sequenced. The argument is summarised in the introduction and conclusion, helping the reader follow the line of reasoning. The opening and/or closing sentences of each paragraph also signal the direction of the argument.
- 8 **Demonstrates wide research.** The author shows wide reading around the topic. It is evident from the detail provided that the author has tracked back to the original sources referred to in the texts on pages 243–8, rather than simply relying on what they first accessed. For example, the writer has checked sources for text 2 (on mindfulness) and includes details from further reading. The author often cites more than one source to back up a point (see parag. 4, for example). This is useful for indicating where a theory or set of findings is grounded in wider research.

Many of the items on the list of references are drawn from sources in the first few texts accessed (pages 243–8) but provide different content, suggesting that they have read the sources for themselves.

- 9 **Uses good quality sources.** The sources used are primarily journal articles. These are usually more reliable sources (see page 113). The writer does not use weaker items from pages 243–8.
- 10 **Good citing and referencing.** Sources are cited appropriately throughout the text, and a complete list of references is provided at the end of the essay.
- 11 **Considers alternative positions on the issue.** Although the writer argues that sleep is not the best intervention, the essay investigates the alternative position in depth, and considers diverse factors such as nutrition, stress and environment. It asserts that there are differing ways of evaluating interventions, depending on what one considers most important (numbers, stakeholder interests, etc.).
- 12 **Respect for other views.** The wording of the opening sentence of paragraph 3 indicates respect for other views, in this case, for those who argue for sleep interventions: the author argues that their position is logical.
- 13 **Synthesis.** In paragraph 13, the writer synthesises views for and against the proposition that sleep is the most effective intervention. The writer here considers the evidence that sleep plays a dynamic

Commentary for sample essay 1 (continued)

role, and that even if it is not the main underlying factor for some people, good sleep can still bring benefits. Sleep can be both cause and effect.

- 14 **Conclusion.** Paragraphs 14–15 re-iterate the line of reasoning, reflecting the introduction. The last sentence links directly to the title.

Weaknesses/areas to improve

Even strong essays have areas that can be improved. For example:

- 1 **Gap in drawing an interim conclusion.** Paragraph 6. This is a good point but only one example is given of students most in need (medical students). The author later argues that those with clusters of risky behaviours could be considered as being most in need. The argument would have been stronger if either (a) those who engage in risky behaviours were shown to be unreceptive to sleep interventions (or otherwise unlikely to benefit from them) and/or (b) medical students were most likely to engage in risky behaviour clusters.
- 2 **Use of word allocation.** The author could have used the word allocation differently in order to free up more words to consider academic stress, potential syntheses or the quality of the evidence base in more detail.
- 3 **Relevance.** The ‘unique factors’ section (paragraph 12) mentions ‘mattering to peers’. Although interesting, it is not made clear why this is a key well-being issue. Either a case needs to be made for this or it could be cut to create space to cover other issues in detail.
- 4 **Potential inconsistency.** There is a potential inconsistency in arguments about ‘all-nighters’. Paragraph 3 implies that interventions against ‘all-nighters’ fail for lifestyle reasons, but paragraph 6 suggests it is because academic concerns are a priority.
- 5 **Balance.** Paragraph 15 states ‘interventions need to be tailored to cohort, taking on board differences such as course of study and demographic profile’. This might be true, but the point has not been well-substantiated in the essay.

General points

- 1 **Length.** The essay is the right length. It is within a few words of the required length. Typically, there is a tolerance of about 5% of the word limit. It is best to check this for your particular course.
- 2 **Depth versus breadth?** Although the essay draws on a wide research base, it covers so many points that most are dealt with very briefly. This means that the author does not have space for much analysis of the quality of their resources. Although the essay relies largely on journal articles, which should be good quality resources, that does not mean that every point made in articles should be taken on board as ‘proof’ of a point’ and without comment. Often, the research in such articles is based on very small or specific samples, or the article draws tentative interim conclusions.

Essay 1 isn’t clear about the quality of the evidence base upon which articles are based – such as whether they used large or small numbers of students, or were likely to have been based on particular kinds of participant (such as good or bad sleepers, or different nationalities) which might have skewed the findings. A short paragraph, or even a sentence or two about the quality of the evidence base across the resources, would be useful for the reader in evaluating the argument.

- 3 **Taking an independent stance.** In this instance, because the writer has not simply agreed with the statement given for discussion, this creates the impression that they have taken an informed, thoughtful, independent position. Whether or not you agree with the statement, write in such a way that you provide that sense of having decided on the issues for yourself, based on a critical analysis of the evidence,

Practice 2

Evaluating extended argument: Essay 2

Use this checklist to evaluate the essay on pages 261–4. For more detail, see Chapter 11, page 197.

| Checklist for critical analysis of extended arguments | | |
|--|-------------------------------|---------------------------|
| Aspect | Yes/No/ mostly/ sort of | Comments/details/examples |
| 1 Does the piece take a clear position on the topic/issues? | | |
| 2 Does the piece address the core question it sets out to address (e.g. that is proposed by its title)? | | |
| 3 Are good reasons presented to support the position adopted? | | |
| 4 Does a clear argument (line of reasoning) run through the piece from start to finish? | | |
| 5 Are points presented in the best order as a logical sequence? | | |
| 6 Do main reasons/key points stand out clearly? | | |
| 7 Does the evidence support the main reasons given and the conclusion? | | |
| 8 Does the conclusion follow logically from the line of reasoning? | | |
| 9 Is the argument internally consistent (i.e. the piece is free of contradictions)? | | |
| 10 Is all material relevant to the topic/core question? (Has inessential detail and description been cut?) | | |
| 11 Does the piece consider alternative perspectives in a fair, even-handed way? | | |
| 12 Is the piece free of emotive language? (page 103) | | |
| 13 Is it free of flawed reasoning? (pages 92–108) | | |
| 14 Does the piece draw on good quality, reliable, relevant sources? (See pages 109–128.) | | |
| 15 Are all sources cited throughout, and then full details provided as a list of references? | | |



This checklist is available on the Companion site.

Sample Essay 2

'Interventions focused on improving sleep are most likely to enhance the well-being of students in higher education'. Discuss.

(Word limit: 2000 words plus references)

- 1 Nothing matters more to students in higher education than their well-being.⁽¹⁾ As students pay a great deal to study for their degrees, it is a moral imperative that colleges and universities provide the kinds of support they need.^(1, 2) In this essay, I will present the case that students' mental health is being seriously affected by their educational experience and that there is, therefore, a crucial need for a change in teaching and more learning support if we are not to see a lost generation.⁽³⁾ In particular, this essay will argue that scheduling classes later in the day would do most to improve student experience and well-being.⁽⁴⁾
- 2 Mental health issues are on the rise in higher education and are reaching astronomical proportions.⁽³⁾ The Office for Students (2019) stated 'More students than ever are reporting mental health conditions'. Going to university or college is a time of transition when familiar educational patterns, methods and expectations undergo profound changes. For young people studying away from home, the changes are especially difficult. All at once, students lose the immediate everyday support of parents, and are thrown into tasks such as cooking, laundry and organising their daily lives in ways they are not used to. Friends who have formed part of the social rituals of school and everyday life are now far away. The regular pattern of lessons and breaks is gone, and students are left to organise the bulk of their time for themselves. In addition, they are now responsible for their own finances, and not necessarily aware of the factors required for good financial management across the whole year. Overspending early in the year can lead to financial worries and debt. Even the food they eat can be very different from what they ate at home and school.⁽⁵⁾ With so much to get used to, it is not surprising, therefore, that levels of student stress are rising rapidly and that student suicides are at a critical level.⁽⁶⁾
- 3 Although universities and colleges often provide support services, it is well known that⁽¹⁾ there are long waits for specialist counselling. As a result, lots⁽⁷⁾ of students don't bother to talk to anyone at the institution. Some might talk to a specialist support line such as the Samaritans or Nightline. But when students are depressed or feeling very low, they often don't want to talk to anyone. Support services can recommend talking to other people about your feelings, but as almost all students are over-stressed and anxious themselves, students can feel there is no-one who is feeling strong that they can talk to. They might not want to upset their parents with anxiety and suicidal feelings, or risk friendships by seeming to be in need.⁽⁸⁾
- 4 Anxiety about the amount of academic work and fear of failing their course also have a major impact on student well-being. Whilst students talk about this amongst themselves all the time, now there is actual proof⁽⁹⁾ that well-being affects how students achieve on their courses.⁽¹⁰⁾ Smarte (2022) argues that a study by Woolf and Digby proves that integrating lessons on well-being into the curriculum could provide 'significant benefits' for students' academic achievement.⁽¹¹⁾
- 5 An article by Arturo Pine and Gil Messa (2022) proves that poor feedback and unhelpful teachers cause student anxiety.⁽¹²⁾ As anxiety can be fatal in students, this is shocking.⁽³⁾ As Pine and Messa found that student well-being is worse than other young people's, and this is largely due to bad teaching,⁽¹³⁾ this shows that bad teaching causes students to have worse well-being than they would have done than if they had not gone into higher education.⁽¹²⁾

Sample Essay 2 (continued)

- 6 Martin Seligman designed the PERMA model which represents his view of the five core elements of happiness and well-being. These are Positive Emotion (P), Engagement (E), Positive Relationships (R), Meaning (M) and Accomplishment (A). Higher Education Institutions (HEIs) could use this model to gain a better understanding of student well-being (Seligman).^(14, 34) These five issues are important to student life. Research has shown that relationships with people, which are part of Seligman's model, are most important to well-being. The Cacioppo (2014) proved that it is vital to have the support of your family, friends and support groups, and not to suffer from loneliness, in order to have better health and well-being and be less vulnerable of dying early. They even found that social relationships affect sleep, physical health and other aspects of well-being. So, interventions that help sleep might help those who have poor social relationships.⁽¹⁵⁾
- 7 Universities and colleges have experimented with many different kinds of interventions, indicating that a wide range of student well-being issues and support needs have been identified and catered for in higher education. Some examples of these interventions are counselling, support groups, online courses, social events, nature walks, singing, fitness classes, engagement with nature, discussion groups, relaxation and 'mindfulness'. Mindfulness is increasingly popular in health and business sector and is becoming one of the most used interventions for students, with most institutions now offering free or subsidised courses.⁽¹⁶⁻¹⁸⁾ Dalaunay (2023) argues that mindfulness increases empathy, resilience, immune function, interpersonal skills and commitment to academic goals. On that basis, he argues: 'If more colleges made mindfulness training available, it could significantly enhance students' well-being'. Cottrell (2018) and Shapiro et al. (2008)⁽³⁴⁾ summarised multiple studies covering tens of thousands of people and identified benefits such as self-compassion, concentration and ability to manage stress.⁽¹⁹⁾ One important aspect of mindfulness interventions is the range of ways that mindfulness helps with relationship skills (such as empathy, interpersonal skills, and being aware of other people's needs).⁽²⁰⁾
- 8 Another well-being issue affecting students is loneliness. Goncharova (2023) has shown that this is the issue of most concern⁽²¹⁾ to parents and students. A massive⁽³⁾ one third of students are suffering from isolation and homesickness. Loneliness can have a severe effect on mental health. When students are away from home, and have no money, time can weigh heavily and can easily lead to depression and other conditions. For working students, if all their time is taken up with study and jobs, it can be hard to find time to socialise. Therefore, it is essential to pursue interventions such as those proposed by Goncharova. These are to provide structured sports events for immigrants and social study students, set up support networks, and self-efficacy courses, introduce cooperative learning, and provide free games and apps.⁽²¹⁾
- 9 Sleep is an evident problem on many campuses although it is not so obvious whether it affects students in distance learning and work-based courses. The pressures on student time mean that sleep is often a low priority. Also, social events tend to start late, so students cut sleep in order to fit in time with their friends at one end of the day and classes at the other. Social events can be a priority for lots of good reasons, such as to help students to feel they can 'fit in' when they feel isolated, lonely or that they don't belong. For students, the well-being issues of late social events are not necessarily about the lost sleep. Excess alcohol, drugs, safety whilst travelling, security on campus and at events and even the financial burden of social events all add to the pressures. Social life is important to young students and part of what they want from the university experience, so HEIs need to take that on board in their arrangements and budgets.⁽⁴⁾ One thing colleges and universities could do is to make sure there is cheap, safe travel available at night, so that students don't take risks with their safety. Also, if classes didn't start until mid-morning, students could fit in more sleep, which would help their well-being.^(4, 22)

Sample Essay 2 (continued)

- 10 There is also the famous ‘all-nighter’ approach to study, fitting too much study into the last minute and completing assignments or exam revision overnight instead of sleep (Javek, 2011). This used to be because it often took to the last minute to get hold of books needed when they were all in hard copy. Now that most sources are available electronically, that should make all-nighters less necessary. Students can sleep badly for many reasons, according to Li (2020), such as skipping class, gambling, alcohol, not taking exercise and feeling badly about themselves and their relationships. Student support professionals such as Calhoun (2022) state that student services could help by offering health education programmes about the effects of sleep deprivation and tips on good sleep hygiene. They argue that if students understood the effects of missing sleep, they would stop those behaviours. However, students probably will not change their behaviours (‘Mika, 2022’).⁽²³⁾
- 11 For many students, food is essential.⁽²⁴⁾ In the USA, 20% of students are treated for food allergies according to the American College Health Assessment.⁽²⁵⁾ More than 84% of students do not regularly consume the recommended ‘5 a day’, or even two portions of fruit and vegetables. As a result of this poor diet, 40% of students reported unhealthy weights and BMI, meaning diet and nutrition are key areas of concern.⁽²⁶⁾ Hunger can have a negative effect on sleep. Improving student nutrition would help improve sleep, meaning enhanced well-being. This is important not just for students but for the HEIs themselves. Lysatte (2022) makes a business case for investing in student well-being: ‘there are legal requirements for organisations with regards to protecting the health and safety of students’. He argued that there are financial implications of inadequate support for students’ well-being because it means students are not able to complete their courses. When they leave, the university loses their income. If the university cannot preserve a good reputation for supporting students, this means new students will not want to come there, again negatively impacting their income. Given the large numbers involved, poor support for students, especially student nutrition, could mean financial meltdown.^(3, 27)
- 12 Of the many factors that affect student well-being, academic stress is the most important to students themselves.⁽²⁸⁾ That is because students want to see a return on the high investment they make in higher education, whether financially or in terms of time and personal costs. Their degree classification or Grade Point average (GPA) matters to students. Orzech et al. (2011) found that GPA is affected by sleep quality. Students experience poor sleep, so their grades are being seriously affected. Indeed, a huge 80% of students in the USA say lack of sleep affects their academic performance.⁽²⁹⁾ That represents a vast amount of under-achievement and failure. As Panesar (2022) shows, this is not a new issue. Research on this issue stretches back for decades, so it is time that something was done about it.⁽³⁰⁾ Furthermore, Panesar has shown that whether we are morning or evening types, our chronotype, is important. Classes that run early in the day would not be as useful for evening types. Again, this suggests as argued above, that HEIs should consider running class times only from late morning⁽⁴⁾ so as not to discriminate against certain chronotypes. Moreover, sleep affects more than just academic grades. Quoting government guidance, Panesar argues that sleep is essential to many aspects of health, such as obesity, heart disease, diabetes and depression. From this we can see why students, a demographic known to have bad sleep, are afflicted by high BMI, as we saw above.⁽³¹⁾
- 13 So we have seen that student well-being is a critical issue as mental health is a major issue of concern. It can have a severe impact on institutional finances as well as being serious for students and their parents. It is important to remember that being unhappy or lacking positivity is not necessarily a sign of poor well-being (Ali, 2022). As Ali advises, everyone experiences times of being

Sample Essay 2 (continued)

unhappy, stressed or unwell and these are compatible with good mental health.⁽³²⁾ Nonetheless, as we have shown, students' well-being is in a poor state. Students are stressed about academic work, not sleeping, not eating properly and stressed about not getting the grades they want. As better sleep will improve student grades and help with weight issues, it will reduce stress and improve well-being. Therefore, in conclusion, interventions that improve student sleep are the most likely to enhance students' well-being.⁽³³⁾ (2026 words).

References (Essay 2)⁽³⁴⁾

NB Where there is a text marked *, this is a text from pages 243–8.

* Dr B. Ali. *Understanding our mental states*. 9 May 2022. (Text 7, page 245.)

* Delaunay, Xavier *Why mindfulness is best*. Article posted 27 Jan 2023. (Text 2, page 243.)

* Kate Calhoun and Muraid Almeny, (2022), 'The impact of sleep on student life', in *The Journal of Optimal Student Support (JOSS)*. 16 (3), 45-53. (Text 4, page 244.)

Diehl, K., Jansen, C., Ishchanova, K., & Hilger-Kolb, J. (2018). Loneliness at Universities: Determinants of Emotional and Social Loneliness among Students. *International journal of enviromental research and public health*, 15(9), 1865.

* Tom Javek. *A great night's sleep at last! Student blog*. 20 January 2003. (Text 11, page 247.)

Cacioppo, J. T. and Cacioppo, S. (2014). 'Social Relationships and Health: The Toxic Effects of Percieved Social Isolation'. *Social and Personality Psychology Compass*, 8: 58–72.

* Svetlana Goncharova, *Prioritising the priorities for student wellbeing*. 17 Sep 2023. (Text 12, page 247.)

* Andy Lysatte, (2022). 'Value for money for student well-being'. *Blog entry written for network, Finance Leaders in UK tertiary education. FLUKTE*. 18 Oct. 2022. (Text 10, page 246.)

* 'Mika' (2022). *Mika_ *OZ_3409*, 1 May 2022. (Text 8, page 245.)

Office for Students (England). <https://www.officeforstudents.org.uk/publications/mental-health-are-all-students-being-properly-supported/> (accessed 16/11/2021).

Orzech, K. M., Salafsky, D. B., and Hamilton, L. A. (2011). 'The state of sleep among college students at a large public university'. *Journal of American College Health*, 59(7), 612-619.

* Sal Panesar 'Sleep: Will we ever learn the lessons?' *NationalNewsTribune*. 19 March 2022. (Text 9, page 246.)

* Arturo Pine and Gil Messa *Meeting student needs: priorities for action*. (London: Zhop Press). (2022) (Text 6, page 245.)

Seligman The PERMA model.

* Smarte, Jade, 'Student Well-being helps academic success'. *Review of Woolf and Digby (2012) on ARC102StudentWiki*. Entry for 24 October 2022. (Text 1, page 243.)

Evaluation of sample essay 2

| Checklist for critical analysis of extended arguments | | |
|--|-------------------------------|---|
| Aspect | Yes/No/ Mostly/ Sort of | Comments/details/examples |
| 1 Does the piece take a clear position on the topic/issues? | No | More than one position is adopted at different places in the essay. |
| 2 Does the piece address the core question it sets out to address (e.g. that is proposed by its title)? | Sort of | The writer focuses more on the issues of student mental health and stress than on sleep interventions. |
| 3 Are good reasons presented to support the main position adopted? | Sort of | Reasons are given to support particular points. |
| 4 Does a clear argument (line of reasoning) run through the piece from start to finish? | No | The line of reasoning meanders from topic to topic in places, and the arguments do not lead clearly from the introduction to the conclusion |
| 5 Are points presented in the best order as a logical sequence? | No | There is not a clear, well-sequenced argument that can be tracked through from the introduction to the conclusion. See ⁽³⁴⁾ page 269. |
| 6 Do main reasons/key points stand out clearly? | Sort of | Some reasons are provided for particular arguments, but the points needed to support the conclusion do not stand out in the essay. |
| 7 Does the evidence support the main reasons given and the conclusion? | No | The author has not researched the topic well, and makes many unsubstantiated points. |
| 8 Does the conclusion follow logically from the line of reasoning? | No | There isn't a clear line of reasoning. |
| 9 Is the argument internally consistent, i.e. is it free of contradictions? | No | The essay contains inconsistencies, especially between the introduction and conclusion. See ⁽¹⁰⁾ and ⁽¹³⁾ page 267. |
| 10 Is all material relevant to the topic/core question? (Has inessential detail and description been cut?) | No | The material could be presented more succinctly in places, such as paragraphs 2 and 3. The Seligman model was not used in a relevant way once introduced (parag. 6). |
| 11 Does the piece consider alternative perspectives on the issue in a fair, even-handed way? | Sort of | Different angles on the topic are considered. In places, sources are (unfairly) mis-represented. See ^(12, 21) and ⁽²⁷⁾ pages 267–8. |
| 12 Is the piece free of emotive language? (page 103) | No | See ⁽³⁾ page 266. |
| 13 Is it free of flawed reasoning? (pages 92–108) | No | For example, it overstates some arguments, misrepresents sources, and contains a 'house of cards' fallacy. See ⁽²⁷⁾ page 268. |
| 14 Does the piece draw on good quality, reliable, relevant sources? (pages 109–28) | Sort of | A few authoritative sources are used, but the author has not researched widely to find reliable sources to support points. It relies too heavily on the texts on pages 243–8. |
| 15 Are all sources cited throughout, and then full details provided as a list of references? | No | See ⁽³⁴⁾ page 269. |

Commentary on sample essay 2

Relative strengths

- a Energetic writing captures interest.
- b Introduces some interesting potential avenues for exploring the topic, such as Seligman's PERMA model.
- c Contains many useful insights into student life from a student perspective.
- d The final sentence in the conclusion refers back precisely to the title.
- e Correct length.

Key weaknesses

- a **Does not define terms** such as 'well-being' – which is used in varied ways in the essay.
- b **Author's position is not clear.** This is because the line of argument is not consistent, and the introduction and conclusion do not complement each other well (see ⁽³³⁾ page 269).
- c **Weak reasoning.** There are many facts presented, but these do not amount to an argument. There is not a clear line of reasoning.
- d **Weak evidence base.** The author relies too much on the first set of texts (those provided on pages 234–8), irrespective of their authority, and does not use these as springboards to finding other, better resources. The essay does not draw sufficiently on reliable, authoritative sources – more research was need. Sources are also used incorrectly (see ⁽¹²⁾ and ⁽¹⁶⁾ page 267).
- e **Unsubstantiated assertions.** Evidence is not provided to support opinions and points made. It appears that the writer is just making good guesses (e.g. parag. 3).
- f **Emotive use of language:** see ⁽³⁾ below.
- g **Weak writing style:** the argument is overblown or exaggerated in several places, which undermines it.
- h **Unsubstantiated conclusion:** it doesn't follow logically from what has been presented (see ⁽³³⁾ page 269).
- i **Irrelevant material** is included, such as non-essential descriptive writing (e.g. the details of the PERMA model in paragraph 6, and the level of detail given about student life in early paragraphs).
- j **Vested interests** of the author appear to distort the argument (see ⁽⁴⁾ below).

Detailed analysis

⁽¹⁾ Opinion is presented as if it were fact. Evidence is not provided to support this fact. It is such a broad generalisation that it does not have much meaning.

⁽²⁾ Whilst many people might agree with this, not everyone does. Also, it could be argued that if there were a moral imperative to support students in this way, that would pertain whether or not they paid for their education. Assertions such as these undermine the credibility of the author.

⁽³⁾ Emotive and/or exaggerated language: 'lost generation' (parag. 1); 'astronomical proportions' (parag. 2); anxiety can be 'fatal' (parag. 5); 'financial meltdown' (parag. 11).

⁽⁴⁾ The argument for classes to start later in the day is not supported by reliable evidence – it is possible that this is a case of vested interest – something the author would prefer. The author mentions this several times (e.g. parag. 12).

⁽⁵⁾ Most of the paragraph provides a compelling sense of the difficulties facing students, although it is rather long and detailed for the word limit. A more concise version of this could have provided a possible structure for the essay, considering potential interventions for items considered most relevant to student well-being. However, many of these issues listed are not examined further in the essay. Also, note that the

Commentary on sample essay 2 (continued)

writer does not list student isolation, academic issues or sleep in this list, although these are considered as interventions elsewhere in the essay. Most of this paragraph appears to be opinion or first hand observation: there is no reference to any survey or report that shows these issues are key concerns for students. Even if they were, there is so much descriptive detail that it eats into the available word limit, reducing opportunities for providing critical analysis.

⁽⁶⁾ Whilst it would have been reasonable to argue that the transition into higher education could be stressful, this is not new, so it is not clear why this in itself would now lead to higher levels of stress or suicides than in the past.

⁽⁷⁾ 'lots' is too vague for an academic essay: (How many? How do we know?).

⁽⁸⁾ Similar point to ⁽⁵⁾ above. These descriptions could apply to many students in higher education. No evidence is provided to show whether these are significant, recorded issues rather than likely scenarios, nor to show whether there is a growing problem, nor whether measures to address these have had any success.

⁽⁹⁾ The author does not analyse the detail of information provided, and takes on face value the assertions of the writer of Text 1 (page 243). When reading text 1, the author should have questioned the conclusion: such small numbers (53 international respondents) do not establish a 'worldwide' concern.

⁽¹⁰⁾ The argument here is unclear and inconsistent, confusing cause and effect. The first sentence states that anxiety about academic work leads to poorer well-being; the next sentence states that well-being is the cause of good or bad achievement.

⁽¹¹⁾ If the writer had looked up the study by Woolf and Digby (2021), mentioned in text 1, it would have been immediately apparent that this referred to students of school age, not higher education. A closer reading of text 1 might also have suggested this was the case, as it refers to 'pupils'. The study is not relevant evidence for higher education. The essay does not make use of the best evidence and most authoritative texts available. The author could have used text 9 instead, to support points about GPA.

⁽¹²⁾ It would have been useful for the writer to look up, and refer directly, to the HEPI source mentioned by Pine and Messa (Text 6, page 245). That does not argue that poor and unhelpful feedback 'prove' anxiety, just that they are connected. It is also unfair to claim that just because helpful teaching and feedback could help reduce student anxiety, that makes them the *cause* of that anxiety. This is not what Pine and Messa argue, so the source is mis-used.

⁽¹³⁾ This is inconsistent with material on student transition to Higher Education given in paragraph 2, and also to some extent with paragraph 4.

⁽¹⁴⁾ Seligman's model provides an interesting angle and could have offered a structure for the whole essay. The writer could have worked through these systematically, considering what they meant for student well-being, and whether there were sleep-related well-being issues relevant to each, or to compare with other interventions on matters raised by the model. However, the writer, having introduced the model, does not use it systematically nor provide a critique. It now takes up too many words for the use made of it.

⁽¹⁵⁾ Confuses cause and effect. The evidence presented in this paragraph would suggest, rather, that interventions that help social relationships could enhance many factors (including sleep) that impact on well-being.

⁽¹⁶⁾ These are strong assertions. They might be true but no evidence is provided. These points are not made in the source cited (Text 2, page 243).

Commentary on sample essay 2 (continued)

- (17) It is not clear why the writer has moved to this focus on mindfulness: the argument is not well 'sign-posted'.
- (18) In using Texts 1 and 2, the writer does not take into account that these sources cannot, in themselves, be assumed to be reliable. The writer should check their sources. The essay draws on Text 2, (page 243) as its main source on mindfulness training, although its author is likely to have a vested interest.
- (19) The wording of this sentence is very similar to the original text, sometimes exactly the same, suggesting copying/plagiarism (see page 243).
- (20) Repeats an earlier section, wasting words.
- (21) This is not an accurate representation of what Goncharova has written in Text 12 – in many respects. For example, Goncharova does not state that this is the 'most' important issue and although she cites a report that recommends structured sports, she does not specify that this should be for immigrants and social studies students. The essay also mis-attributes research to Goncharova, who is providing expert opinion but based on other people's reports and data. Goncharova's argument is that other well-being issues are of greater concern (based on the data she draws from).
- (22) These are interesting opinions and suggestions, but have not been supported by evidence.
- (23) Mika's view (Text 8, page 245) is not necessarily representative of those of other students. The text should not be used as a reliable, representative source.
- (24) '*For many students, food is essential*'. This is a meaningless phrase that does not add to the argument in any way. It would be unusual for food of some kind not to be essential to any person, student or not.
- (25) This misquotes the statistics it is using: 70% was the figure given in Text 12, page 248.
- (26) The author posits an unsubstantiated cause:effect relationship: that students report unhealthy weight 'as a result of' their low consumption of fruit and vegetables. Whilst the two might well be connected, there could be other, more significant, reasons for unhealthy weight.
- (27) There are many specious arguments in this paragraph. The points made by Lysatte (Text 10) have been presented as if they were specifically about diet, rather than about HEIs' general responsibility for well-being. A 'castle of cards' scenario is presented, arguing that not intervening to improve student diet could be a major financial risk for institutions. For 'Castle of cards' flaws, see page 102.
- (28) This might well be true, but no source is provided to substantiate the fact. This could be just opinion or a good guess.
- (29) The source for this statistic is needed.
- (30) 'Research on this issue stretches back for decades, so it is time that something was done about it.' The argument is not well made. The existence of research on a topic does not, of itself, mean that action is required: it depends what the research findings were. The wording is also too colloquial for an academic assignment or formal report.
- (31) The argument goes adrift in this paragraph. It starts by focusing on academic stress and ends with points about BMI.
- (32) A conclusion should not introduce new arguments or material, such as that presented based on a text. It should be drawing together the reasoning already given.

Commentary on sample essay 2 (continued)

⁽³³⁾ The conclusion is poor. It makes a range of points but the connection between these is not always obvious: they do not follow a clear line of reasoning. That reflects the lack of a clear line of reasoning throughout the essay. The conclusion does not match the argument outlined in the introduction. The introduction suggests that the main interventions for well-being should be more learning support and rescheduling of classes. In contrast, the conclusion advocates sleep interventions, as these would improve student grades and help with weight issues and stress. It is not clear how the author arrived at that conclusion.

⁽³⁴⁾ Citations and referencing are poor. In many cases, sources are not provided in the text. In paragraph 6, no date is provided for the reference to work by Seligman. In the list of references, the writer has not provided full details for the Seligman source.

Not all items cited appear in the references (e.g. Shapiro, parag. 7). Items are not listed in alphabetic order. They are not in a consistent style: some start with the author's first name (Kate, Tom, Svetlana); others with the surname (Diehl, Orzech), others with an initial and surname (B. Ali). Some contain errors: the item by Lysatte is not written in full and the organisation's name is also not complete. In some the dates are incorrect (e.g. in Smarte's and Javek's items). Dates of publication are sometimes given immediately after the authors' names, at other times in random places. The punctuation varies from one item to the next: it should be consistent throughout. There are some typos or spelling errors: e.g. 'enviromental' rather than 'environmental' (fourth item), 'percieved' rather than 'perceived' (6th item).

Practice 2

The next two sample essays (3 and 4) are on the topic of global warming. A slightly different approach to analysing these is provided, using alternative lists of prompts, provided below and on page 281.

Practice 2a: Features of an argument

Read essay 3, 'Global Warming Requires a Global Solution', and identify the features of the argument, using the prompts below to assist you. Identify these in the *Comments* margin, listing them using the numbers below. If you do not have your own copy of the book, make a list using the paragraph numbers to help you compare your responses with those on pages 276–80.

| Prompts | Done ✓ (tick when completed) |
|---|---------------------------------|
| 1 Identify the sentence or sentences that sum up the main argument. | |
| 2 Identify the author's position. | |
| 3 Identify the summative conclusion. | |
| 4 Identify the overall logical conclusion. | |
| 5 Identify the main reasons given to support the logical conclusion. | |
| 6 Identify any intermediate conclusions used as reasons. | |
| 7 Identify evidence given to support reasons. | |
| 8 Identify descriptive text that provides background information for the reader. | |
| 9 Identify words used to signal the development of either the main argument or arguments leading to intermediate conclusions. | |
| 10 Identify any counter arguments put forward by the author. | |
| 11 Identify arguments by the author to address counter arguments. | |
| 12 Identify the use of reputable (authoritative) sources. | |
| 13 Identify where the author defines their terms (clarifies terminology used). | |
| 14 Identify reasons that support interim conclusions. | |

Practice 2(a): Features of an argument

Sample essay 3: 'Global Warming Requires a Global Solution'. Discuss.

- 1 The term 'global warming' is used to refer to what scientists more accurately refer to as 'climate change' (Nunez, 2019) and some refer to as climate 'crisis'. The rapid increase in the levels of heat-trapping greenhouse gases emitted since the industrial revolution, and carbon dioxide in particular, have led to large, extreme and complex changes in global weather, and are the focus of world-wide attention. It should be noted that these have caused severe warming effects in some regions but, at least in the short term, cooling in others. This essay will argue that the impact of human-caused climatic change makes a solution urgent but that, in so far as there is a 'global solution', this lies in taking on board that there is neither a single global solution nor an equal level of responsibility to address global warming. High Income Countries (HICs) and the highest emitting corporations should lead on taking action and bearing the costs.
- 2 Given the severity of the consequences, it is imperative to find a solution to global warming. According to the IPCC, climate change is already causing 'substantial damages and increasingly irreversible losses', greater than had been anticipated in previous decades, and with major negative consequence for most species and ecosystems, as well human health and socio-economic systems (IPCC, 2022). Since the IPCC's 2014 report, the world has seen not only increased temperatures and precipitation, rising sea levels and reduced food and water security, but also humanitarian crises and greater inequality. For the near-term (to 2040), even if a rise in global warming was limited to 1.5°C, it is estimated that this would merely reduce such damages but not eliminate them. To date, international agreements have not been able to find ways of limiting a rise below 2°C. The United Nations Environment Programme report estimated that actions taken to date would reduce emissions by 7.5% by 2030, but reductions of 55% are needed to reduce global warming. The incentive for global action now is to mitigate against, and limit, damage.
- 3 Despite the extensive research detailed in reports such as those of the IPCC, not everyone has accepted that global warming exists nor needs a solution. For example, thousands of scientists signed up to the Global Warming Petition Project (2008), arguing there was no evidence that carbon emissions would harm the environment. Since then, on the contrary, multiple studies have found over 90% scientific agreement on anthropogenic

Comments (Use prompts and numbers from page 270)

Practice 2(a): Features of an argument (continued)

(human-caused) climate change (Carlton, 2015). Nonetheless, such scepticism has been a threat to finding a solution, not least when such voices are raised in areas of high carbon emission, where there is the greatest need for action. Governments can be sensitive to such scepticism: the USA removed its name from the 2015 UN Paris Agreement in 2020, (although it re-signed it after a change of Government). Therefore, part of the solution is addressing harmful cynicism in high emitting countries.

- 4 However, the phrase 'a global solution' suggests that there is a single solution and/or a need for concerted action in a similar direction, by all individuals, countries or other entities. To some extent, the focus on reducing carbon emissions worldwide is an attempt at such a solution. The Paris Agreement (2015) is an international accord for reducing greenhouse gas emissions and limiting the increase in global average temperature to below two degrees Celsius. By 2022, 197 countries had signed up to this. Yet the agreement is not legally enforceable and each country will decide its own national targets. The impact of the Agreement will depend on how far each nation sets, and adheres to, ambitious targets for reduced emissions. In effect, there is not a single route even to reducing carbon emissions.
- 5 The phrase 'global solution' suggests that the burden for reducing carbon emissions should, or could, fall equally on a global basis. Whilst that might sound admirable at first glance, it is disputed on multiple grounds, not least because responsibility for high carbon emissions varies hugely across the world (Ritchie and Roser, 2022). Given that a differential solution seems justified, there are differing views on how to calculate what is fair – such as on a per capita or national basis, by emission or consumption, currently or cumulatively. Low-Income Countries (LICs) argue that (HICs) have played a greater role in raising carbon emissions historically, continue to have high carbon footprints, and continue to profit most from them. At COP26, Bruce Bilamon from the Marshall Islands pointed out that G20 nations are responsible for 80% of harmful emissions and called for them both to limit climate change and support LICs financially in mitigating existing damage such as from rising sea levels (SPREP, 2021). HICs have both a greater moral responsibility and the financial capacity to bear the brunt of addressing climate change.
- 6 Nonetheless, it could be argued that, as global warming is a problem for everyone, it still requires everyone to participate. Indeed, LICs have a vested interest, as they are most vulnerable to the climate crisis. This point was made by Sonam Wangdi,

Comments *(Use prompts and numbers from page 270)*

Practice 2(a): Features of an argument (continued)

chair of the UN's Least Developed Countries (LDC) Group on climate change. He stated: "Our existing plans are not enough to protect our people" and argued that LICs need to adapt plans now to mitigate against both existing and future damage (in Gyeltzen, 2021). It is understandable that LICs want to have control of such plans rather than wait on HICs to deliver. The UN (2021b), reported that HICs had failed in their commitment to provide \$100 billion a year by 2020 to support actions in LICs – 50% of which was for mitigation projects

- 7 Furthermore, LICs also need to take urgent action to alleviate poverty, but this is likely to raise global emission levels. Studies indicate that foreign direct investment (FDI), urbanisation and GDP per capita damage the environment most (Shah et al., 2022). Elliot (2015) noted that HICs also outsource manufacturing to LICs where costs are cheaper. This increases the demand for energy in LICs, most of which still comes from fossil fuel, adding to their carbon emissions. LICs are not well placed, financially, to address such issues. The Jubilee Debt Campaign (2022) argues that LICs contribute least to global warming, are affected the most, but cannot take action because of poverty and high levels of debt owed to HICs and global banks. The campaign calls for these debts to be cancelled, to release necessary resources. Other studies have shown that greater income equality is essential to sustainable development and environmental protection in LICs (Khan and Yahong, 2021). Addressing carbon emissions in isolation is not enough: addressing global poverty, income inequality and sustainable growth are also part of the solution to global warming.
- 8 It is difficult to leverage reduced use of fossil fuels in LICs and MICs, or indeed, through individual consumption in any country, when HICs continue to invest in them. Despite their relative wealth, the amount invested by HICs in fossil fuels between 2013–2019 actually increased; only France invested more in clean energy than fossil fuels (Ferris 2021). Also, HICs actively seek low-priced manufacturing options and imports from LICs and MICs reliant on those fuels or which affect carbon levels negatively on other ways, such as through deforestation. Furthermore, Byskov (2019) argues that, despite pressure on the public to take individual action, this is unlikely to yield the necessary change – which needs to come from key corporates. The Carbon Majors Report, cited in the Guardian, found that only 100 companies or state enterprises, mainly those producing fossil fuels, were responsible for nearly three quarters of global emissions in the last 30 years, with just 25 responsible for nearly half of industrial emissions (Riley, 2017).

Comments (Use prompts and numbers from page 270)

Practice 2(a): Features of an argument (continued)

HIC trading practices, investment in clean energy and radical action by corporates could all effect major beneficial climate change faster and more effectively than relying on LICs or the consumption patterns of billions of individuals globally.

- 9 The level, and global extent, of human-caused climatic change mean it is imperative that a solution is found. This needs to be global in its impact. As carbon emissions are a key factor in the climate crisis, it is logical that all nations look for ways of minimising these. However, it has to be recognised that not all countries bear equal responsibility nor have equal means to do so. Differential targets for carbon emissions for HICs and LICs are part of a global solution. Also, emissions cannot be addressed in isolation from other considerations, such as inequalities, poverty and sustainable growth. HIC trading and investment practices also need to change and the role of large corporations, in particular, has to be addressed. It is only in recognising and addressing these differential responsibilities and multiple actions that there is a global solution to global warming.

Comments (Use prompts and numbers from page 270)

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Practice 2(a): Features of an argument (continued)

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Comments (Use prompts and numbers from page 270)

Answers to Practice (2a)

Sample essay 3: 'Global Warming Requires a Global Solution'. Discuss.

- The term 'global warming' is used to refer to what scientists more accurately refer to as 'climate change' (Nunez, 2019)⁽¹³⁾ and some refer to as climate 'crisis'. The rapid increase in the levels of heat-trapping greenhouse gases emitted since the industrial revolution, and carbon dioxide in particular, have led to large, extreme and complex changes in global weather, and are the focus of world-wide attention. It should be noted that these have caused severe warming effects in some regions but, at least in the short term, cooling in others⁽⁸⁾. This essay will argue that the impact of human-caused climatic change makes a solution urgent but that, in so far as there is a 'global solution', this lies in taking on board that there is neither a single global solution nor an equal level of responsibility to address global warming⁽¹⁾. High Income Countries (HICs) and the highest emitting corporations should lead on taking action and bearing the costs⁽²⁾.
- 2 Given the severity of the consequences, it is imperative to find a solution to global warming^(5, 6). According to the IPCC, climate change is already causing 'substantial damages and increasingly irreversible losses', greater than had been anticipated in previous decades, and with major negative consequence for most species and ecosystems, as well human health and socio-economic systems⁽¹⁴⁾ (IPCC, 2022)⁽¹²⁾. Since the IPCC's 2014 report, the world has seen not only increased temperatures and precipitation, rising sea levels and reduced food and water security, but also humanitarian crises and greater inequality⁽⁷⁾. For the near-term (to 2040), even if a rise in global warming was limited to 1.5°C, it is estimated that this would merely reduce such damages but not eliminate them. To date, international agreements have not been able to find ways of limiting a rise below 2°C⁽⁸⁾. The United Nations Environment Programme report¹² estimated that actions taken to date would reduce emissions by 7.5% by 2030, but reductions of 55% are needed to reduce global warming. The incentive for global action now is to mitigate against, and limit, damage⁽¹⁴⁾.

Comments

Numbers in the text and below refer to the prompts table on page 270.

¹³ The first few sentences define and clarify terminology used in the essay.

⁸ These two sentences provide useful background information to clarify the issue.

¹ This sentence sums up the main argument.

² This sums up the author's position.

^{5, 6} Intermediate conclusion: the author uses this to establish that a solution is needed at all. This is also a reason that supports the overall logical conclusion.

¹⁴ Reasons supporting the intermediate conclusion.

¹² Use of authoritative sources.

⁷ These lists provide reasons and evidence to support the claim (intermediate conclusion) that a solution is needed.

⁸ *Background information: failure to find a solution to date.*

¹⁴ Reasons supporting the intermediate conclusion.

Answers to Practice (2a) (continued)

- 3 Despite the extensive research detailed in reports such as those of the IPCC, not everyone has accepted that global warming exists nor needs a solution⁽¹¹⁾. For example, thousands of scientists signed up to the Global Warming Petition Project (2008), arguing there was no evidence that carbon emissions would harm the environment. Since then, on the contrary⁽⁹⁾, multiple studies have found over 90% scientific agreement on anthropogenic (human-caused) climate change (Carlton, 2015)^(11, 12). Nonetheless⁽⁹⁾, such scepticism has been a threat to finding a solution, not least when such voices are raised in areas of high carbon emission, where there is the greatest need for action. Governments can be sensitive to such scepticism: the USA removed its name from the 2015 UN Paris Agreement in 2020, (although it re-signed it after a change of Government)⁽⁷⁾. Therefore⁽⁹⁾, part of the solution is addressing harmful cynicism in high emitting countries⁽⁶⁾.
- 4 However⁽⁹⁾, the phrase 'a global solution' suggests that there is a single solution and/or a need for concerted action in a similar direction, by all individuals, countries or other entities. To some extent, the focus on reducing carbon emissions worldwide is an attempt at such a solution. The Paris Agreement (2015)⁽⁸⁾ is an international accord for reducing greenhouse gas emissions and limiting the increase in global average temperature to below two degrees Celsius. By 2022, 197 countries had signed up to this. Yet⁽⁹⁾ the agreement is not legally enforceable and each country will decide its own national targets. The impact of the Agreement will depend on how far each nation sets, and adheres to, ambitious targets for reduced emissions⁽⁵⁾. In effect, there is not a single route even to reducing carbon emissions⁽⁶⁾.
- 5 The phrase 'global solution' suggests that the burden for reducing carbon emissions should, or could, fall equally on a global basis. Whilst that might sound admirable at first glance, it is disputed on multiple grounds, not least because responsibility for high

¹¹ Consideration of a counter argument.

⁹ 'on the contrary' and 'nonetheless' signal that the author is about to counter a point in (or potential impression left by) the previous sentence.

^{11, 12} Here the author addresses (counters) the counter argument, using an authoritative source.

⁷ Evidence supporting the interim conclusion below.

⁹ 'Therefore' signposts the interim conclusion that follows.

⁶ Interim conclusion: the author is arguing that cynicism is part of the risk.

⁹ 'However' signposts that the author is about to make a different point.

⁸ This paragraph gives background to the Paris Agreement.

⁹ 'Yet' signposts that the author is going to challenge the impression made by the previous point, that all have signed up to one solution.

^{5, 6} Interim conclusion: this supports the logical conclusion (asserted in the introduction), that there is not a single global solution.

Answers to Practice (2a) (continued)

carbon emissions varies hugely across the world (Ritchie and Roser, 2022)⁽¹⁴⁾. Given that a differential solution seems justified, there are differing views on how to calculate what is fair – such as on a per capita or national basis, by emission or consumption, currently or cumulatively. Low-Income Countries (LICs) argue that (HICs) have played a greater role in raising carbon emissions historically, continue to have high carbon footprints, and continue to profit most from them⁽¹⁴⁾. At COP26, Bruce Bilamon from the Marshall Islands pointed out that G20 nations are responsible for 80% of harmful emissions and called for them both to limit climate change and support LICs financially in mitigating existing damage such as from rising sea levels (SPREP, 2021). HICs have both a greater moral responsibility and the financial capacity to bear the brunt of addressing climate change⁽⁶⁾.

- 6 Nonetheless⁽⁹⁾, it could be argued that, as global warming is a problem for everyone, it still requires everyone to participate^(6, 11). Indeed, LICs have a vested interest, as they are most vulnerable to the climate crisis. This point was made by Sonam Wangdi, chair of the UN's Least Developed Countries (LDC) Group on climate change. He stated: "Our existing plans are not enough to protect our people"⁽¹⁴⁾ and argued that LICs need to adapt plans now to mitigate against both existing and future damage (in Gyeltzen, 2021). It is understandable that LICs want to have control of such plans rather than wait on HICs to deliver. The UN (2021b), reported that HICs had failed in their commitment to provide \$100 billion a year by 2020 to support actions in LICs – 50% of which was for mitigation projects.
- 7 Furthermore⁽⁹⁾, LICs also need to take urgent action to alleviate poverty, but this is likely to raise global emission levels. Studies indicate that foreign direct investment (FDI), urbanisation and GDP per capita damage the environment most (Shah et al. 2022)⁽⁷⁾. Elliot (2015) noted that HICs also outsource manufacturing to LICs where costs are cheaper⁽⁷⁾. This increases the demand for energy in LICs, most of which still comes from fossil fuel, adding to their carbon emissions. LICs are not well placed, financially,

¹⁴ A set of reasons follows, to support the intermediate conclusion below⁽⁶⁾.

⁶ The intermediate conclusion is a reason supporting the overall argument (and logical conclusion) that there is not an equal level of responsibility for reducing carbon emissions.

⁹ 'nonetheless' signals that an alternative, or counter argument is being introduced.

⁶ Intermediate conclusion: global warming is a concern for all and requires all countries to play a role in reducing emissions.

¹¹ The author considers an alternative perspective (or counter argument): i.e., that it is not only HICs that should take action.

¹⁴ The reason given to support this: we are already seeing the impact of climate change and need to act now.

⁹ 'furthermore' signals that the author will reinforce the argument being made, adding further reasons to support it.

⁷ Evidence to support the intermediate conclusion below.

Answers to Practice (2a) (continued)

to address such issues⁽¹⁴⁾. The Jubilee Debt Campaign (2022) argues that LICs contribute least to global warming, are affected the most, but cannot take action because of poverty and high levels of debt owed to HICs and global banks⁽¹⁴⁾. The campaign calls for these debts to be cancelled, to release necessary resources. Other studies have shown that greater income equality is essential to sustainable development and environmental protection in LICs (Khan and Yahong, 2021)^(7, 12). Addressing carbon emissions in isolation is not enough: addressing global poverty, income inequality and sustainable growth are also part of the solution to global warming^(3, 6).

- 8 It is difficult to leverage reduced use of fossil fuels in LICs and MICs, or indeed, through individual consumption in any country, when HICs continue to invest in them. Despite their relative wealth, the amount invested by HICs in fossil fuels between 2013–2019 actually increased; only France invested more in clean energy than fossil fuels (Ferris 2021)⁽¹⁴⁾. Also⁽⁹⁾, HICs actively seek low-priced manufacturing options and imports from LICs and MICs reliant on those fuels or which affect carbon levels negatively on other ways, such as through deforestation⁽¹⁴⁾. Furthermore⁽⁹⁾, Byskov (2019) argues that, despite pressure on the public to take individual action, this is unlikely to yield the necessary change – which needs to come from key corporates⁽¹⁴⁾. The Carbon Majors Report, cited in the Guardian, found that only 100 companies or state enterprises, mainly those producing fossil fuels, were responsible for nearly three quarters of global emissions in the last 30 years, with just 25 responsible for nearly half of industrial emissions⁽⁷⁾ (Riley, 2017). HIC trading practices, investment in clean energy and radical action by corporates could all effect major beneficial climate change faster and more effectively than relying on LICs or the consumption patterns of billions of individuals globally^(3, 6).

¹⁴ Reasons to support the intermediate conclusion below.

^{7, 12} Evidence to support the reasoning, taken from reputable source (peer reviewed journal article).

^{3, 6} Summative conclusion of the paragraph, that is also a logical and intermediate conclusion.

¹⁴ Reasons given to support the intermediate conclusion below.

⁹ 'Also' and 'furthermore' signal that the author is about to reinforce the direction of the argument.

⁷ Evidence to support the point.

^{3, 6} Summative conclusion that is also an Intermediate conclusion.

Answers to Practice (2a) (continued)

9 ⁽³⁾The level, and global extent, of human-caused climatic change mean it is imperative that a solution is found. This needs to be global in its impact. As carbon emissions are a key factor in the climate crisis, it is logical that all nations look for ways of minimising these. However, it has to be recognised that not all countries bear equal responsibility nor have equal means to do so. Differential targets for carbon emissions for HICs and LICs are part of a global solution. Also, emissions cannot be addressed in isolation from other considerations, such as inequalities, poverty and sustainable growth. HIC trading and investment practices also need to change and the role of large corporations, in particular, has to be addressed. It is only in recognising and addressing these differential responsibilities and multiple actions that there is a global solution to global warming⁽⁴⁾.

³ This paragraph is a summative conclusion for the essay as a whole.

⁴ The overall logical conclusion. This links the conclusion back to the essay title, which strengthens the presentation of the argument.

Practice 2(b): Finding flaws in the argument



- Read the second essay on global warming, below. Identify flaws in the argument. Use the numbered prompts below as a checklist to assist you. NB Note that the practice passage does not contain all of the flaws on the list and some flaws occur more than once.
- Label and number each of your answers in the *Comments* margin, next to each flaw you identify. If you do not have your own copy of the book, make a list using the paragraph numbers to help you check your responses, or use the copy on the Companion site.

| Prompts | Example(s) found (✓) | There is no example (X) | See page |
|--|----------------------|-------------------------|----------|
| 1 False premises | | | 82 |
| 2 Two wrongs don't make a right | | | 106 |
| 3 Stereotyping | | | 88 |
| 4 Lack of consistency in the argument | | | 61-4 |
| 5 Unnecessary background information | | | 50, 160 |
| 6 Lack of precision | | | 61 |
| 7 Assumption that is not supported by the evidence | | | 76-81 |
| 8 Incorrectly assuming a causal link | | | 92 |
| 9 False correlation | | | 93 |
| 10 Meeting necessary conditions | | | 95 |
| 11 Meeting sufficient conditions | | | 97 |
| 12 False analogy | | | 98 |
| 13 Deflection | | | 100 |
| 14 Complicity | | | 100 |
| 15 Exclusion | | | 100 |
| 16 Unwarranted leaps (e.g. castle of cards; sleight of hand) | | | 102 |
| 17 Emotive language | | | 103 |
| 18 Attacking the person | | | 103 |
| 19 Misrepresentation | | | 105 |
| 20 Trivialisation | | | 105 |
| 21 Tautology | | | 106 |
| 22 Poor referencing | | | 176-7 |

Practice 2(b): Finding flaws in the argument (continued)

Sample essay 4: 'Global Warming Requires a Global Solution'. Discuss.

- 1 Global warming is affecting all of us. We are constantly bombarded with worrying media items about environmental degradation, melting ice-caps, rising sea levels and forest fires. Everyone is trying to play their part, whether recycling clothes, reducing their carbon footprint or planting trees. Veganism is on the rise to help reduce animal emissions. Some people ration the holidays they take or the amount of time they spend on social media and recharging their device. The Paris Agreement was agreed in 2015 as a means of limiting long-term climate change or 'global warming' by asking countries to sign up to reductions in greenhouse gas emissions. It seeks to limit overall increase in global temperature to below two degrees Celsius over the next few years, following its official ratification in 2021. Although many countries have now signed up, actions taken by High-, Medium- and Low-Income Countries (HICS, MICS and LICs) have fallen short.
- 2 The Intergovernmental Panel on Climate Change (IPCC) report suggests that we have probably left it too late to make the changes suggested by the Paris Agreement. Even if all carbon dioxide emissions ceased today, there would be ongoing climatic changes and global warming leading to effects such as rising sea levels and subsequent contamination of drinking water. It argues that effects will be disruptive and at worst catastrophic. We must act now and make it a crime to deny climate change.
- 3 Given the consequences of climate change, it is madness for any nation not to set ambitious targets for action. Those countries not setting ambitious targets have generally failed to invest in sustainable energy projects. Indeed, many LICs are actually increasing their use of dangerous fossil fuels. Most HICS have invested in large and costly projects to reduce harmful carbon emissions and are now making a positive difference to climate change, but most LICs have not. This shows that some countries are in denial about the cause and impact of climate change. After years of struggle to get High-Income Countries (HICs) to reduce emissions we now face a situation where many ignorant politicians in Low-Income Countries (LICs) are refusing to take action and are boosting the rate of emissions. LICs are using the threats created by climate change as political leverage on the global stage. The world needs to hold these LICs to account for behaviour that amounts, in effect, to criminal negligence, and penalise them if they refuse to set ambitious targets to reduce emissions.
- 4 This behaviour must really stick in the throats of HICs. Having worked hard to reduce emissions and ratify the Paris Agreement, the very countries they have been seeking to protect and support, LICs, suddenly decide that they could and should have got a better deal. Having complained about the impact of HICs' burning fossil fuel through industry, LICs seem to think

Comments (Use prompts and numbers from page 281)

Practice 2(b): Finding flaws in the argument (continued)

it is reasonable for them to now increase their own emissions through industrialisation. Although Wangdi says every nation has a role to play, he complains that HICs have not done enough to provide the promised financial support to LICs – the \$100 billion a year they promised. In effect, Wangdi is saying LICs have a moral right not to reduce emissions. This suggests Wangdi doesn't trust HICs and their commitment to funding LICs to take action against climate change, even though considerable funding has been provided. The position of LICs is rather like children refusing to eat a perfectly good meal put in front of them because it's not exactly what they wanted to eat. Ultimately, refusing to eat only hurts them in the end.

- 5 This sense of a hollow argument is increased when one looks at the real reasons LICs are jumpy about taking action – using cheap fossil fuels gives them cheap industry costs, which enables them to take business away from HICs who use costlier but cleaner energy. Even though there is clear evidence of the damage this is causing to the planet, politicians in LICs are absolutely ridiculous, believing that the most important consideration is that they are allowed to pollute their way towards full industrialisation!
- 6 LICs have suggested that it is not fair of HICs to expect them to set and implement action plans as it would mean taking actions and introducing restrictions that HICs have been reluctant to introduce themselves. In many cases, LICs are only burning more fossil fuels now because HICs have ceased some of their polluting activities but still want to buy products or services cheaply from developing nations that have a heavy use of fossil fuels. Whilst complaining about HICs not doing enough to support renewable forms of energy, some LICs are very keen to preserve the economic advantage that burning fossil fuels is now giving them. They have a vested interest in seeing the Agreement fail.
- 7 Ultimately, these countries' failures to address rising global temperatures means that they are laying the seeds of their own future misfortunes. Long-term global warming is anticipated to cause significant climate changes, so they will have to deal with flooding in their cities and tourist areas and drought in agricultural areas. However, as these do not have an impact on them now, LICs feel justified in this short-term strategy of making money and protecting their own interests first. This leads to them claiming that it is only fair that LICs get their chance to do what HICs got rich on doing for years. They are making an economic argument rather than a humanitarian one. They think that economic advantage is more important than people's lives. Obviously, the actions of LICs are unacceptable. Everybody knows people can't opt out of taking action just because it doesn't suit them. We all have to be part of the global solution to global warming.

Comments (Use prompts and numbers from page 281)

Practice 2(b): Finding flaws in the argument (continued)

References

United Nations Treaty Collection *The Paris Agreement* https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&lang=en.

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Comments (Use prompts and numbers from page 281)

Answers to Practice 2b: Finding flaws in the argument

| Prompts | Examples found | There is no example | See page |
|--|----------------|---------------------|----------|
| 1 False premises | ✓ | | 82 |
| 2 Two wrongs don't make a right | | ✓ | 106 |
| 3 Stereotyping | ✓ | | 88 |
| 4 Lack of consistency in the argument | | ✓ | 61–4 |
| 5 Unnecessary background information | ✓ | | 50, 160 |
| 6 Lack of precision | ✓(4) | | 61 |
| 7 Assumption that is not supported by the evidence | ✓(4) | | 76–81 |
| 8 Incorrectly assuming a causal link | | ✓ | 92 |
| 9 False correlation | | ✓ | 93 |
| 10 Meeting necessary conditions | ✓ | | 95 |
| 11 Meeting sufficient conditions | | ✓ | 97 |
| 12 False analogy | ✓ | | 98 |
| 13 Deflection | ✓ | | 100 |
| 14 Complicity | ✓ (2) | | 100 |
| 15 Exclusion | | ✓ | 100 |
| 16 Unwarranted leaps (e.g. castle of cards; sleight of hand) | ✓ (3) | | 102 |
| 17 Emotive language | ✓ (2) | | 103 |
| 18 Attacking the person | ✓ (2) | | 103 |
| 19 Misrepresentation | ✓ (2) | | 105 |
| 20 Trivialisation | ✓ | | 105 |
| 21 Tautology | ✓ | | 106 |
| 22 Poor referencing | ✓ (3) | | 176–7 |

Answers to Practice 2b: Finding flaws in the argument

Sample essay 4: 'Global Warming Requires a Global Solution'. Discuss.

- 1 Global warming is affecting all of us. We are constantly bombarded with worrying media items about environmental degradation, melting ice-caps, rising sea levels and forest fires. Everyone is trying to play their part, whether recycling clothes, reducing their carbon footprint or planting trees. Veganism is on the rise to help reduce animal emissions. Some people ration the holidays they take or the amount of time they spend on social media and recharging their devices⁽⁵⁾. The Paris Agreement was agreed in 2015 as a means of limiting long-term climate change or 'global warming' by asking countries to sign up to reductions in greenhouse gas emissions. It seeks to limit overall increase in global temperature to below two degrees Celsius over the next few years⁽⁶⁾, following its official ratification in 2021. Although many countries⁽⁶⁾ have now signed up, actions taken by High-, Medium- and Low-Income Countries (HICS, MICS and LICs) have fallen short.
- 2 The Intergovernmental Panel on Climate Change (IPCC) report⁽⁶⁾ suggests that we have probably left it too late to make the changes suggested by the Paris Agreement. Even if all carbon dioxide emissions ceased today, there would be ongoing climatic changes and global warming leading to effects such as rising sea levels and subsequent contamination of drinking water. It argues that effects will be disruptive and at worst catastrophic. We must act now and make it a crime to deny climate change^(10, 19).

Comments

Numbers in the text and below refer to the table on page 281.

⁵ These opening descriptive sentences do not provide background information that is specific to the argument.

⁶Lack of precision: the phrases the 'next few years' and 'many countries' are vague. The author should state the exact timescales and, for the treaty, the specific number of signatories at a given date. (See essay 3, parag. 4.)

⁶ Lack of precision as no date given: there could be more than one IPCC report.

¹⁰ The necessary conditions for the argument that we must make it a crime to deny climate change have not been met. The author has not shown why, in order to reduce global warming, it is necessary to criminalise a particular point of view: potentially, it could be achieved without criminalisation.

¹⁹ Adding this final sentence to a paragraph describing the IPCC report, creates the suggestion that the IPCC had proposed making climate denial a crime.

Answers to Practice 2b: Finding flaws in the argument

- 3 Given the consequences of climate change, it is madness for any nation not to set ambitious targets for action⁽¹⁷⁾. Those countries not setting ambitious targets have generally failed to invest in sustainable energy projects. Indeed, many LICs are actually increasing their use of dangerous fossil fuels. Most HICs have invested in large and costly projects to reduce harmful carbon emissions and are now making a positive difference to climate change, but most LICs have not. This shows that some countries are in denial about the cause and impact of climate change^(7, 16). After years of struggle to get High-Income Countries (HICs) to reduce emissions we now face a situation where many ignorant politicians⁽¹⁸⁾ in Low-Income Countries (LICs) are refusing to take action and are boosting the rate of emissions. LICs are using the threats created by climate change as political leverage on the global stage. The world needs to hold these LICs to account for behaviour that amounts, in effect, to criminal negligence, and penalise them if they refuse to set ambitious targets to reduce emissions.
- 4 This behaviour must really stick in the throats of HICs⁽¹⁷⁾. Having worked hard to reduce emissions and ratify the Paris Agreement, the very countries they have been seeking to protect and support, LICs, suddenly decide that they could and should have got a better deal. Having complained about the impact of HICs' burning fossil fuel through industry, LICs seem to think it is reasonable for them to now increase their own emissions through industrialisation⁽³⁾. Although Wangdi⁽²²⁾ says every nation has a role to play, he complains that HICs have not done enough to provide the promised financial support to LICs – the \$100 billion a year they promised. In effect, Wangdi is saying LICs have a moral right not to reduce emissions^(19, 4). This suggests Wangdi doesn't trust HICs and their commitment to funding LICs to take action against climate change, even though considerable funding has been provided. The position of LICs is rather like children refusing to eat a perfectly good meal

¹⁷ Use of emotive language with the phrase 'it is madness'.

^{7,16} Series of assumptions and unwarranted leaps are made throughout this paragraph; supporting evidence is not provided nor any source of information cited. It is possible that none of these claims are true. A 'castle of cards' argument is then constructed on the basis of these assumptions (that of criminal negligence that should be penalised). No consideration is given to other plausible arguments for LIC behaviours, if they were indeed shown to be as described, such as starting from a lower carbon footprint, for example, or lacking the finance to invest in such projects.

¹⁸Attacking the person. Referring to politicians in LICs as 'ignorant' is a way of undermining their argument.

¹⁷ Emotive language: ('stick in the throats'). The style is also too colloquial.

³ It is stereotyping to suggest that all LICs act in the same way (that they are all more concerned with industrialisation than global warming).

²² Poor referencing. No date is given for this citation for Wangdi, and the source is not included in the references. (Compare this with Practice 1.)

^{19, 4} Misrepresentation. The author misrepresents Wangdi's views: Wangdi does not suggest that the failure of HICs to provide promised funding gives LICs a right not take actions. This point is also inconsistent with what the author has noted above, that Wangdi says every nation has a role to play.

Answers to Practice 2b: Finding flaws in the argument

put in front of them because it's not exactly what they wanted to eat. Ultimately, refusing to eat only hurts them in the end^(12, 20).

- 5 This sense of a hollow argument is increased when one looks at the real reasons LICs are jumpy about taking action – using cheap fossil fuels gives them cheap industry costs, which enables them to take business away from HICs who use costlier but cleaner energy⁽⁷⁾. Even though there is clear evidence of the damage this is causing to the planet, politicians in LICs are absolutely ridiculous⁽¹⁸⁾, believing that the most important consideration is that they are allowed to pollute their way towards full industrialisation^(7, 14)!
- 6 LICs have suggested that it is not fair of HICs to expect them to set and implement action plans as it would mean taking actions and introducing restrictions that HICs have been reluctant to introduce themselves⁽²²⁾. In many cases, LICs are only burning more fossil fuels now because HICs have ceased some of their polluting activities but still want to buy products or services cheaply from developing nations that have a heavy use of fossil fuels⁽⁴⁾. Whilst complaining about HICs not doing enough to support renewable forms of energy, some LICs are very keen to preserve the economic advantage that burning fossil fuels is now giving them⁽⁷⁾. They have a vested interest in seeing the Agreement fail⁽¹⁶⁾.
- ¹² False analogy. This looks like a reasonable analogy, suggestive of hypocritical behaviour. However, it is a poor analogy: parents have a different relationship to their children from that between HICs and LICs. The issue here is of HICs failing to honour a commitment, leaving LICs under-resourced. The argument about children's food choices relates to lifestyle preference by the child, not that insufficient food was provided.
- ²⁰ The argument in general, and particularly the analogy to children, trivialises the position of LICs, and what it actually means to be 'low income' in this context.
- ⁷ Unsupported assumption. The author assumes that LICs are taking business from developed countries but gives no evidence to support this nor considers that fuel might not be the most salient production cost.
- ¹⁸ Attacking the Person, calling LIC politicians 'absolutely ridiculous'.
- ⁷ Assumption. The author assumes that LIC's prime concern is full industrialisation; no evidence is given to support this.
- ¹⁴ Complicity. The writing style here and the use of the exclamation mark suggest the author is making the audience feel they must agree or else they would be ridiculous too.
- ²² Poor referencing. There is a potentially relevant article given in the references section, but this is not cited in this statement.
- ⁴ Lack of consistency: this suggests that HICs have responsibility for adding to the carbon footprint of LICs. This runs counter to the argument presented in most of the essay, including the following sentence, which is to blame LICs.
- ⁷ Assumption: that LICs have an economic advantage. This assertion is not substantiated.
- ¹⁶ Unwarranted leap. The author uses sleight of hand here. There is no evidence to suggest that LICs have a vested interest in seeing the Agreement fail.

Answers to Practice 2b: Finding flaws in the argument

7 Ultimately, these countries⁽⁶⁾ failures to address rising global temperatures means that they are laying the seeds of their own future misfortunes. Long-term global warming is anticipated to cause significant climate changes, so they will have to deal with flooding in their cities and tourist areas and drought in agricultural areas. However, as these do not have an impact on them now, LICs feel justified in this short-term strategy of making money and protecting their own interests first⁽¹⁾. This leads to them claiming that it is only fair that LICs get their chance to do what HICs got rich on doing for years. They are making an economic argument rather than a humanitarian one. They think that economic advantage is more important than people's lives⁽²¹⁾. Obviously, the actions of LICs are unacceptable⁽¹³⁾. Everybody knows⁽¹⁴⁾ people can't opt out of taking action just because it doesn't suit them. We all have to be part of the global solution to global warming⁽¹⁶⁾.

References

United Nations Treaty Collection *The Paris Agreement* https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&lang=en.

M. Le Page, (2016) – *Developing Nations Urged to Boycott Paris Agreement Signing*, Climate Home <http://www.climatechangenews.com/2016/03/29/developing-nations-urged-to-boycott-paris-agreement-signing> downloaded 15/4/16

Grassroots Global Justice Alliance – *Call to Action: The COP21 Failed Humanity*, <http://ggjalliance.org/ParisFailure2015>.

Feeling the Heat: The Politics of Climate Change in Rapidly Industrializing Countries (2012) (Basingstoke: Palgrave Macmillan). Bailey, I. and Compston, H.

⁶ Lack of precision: 'these countries'. It is not clear to which countries this refers.

¹ False premise. The argument here is that LICs' strategy for economic development is based on the premise that they are not currently affected by climate change. That is a false premise – they are the most seriously affected.

²¹ Tautology. The two sentences here rephrase the same idea in different words. This produces unnecessary repetition without adding any new point to the conclusion.

¹³ Deflection. The author uses the word 'obviously' to imply that the argument has been 'proved'.

¹⁴ Complicity. The statement 'everybody knows' makes it more difficult for the reader to disagree with the argument.

¹⁶ Sleight of hand: by finishing on a strong assertion, the author suggests, incorrectly, that this point has now been proved by the essay.

²²The list of references is not complete. References are not laid out in a correct and consistent format.

No date is given for some and most sources appear to be relatively old for such a fast-evolving topic.

Some references given here are not cited in the text itself.

Compare these with the list of references in practice essay 3 (pages 274–5).

Appendix: Selected search engines and databases for online literature searches

Academic Search Complete. EBSCO.com
Good for media, arts, architecture research.

APA PsycINFO. www.apa.org/psycinfo A subscription-based database. The largest database for psychology, behavioural science and mental health articles, drawing on journals in c 30 languages.

Capital IQ. A huge financial database, useful for business research. Students can request an account.

Cinhal-plus-full-text. www.ebscohost.com A free nursing and health care database.

CORE. Focuses on open access academic research papers. Links to full texts. Covers c 150 million items.

EBSCO Business Source Complete. A database of academic business and management journals plus national and company reports.

Embase. www.embase.com Subscription-based biomedical and pharmaceutical database.

ERIC on ProQuest. A database of educational books, articles and resources.

Factiva. For business research. A large global database of newspapers and trade journals.

Google Books. To browse thousands of books, examine pages, find reviews, locate hard copies.

Google Scholar. Free to use. Millions of abstracts of peer-reviewed articles and from recognised academic and professional sources, with links to full texts. Links to citations. Multiple export formats for citations. A good starting place to look up academic articles.

Jstor. <https://www.jstor.org/> Covers over 12 million journal articles, books, images, and primary sources in 75 disciplines.

Lexis. <https://www.lexisnexis.com/uk/legal/> For legal research.

Microsoft Academic. Similar to Google Scholar. Good search facilities, synopses of items, easy movement to related articles, and multiple export formats for citations.

PubMed. www.ncbi.nlm.nih.gov/pubmed/ Large biomedical and life sciences database.

PubMed Health. For health-related research: covers over 26 million articles.

RefSeek. A free, niche search engine that covers a billion documents from academic and organisational websites. Easy to use for new researchers and students.

ScienceDirect. www.sciencedirect.com A search engine dedicated to science, health and technology. Searches books, journals and open access content. Also covers humanities and social sciences.

Science.gov. Free access to search results from multiple federal agencies in the USA. Access to millions of pages of abstracts and links to the full text. Multiple export formats for citations. Results can be filtered by author, date, topic and whether text or media.

Scopus. A large database of science and social sciences abstracts and peer-reviewed titles from international publishers, including open access.

Semantic Scholar. Aims to provide more relevant search results. Covers over 40 million articles. Provides abstracts and links to full texts. Multiple export formats.

Web of Science. For science, technology engineering, medicine and, to some extent, social sciences, arts and humanities.

WorldWideScience. Run by a US government department, this draws on databases of academic science journals from over 70 countries. Searches give results in English and articles' first language.

Answers to activities in Chapter 2

Assess your thinking skills (p. 20)

Use the scoring sheet on page 24 to record your answers.

Comparison (p. 20)

- A** The odd box is 5. In all the other boxes, the line of circles in the second row is larger than in the other rows. Score 1 for a correct answer.
- B** The odd box is 1. In all the other boxes, the set of scissors in the bottom right-hand corner has white blades whereas the set in box 1 has black blades. Score 1 for a correct answer.
- C** The odd box is 4. The left-hand image in the bottom row is presented back to front in this box. Score 1 for a correct answer.
- D** The odd box is 6. The middle item in this box is different. Score 1 for a correct answer.

Sequence (pp. 20–1)

- A** Selection 1. Score 1 for a correct answer. The first three boxes repeat a pattern, with the tail to the right. The next set repeat the pattern with the tail to the left. Score 1 for identifying the reason correctly.
- B** Selection 4. Score 1 for a correct answer. Every second box has the same pattern. Score 1 for identifying the reason correctly.
- C** Selection 5. Score 1 for a correct answer. In each successive box, the top row from the previous box becomes the bottom row. Score 1 for identifying the reason correctly.
- D** Selection 2. Score 1 for a correct answer. Stars increase by one for the first three boxes then start again from one. Stars also move from top to bottom in alternate boxes. Boxes 4 and 5 start to repeat the same sets of lines ($=$, \leq and \geq) as earlier boxes, but these alternate between being at the top or the bottom of the box. Score 2 for identifying the reason correctly.

Categorising (p. 21)

- A** (i) Parts of a computer: mouse, drive, printer, monitor, screen.
- (ii) Verbs (or words ending in -ing): typing, talking, scrolling, eating.

Score 1 for categorising items correctly.

Score 1 for identifying why group (i) items belong together.

Score 1 for identifying why group (ii) items belong together.

- B** (i) Items associated with Egypt: pyramid, oasis, palm-tree, desert, Nile.

- (ii) Words that indicate that something is large: immense, vast, massive, enormous, gigantic.

Score 1 for categorising items correctly.

Score 1 for identifying why group (i) items belong together.

Score 2 for identifying why group (ii) items belong together.

- C** (i) Precious stones: agate, topaz, ruby, opal.
- (ii) Precious metals: gold, silver, platinum.

Score 1 for categorising items correctly.

Score 1 for identifying why group (i) items belong together.

Score 2 for identifying why group (ii) items belong together.

- D** (i) Words beginning with a capital letter: Empty, Gate, Shoal, Divan, Kenya, Pound.

- (ii) Words that begin in the lower case (i.e. without a capital letter): chops, hertz, micro, burst.

Score 1 for categorising items correctly.

Score 1 for identifying why group (i) items belong together.

Score 1 for identifying why group (ii) items belong together.

Following directions (p. 21)

The aim of this activity was to enable you to check how closely you followed directions, especially when not forewarned. Academic work and exams usually require you to answer the question exactly as it is worded.

- A** Answer 4 is correct: a cow has four legs. If you answered C, check the exact wording of the question again: it only asks how many legs a cow has. Score 2 for a correct answer.

Answers to activities in Chapter 2 (continued)

- B** Answer 1 is correct: water is comprised of oxygen and hydrogen. This is all that the question asks. Although the other responses may be true, they do not answer the exact question posed. Score 2 for a correct answer.

Close reading (pp. 22–3)

The Arctic

Score 1 for each correct answer.

- B** The passage does state that summers are short but the main argument is that conditions in the Arctic are harsh.
- C** This may be true or false: the passage does not say.
- B** Untrue. The passage says the sun doesn't appear for three months – but it can during the rest of the year.
- A** True – this follows logically. The passage states that there is no daylight for three months.
- C** The passage does not give enough information about non-natural forms of energy.

George Washington Carver

- B** Untrue. This is not stated in the passage and does not follow logically from what is stated. Score 1 point.
- C** The passage does not give exact dates so the monument could have been built while Carver was still alive. Score 2 points.
- B** Untrue. The passage states that there are mythic aspects to Carver's life, and implies that this is because he was a great man. It does not state that Carver's life, in its entirety, was a myth. Score 1 point.
- A** True. The passage states that religious groups believed this because Carver declared that God was the inspiration for his discoveries. Score 1 point.
- C** We would need more information. The passage refers only to Carver's own college, not to all the other colleges in the USA. Score 2 points.
- B** Untrue. The passage states the opposite, that this was the case as a result of Carver's inventions. Score 1 point.

- C** The passage states that Carver helped to develop over 100 industrial applications from agricultural products *such as* soybeans: we don't know how many of these were from soybeans themselves and how many from other agricultural products. Score 2 points.

Recognising similarities (p. 23)

For each passage, score 1 for identifying the correct option, and score 1 for finding the reason.

Option 1 is the nearest in meaning to passage 2.1 (*The Arctic*). Option 2 states that inhabitants like living there, which we do not know from the passage.

Option 5 is the nearest in meaning to the *George Washington Carver* passage, and is a summary of its key points. Options 3 and 4 focus on only some aspects of the passage, and make assumptions that are not in the passage. Option 3 expresses religious views that are not stated in the passage. Option 4 is inaccurate in stating why the monument was set up: the exact reasons are not given in the passage.

Focusing attention

Find the 't' (p. 25)

There are 14 't's. These are highlighted.

Terrifying **t**orrents and long dark **t**unnels are used **t**o create **t**he excitement of **t**he **t**hrilling **t**rain ride **a**t **t**he park.

If you counted less than 14 the first time round, this is not unusual. It is likely that your brain used its 'auto-pilot' to read the short words such as 'to' and 'the' automatically as a whole unit, rather than as a sequence of letters, even when you were trying to focus on the individual letters. If this happened to you, it may indicate that your brain works efficiently for most reading purposes.

Answers to activities in Chapter 2 (continued)

Identifying difference (p. 26)

| | | |
|-------|-------|--------|
| 1 = f | 5 = f | 9 = f |
| 2 = b | 6 = e | 10 = b |
| 3 = a | 7 = a | 11 = b |
| 4 = f | 8 = e | 12 = d |

Recognising sequence (pp. 27–8)

- = 1b An additional symbol is added in each successive box.
- = 2e Boxes a and b are repeated in each successive pair of boxes.
- = 3c Boxes a and b are repeated in each successive pair of boxes.
- = 4d Each box adds one item, first to the left-hand column, then to the right-hand column.
- = 5e Each symbol travels anti-clockwise around the box, moving one place in each successive box.
- = 6b Each new box is repeated once.
- = 7f The bottom row doubles in the next box along and also moves up one place.
- = 8a
 - * moves up one place each row.
 - moves along the row from left to right and descends a row each box.
 - ↻ moves at top of box for two boxes then at bottom for two, then top for two.
 - ▼ repeats for two boxes then shifts one place.
- = 9d The symbol ◎ moves from left to right along each row in turn. All the other symbols do the same. Once a symbol arrives at the bottom right-hand corner, it starts again in the top left-hand box.
- = 10f The top row alternates in each successive box. The last three boxes of the middle row form a mirror image to the first three boxes of that row. The third row adds one dot in each successive box, for a sequence of three, then starts again.
- = 11e
 - moves down a row in each successive box for four boxes (and then starts again from the top).

The diamond pattern ♦♦♦ moves down a row in each successive box for three boxes (and then starts again from the top). It also alternates to a larger diamond coming first, ♦♦♦♦, in alternate boxes.

The □○◎ pattern moves down a row in each successive box for four boxes (and then starts again from the top). Within the pattern, the square moves one place to the right in each successive box.

▷ moves down a row in each successive box for four boxes (and then starts again from the top). It also doubles on alternate boxes.

12 = 12b

The row of five squares, ■■■■■, moves clockwise around the edge of the box from one box to the next.

◆◆◆ alternates between the top and second lines, and changes to ◆◆ on the top line.

•• alternates between the third and second lines, and changes to ••• on the second line.

○ alternates between the fourth and third lines, and changes to ○ in alternate boxes.

Categorising

Categories (p. 29)

- Bodies of water
- Nationalities
- Animal habitats
- Science subjects
- Seven-letter words
- Verbs with the prefix (i.e. starting with) 'de'
- Words containing 'eve'
- Cognitive (thinking) skills
- Inflammatory conditions of bodily organs
- Palindromes: words that read the same backwards and forwards
- Terms that refer to the development of a soil profile
- Multiples of 7
- Forms of government
- Collective nouns for types of animal

Answers to activities in Chapter 2 (continued)

Categorising text (p. 30)

Passage 2.3 Matter

Passages (a) and (b) are the most similar as they merely describe the two sets of classification. Passage (c) makes value judgements about the systems.

Passage 2.4 Anointing oil

Passages (b) and (c) are the most similar. Passage (a) makes a claim that the mixture of oils was invented in Egforth's reign whereas the other two passages express this only as a possibility.

Passage 2.5 The right hemisphere

Passages (b) and (c) are the most similar. Passage (a) attributes difficulty in differentiating reality to both hemispheres whereas (b) and (c) attribute this only to the right hemisphere. Passage (a) also claims that right-hemisphere damage leads to loss of imagination in general, which the other two do not.

Close reading (pp. 31–3)

Passage 2.6 Traditional legends

- 1 A This follows logically from the final line of the passage.
- 2 A This follows from what is said in the second sentence.
- 3 C There is not enough evidence in the passage to know this, as the passage refers only to myths of the Americas.
- 4 B No, the passage does not say anything about a sense of direction.
- 5 B This does not follow from the passage.
- 6 A This is consistent with what is written in the passage.

Passage 2.7 Transformation

- 7 B The passage does not say anything about people who travel a lot.
- 8 B The passage does not state this and it does not follow logically from information in the passage.
- 9 C The passage does not state this and we would need more data to know if most people did find illness to be transformative.

- 10 A This is consistent: it paraphrases what the passage states.

Passage 2.8 Clinical trials

- 11 A The statement is consistent with the passage, which argues that depression is wrongly attributed to levels of serotonin.
- 12 A This is consistent with the passage, as it states that raw data are rarely published whereas the results of beneficial tests are more likely to be published.
- 13 C The passage does not provide information about ageing effects.
- 14 B This is not consistent with the passage. The passage suggests that academic articles are normally just as inaccurate as they are based on the same data.
- 15 B This is not consistent with the information given in the passage, which argues that there is insufficient evidence about the links between serotonin levels and depression.

Passage 2.9 Helping others

- 16 C No data are provided on this in the passage.
- 17 B This contradicts the message of the passage, which is that in most circumstances there are no obvious racial differences in patterns of assistance.
- 18 A This is consistent with the third sentence, which states that a third more people are likely to help someone who is lame.
- 19 A This is consistent with the sentence in the middle of the passage, which says people are more likely to help if they think they will be effective.
- 20 A This is consistent with the first sentence, about the speed with which people help those with canes compared with others, and the sentence in the middle of the passage, about when people are more likely to offer help.

Answers to activities in Chapter 3

Capturing the author's position (p. 37)

Passage 3.1

The author's position is: *It is possible to find a legal job that suits your preferences for court work.* The passage provides advice for aspiring barristers on selecting their field according to how much time they want to spend in court.

Passage 3.2

The author's position is: *Koch contributed one of the most important methodological advances in the past of medicine.* The passage supports this with information about experiments Koch developed that were able to prove the germ theory of disease.

Passage 3.3

The author's position is: *The Sahara is an area worth investigating by those who are interested in the past.* The passage supports this by referring to traces of past cultures hidden beneath the sands.

Passage 3.4

The author's position is: *Even young children can perform tasks considered too advanced for them, as long as these are set up in ways that make sense to them.* The passage supports this by arguing that children perform better if the task is presented in language they can understand.

Identifying simple arguments (p. 42)

Passage 3.7

This is an argument. The conclusion is that this is a good picture. The supporting reasons are: the use of colour and the well-drawn and interesting figures.

Passage 3.8

This is not an argument. Even if you rearrange the sentences, none of them could act as a conclusion based on reasons provided by the others.

Passage 3.9

This is not an argument even though all the statements are true. If you rearrange the sentences, none of them could act as a conclusion based on reasons provided by the others. Just because the subject sounds scientific, this doesn't make it any more of an argument.

Passage 3.10

This is an argument. The conclusion comes at the end: *The piper's action was one of revenge.* The supporting reasons for the argument are: he was angry at the townspeople as they hadn't paid for his services; he led their children away deliberately and caused their deaths.

Passage 3.11

Although short, this is still an argument. The conclusion is that there must have been a signal failure. The reason for thinking this is that the train is late.

Passage 3.12

This is just a collection of related information and is not an argument. None of the statements serves as a conclusion to the rest.

Passage 3.13

This is an argument, even if you may not agree with the conclusion. The conclusion comes at the end: *It must have been a ghost.* The supporting reasons are the rattling windows, banging doors, charged air and feelings of fear.

Passage 3.14

This is an argument. The conclusion is at the beginning: *Many adults learn to read later in life.* The supporting reasons for the argument are that: John and Miranda caught up with their peers in reading; almost a million adults have improved their literacy skills.

Answers to activities in Chapter 3 (continued)

Passage 3.15

This is not an argument. The author is not attempting to persuade the audience to accept a position or a particular conclusion. This passage describes a process.

Reasons and conclusions (p. 43)

Passage 3.16

Main argument: The swollen river dislodged the skeleton.

Reasons that support the argument:

- Reason 1: A skeleton was found near the river.
- Reason 2: The police have ruled out the possibility that a suspected local family was involved.
- Reason 3: The bones are believed to be several hundred years old.
- Reason 4: Historians confirm that the river passes close to ancient burial grounds.
- Reason 5: Other bodies are known to have been carried away by the river in the past.
- Reason 6: Recent storms have caused the river to rise by over half a metre.

Conclusion: It is probable that the skeleton was dislodged from its resting place by the swollen river rather than murdered by the local family.

Passage 3.17

Main argument: Sea grasses are important.

Reasons that support the argument:

- Reason 1: In shallow waters, sea grasses are the dominant form of vegetation.
- Reason 2: They support a host of marine life.
- Reason 3: The grasses act as nurseries for fish, including commercial varieties.
- Reason 4: Without sea grasses, the biodiversity of coastal regions would be severely impoverished.

Conclusion: Sea grasses make important contributions to coastal ecosystems.

Passage 3.18

Main argument: We are unhappy because we focus too much on how the world is and on the gratification of short-term objectives, rather than thinking about how we could live more in harmony with other people and the environment over the longer term.

Reasons that support the argument:

- Reason 1: We forget to be kind and supportive.
- Reason 2: We satisfy our wants first without thinking of people who have greater needs.
- Reason 3: We ignore what we know about the needs of the environment.
- Reason 4: We focus on instant gratification and short-term gains rather than considering the longer-term consequences.

Conclusion: The challenge facing humans is to find a way of acting more co-operatively with each other and more in harmony with our universe.

Passage 3.19

Main argument: Pregnant women and those with suppressed immune systems need to be aware of the potential danger of toxoplasmosis passed on by cats.

Reasons that support the argument:

- Reason 1: Cats are hosts to *Toxoplasma gondii*, the protozoa that can cause disease in humans.
- Reason 2: If pregnant women become infected with the protozoa, their foetus could lose its eye-sight or have motor deficits.
- Reason 3: In people with poor immune systems or AIDS, toxoplasmosis can cause seizures and death.
- Reason 4: Infected cats show no symptoms.

Conclusion: It is important that pregnant women and those with poor immune systems become aware of the potential risks posed by cats.

Answers to activities in Chapter 4

Argument and disagreement (p. 49)

Passage 4.1

A Argument. The overall argument is: *Bilingualism and multilingualism confer many benefits*. The reasons given are: (1) that speakers of more than one language have a better understanding of how languages are structured; (2) a second language can help people to understand a first language.

Passage 4.2

B The final line expresses disagreement with the idea that complementary therapies are the equivalent of medical treatments. No reasons for this are given so this is not an argument.

Passage 4.3

B The final line expresses disagreement with the idea that employers cannot do more to help save lives in the workplace. No reasons for this are given so this is not an argument.

Passage 4.4

A This is an argument. The conclusion is in the first line: *People are less politically aware now than they have been at any time in the past*. The reasons given are: (1) people used to fight for causes from which they didn't gain personally; (2) people took more risks for political issues; (3) rallies had a more international perspective; (4) fewer people vote now in elections.

Passage 4.5

B The final line expresses disagreement with arguments against global warming. No reasons for this are given so this is not an argument.

Passage 4.6

A Argument. The conclusion is in the second line: *Of course it harms them, both physically and emotionally*, referring back to the issue in the first line about smacking. The reasons given to persuade us are that (1) it is assault; (2) assaults on adults are not accepted; (3) smacking perpetuates a cycle of violence.

What type of message? (pp. 52–3)

Passage 4.7

Description of key aspects of space launches.

Passage 4.8

Argument that babies may benefit from sleeping with their mothers.

Passage 4.9

Summary, by Farrar (2004a) of an article by Platek et al. See Bibliography.

Passage 4.10

Description of the location of a village.

Passage 4.11

Explanation. The text explains why the dog needed to use smell rather than shape or colour to identify his toy mouse.

Passage 4.12

Summary of the plot of a Shakespeare play.

Passage 4.13

Explanation of why the student was late.

Passage 4.14

Explanation of why the cave drawings were identified so recently.

Passage 4.15

Argument that there were greater cultural links between continental Europe and Britain during the Ice Age than was formerly believed.

Passage 4.16

Description of specialists' responses to the cave drawings.

Answers to activities in Chapter 5

How clear is the author's position? (p. 60)

Passage 5.1

The author's position is not clear. It could be clarified, for example, by using either the opening sentences to introduce the argument and/or the final sentence to sum it up. The author uses too many questions without providing answers to them. There are many facts, but these do not help clarify the position. The author needs to provide more guidance to the reader about the direction of the argument.

Passage 5.2

The author's position is not clear. The author is aware of different viewpoints, which is good. However, the writing wanders back and forth between different standpoints without being clear about which point of view the author wants the audience to accept. The author doesn't fully agree or disagree with either point of view and does not suggest an alternative third point of view. The author needs to sort the issues so that similar points are considered together, and to order them so that they lead towards a conclusion. The passage reads as though the author doesn't know what to believe. In such cases, an author needs to take up a position for the duration of presenting the argument, even if only to indicate how one point of view has certain advantages over the other.

Passage 5.3

The author's position is not clear. The purpose of the report was to clarify whether a sports centre should be built. The passage looks at points for and against building the sports centre, which is appropriate, but the points are jumbled. It would have been clearer if those for building the centre were given first, and then those against. The relative weighting might have come across better. The author needs to give some indication of whether the sports centre should be built or not, in order for their position to come across.

Internal consistency (p. 62)

Passage 5.4

B: inconsistent. The author argues that performance enhancing drugs should be banned on the grounds that they give an unfair advantage, not on whether someone intended to cheat or not. By the end of the passage, the 'unfair advantage' argument is replaced by arguments about medical need and intention. To be consistent, the author should maintain the position that taking performance enhancing drugs is always wrong, or else argue a more moderate position as in Passage 5.5.

Passage 5.5

A: consistent. In this case, the author argues consistently that drugs should be generally discouraged on health grounds but permitted on an individual basis for health reasons.

Passage 5.6

B: inconsistent. The author argues that reality TV is not giving the public what it wants, but then points out that 'almost the whole nation' is watching it, which suggests it is popular. The author could have made the argument more consistent by, for example:

- offering an explanation for why people watched programmes they did not want;
- giving evidence that there were no other choices;
- presenting evidence of surveys that show people would prefer to watch a good alternative type of programme.

Passage 5.7

B: inconsistent. The author argues that the countryside is disappearing but cites a figure of only around 8 per cent of the countryside as built up so far. To be consistent, the author would need to present further arguments to show why the other 92 per cent is really at risk of disappearing.

Answers to activities in Chapter 5 (continued)

Passage 5.8

B: inconsistent. The author argues that before Columbus, 'everyone believed the world was flat'. However, several examples are given of people who didn't believe the world was flat. It is not unusual for people to include this sort of inconsistency in their arguments. People often repeat a commonly held belief, such as the medieval church's belief that the world is flat, without noticing that they are citing contradictory evidence. To be consistent, the author could argue that Columbus was courageous on other grounds than that of other people's belief in a flat earth. For example, it could be argued that he was courageous to persist with the voyage when the distances involved, and consequences of these, were not known.

Logical consistency (p. 63)

Passage 5.9

B: not logically consistent. It does not follow logically that because some animals can survive without light, all animals can do so.

Passage 5.10

B: not logically consistent. The reasons given do not support the conclusion that the number of accidents will rise over the next year.

Passage 5.11

B: not logically consistent. A more logical conclusion from the reasons given is that more status should be given to subjects such as sports, media and popular culture. If a subject's low status follows the social class of the students, then if the students change subject, the status of the subject they take might fall, perpetuating the same problems.

Passage 5.12

A: logically consistent. The igneous rock could only cut across the layers of sediment if they were already there. They must be older, and the igneous rocks more recent.

Passage 5.13

B: not logically consistent. It may be true that it is impossible to find a place of absolute silence but that does not mean noise pollution is increasing. Noise levels may be the same as in previous times but with different causes: we cannot tell from the arguments presented.

Passage 5.14

B: not logically consistent. The conclusion is that computers will one day be able to outperform humans at everything. However, the author has argued that computers lack the qualities needed for empathy. This contradicts the idea of computers being better at 'everything'.

Independent reasons and joint reasons (p. 66)

Passage 5.15

Joint reasons. The reasons are mutually supporting of the rights and responsibilities of young people.

Passage 5.16

Independent reasons. The reasons given concern the environment (litter), value (few discoveries for the number of expeditions taken), economics (effect on local economy), and safety.

Passage 5.17

Independent reasons. Lying is defended on the basis of different arguments: (a) the truth hurts; (b) it provides a useful coping mechanism; (c) it isn't always possible to tell a lie from the truth; (d) the social benefits of lying.

Passage 5.18

Independent reasons. The argument is that the book is a faithful representation of a rock band. The reasons given are based on (1) knowledge: the author's close knowledge of the band; (2) experience: her experience of being in a band herself; (3) objectivity: reasons why the author was able to be objective.

Answers to activities in Chapter 5 (continued)

Passage 5.19

Independent reasons. The reasons given are related to (1) effective use of resources; (2) public image; (3) support for staff.

Passage 5.20

Joint reasons: all support the argument that Magritte gave very few clues to help others to interpret his work.

Intermediate conclusions (p. 69)

Passage 5.21

Overall argument. This is at the end of the passage: *The government should take strong action to raise awareness of the risks of smoking and to ban it in public places.*

The intermediate conclusions are highlighted in bold.

Although most smokers say they enjoy smoking, many smokers wish they didn't smoke. 'It feels as if I am setting light to my money,' wrote one correspondent. Cigarettes can account for up to a half of an individual's total spending. As people are borrowing more money in general, and paying interest on it, the overall cost of cigarettes is sometimes hidden. However, as many smokers are all too aware, **smoking does not make good financial sense.**

The effects on long-term health are equally devastating. Just as smokers are often building up debts in the bank, they are also accruing unseen deficits in terms of their health. It is easy to forget the health implications of smoking. Warnings about illness and death can seem a long way away. Unfortunately, once cancer of the bowel, the lung, the throat, or the stomach sets in, it is often too late to take any action. Moreover, these diseases can strike unexpectedly whilst people are still young.

Smokers spread strong, unpleasant odours all around them, affecting other people without their consent. Smoking impairs the sense of smell so smokers do not realise how much they are inflicting awful odours on others. Some believe that smoking outdoors washes all those nasty odours away, but this is clearly not the case.

Furthermore, studies of the houses of people who always smoke outdoors, have found that the chemicals found in cigarettes are over seven times as prevalent as in the houses of non-smokers. Noxious chemicals linger, affecting the health of other people, sometimes fatally. **Whether outdoors or in, smoking doesn't simply kill the smoker, it kills other people and this should not be permitted.**

Intermediate conclusions used as a reason (p. 69)

The two intermediate conclusions for each passage are highlighted in bold.

Passage 5.22

It is a legal offence to assault other people. Hitting and slapping people are forms of assault and cause psychological, if not physical, damage. **They should always be considered as examples of legal assault.** Although this rule is applied to adults, it is often not recognised in the case of children. Slapping is defended as a useful and necessary form of discipline. It is also argued that children are not independent beings. This is not a valid argument. **Children** may be dependent on adults but they **are still people.** Therefore, slapping a child should also count as legal assault.

In this case, in order to argue that slapping a child should count as legal assault, the author has first to establish that:

- (1) slapping should always count as legal assault;
- (2) children should count as people.

Answers to activities in Chapter 5 (continued)

Passage 5.23

Many people speak out in discussion too quickly because they are anxious about leaving a silence. When questioned, people often acknowledge that they spoke early in order to ensure there was no gap in the discussion. **They are not used to silences in conversation and don't know how to manage them skilfully.** They can find silences in discussion to be unnerving and embarrassing. **However, silence can be productive.** First of all, it allows time for reflection so that speakers can construct a more considered and accurate response, making a more useful contribution to the debate. Secondly, it gives more people the opportunity to speak first. For more productive discussions, we need to be skilled in managing silences.

The author has to establish two interim conclusions that can be used as reasons or arguments in their own right:

- The reason people speak too early is because they don't know how to manage silence.
 - Silence can be productive in improving discussion.
- (1) The reason people speak too early is because they don't know how to manage silence. If this can be established, then it supports the conclusion that skilful management of silence will improve discussion. The author establishes the interim conclusion by (a) citing people's own acknowledgements that this is accurate; and (b) giving the reason that people are not used to silences in conversation so cannot manage them skilfully.
- (2) Silence can improve discussion. The author does this by offering two independent reasons: (a) silences allow thinking time so that responses are better constructed; (b) more people get a chance to speak first.

Summative and logical conclusions (p. 71)

Passage 5.24

Logical conclusion. The author weighs two different sets of arguments and draws a conclusion, or deduces, that the environment is more influential than genes in forming criminal behaviour, so the passage forms an argument.

Passage 5.25

Summative conclusion. The author summarises two positions but does not draw a conclusion about whether reality shows are good for television or not. As there is not a logical conclusion based on the reasons, this is not an argument.

Passage 5.26

Logical conclusion. The author makes a judgement about the level of costs that would be borne by banks if debts in developing countries were cancelled. This conclusion is deduced from the reasons, so this passage constitutes an argument.

Passage 5.27

Summative conclusion. The author merely summarises two points of view without making a judgement about whether organic food tastes better. There isn't a logical conclusion based on reasons so this is not an argument.

Answers to activities in Chapter 5 (continued)

Logical order (p. 73)

Passage 5.28 *Circadian rhythms*

The passage is badly organised for the following reasons:

- The author hops back and forward between points rather than grouping similar points together into separate sections.
- There is no obvious introduction.
- The conclusion and the author's position are not obvious.
- The passage lacks words to link each new point to highlight the direction of the argument.

Compare the original version with the version below. This contains almost identical material but is ordered differently and phrases are added to indicate the logical links. These are indicated in bold.

5: Our bodies remain more responsive to biological rhythms than to the demands of clock time or the distractions of the outside world. 10: These biological rhythms are known as circadian rhythms and we know they are particularly strong in birds. 11: In humans they are particularly controlled by the suprachiasmatic nucleus (SCN) in the anterior hypothalamus at the base of our brains. 12: **We know this because**, if this part of the brain is damaged, a person loses all sense of a natural 24-hour clock, where sleep coincides with night-time. 13: In other people, circadian rhythms are much stronger than was expected. 1: **For example**, in experiments, human volunteers spent several weeks underground in constant light. 2: At first, their natural clock and sleep patterns were disrupted. 3: **However**, after a few weeks, they reverted back to the natural circadian rhythm with a 24-hour clock more or less in line with the outside world. 4: **Nonetheless**, our natural clocks are helped to adjust by exposure to sunlight and do respond to patterns of light and dark. 14: Astronauts, who lose this connection

to the sun's rhythms for a long time, find it hard to adjust. 15: Many require medication to help them sleep. 16: Night-workers, even after 20 years on shift patterns, do not adjust circadian rhythms to suit the demands of night working. 17: Certain illnesses such as peptic ulcers and heart disease, as well as increased risk of car crashes, are much more common to night-shift workers.

6: Since the mapping of human genes as part of the genome project, we have a greater understanding of circadian rhythms and their role in genetic conditions. 7: Some families have genetic conditions which make them less sensitive to circadian rhythms. 8: This may help explain patterns of sleep disturbances found in those families. 19: It may be that conditions associated with mental ill-health, such as schizophrenia and bi-polar disorders, are also linked to malfunctions in circadian rhythms.

9: Our work patterns, leisure patterns, architecture, lighting, food, drugs and medication compete with our natural clocks. 18: As the long-term effects of disrupting circadian rhythms are yet to be discovered, we should take care to ensure the health of shift-workers and those with genetic conditions that make them less sensitive to the biological 24-hour clock.

This is not the only possible alternative. Another option would be to order the sentences as:

5, 10, 11, 12
6, 7, 8, 13
9, 1, 2, 3, 4, 14, 15
16, 17, 19, 18

Answers to activities in Chapter 5 (continued)

This would then read:

Passage 5.28 Circadian rhythms

5: Our bodies remain more responsive to biological rhythms than to the demands of clock time or the distractions of the outside world. 10: These biological rhythms are known as circadian rhythms and we know they are particularly strong in birds. 11: In humans they are particularly controlled by the suprachiasmatic nucleus (SCN) in the anterior hypothalamus at the base of our brains. 12: If this part of the brain is damaged, a person loses all sense of a natural 24-hour clock, where sleep coincides with night-time.

6: Since the mapping of human genes as part of the genome project, we have a greater understanding of circadian rhythms and their role in genetic conditions. 7: Some families have genetic conditions which make them less sensitive to circadian rhythms. 8: This may help explain patterns of sleep disturbances found in those families. 13: In other people, circadian rhythms are much stronger than was expected.

9: Our work patterns, leisure patterns, architecture, lighting, food, drugs and medication compete with our natural clocks. 1: In experiments, human volunteers spent several weeks underground in constant light. 2: At first, their natural clock and sleep patterns were disrupted. 3: After a few weeks, they reverted back to the natural circadian rhythm with a 24-hour clock more or less in line with the outside world.

4: Nonetheless, our natural clocks are helped to adjust by exposure to sunlight and do respond to patterns of light and dark. 14: Astronauts, who lose this connection to the sun's rhythms for a long time, find it hard to adjust. 15: Many require medication to help them sleep.

16: Night-workers, even after 20 years on shift patterns, do not adjust circadian rhythms to suit the demands of night working. 17: Certain illnesses such as peptic ulcers and heart disease, as well as increased risk of car crashes, are much more common to night-shift workers. 19: It may be that conditions associated with mental ill-health, such as schizophrenia and bipolar disorders, are also linked to malfunctions in circadian rhythms. 18: As the long-term effects of disrupting circadian rhythms are yet to be discovered, we should take care to ensure the health of shift-workers and those with genetic conditions that make them less sensitive to the biological 24-hour clock.

Answers to activities in Chapter 6

Identify the underlying assumptions (p. 77)

Passage 6.1

Underlying assumption: *Campaigning against nuclear weapons is an accurate measure of how politically-minded a group is.* However, it could be that other political issues are just as important to different generations.

Passage 6.2

Underlying assumption: *Whenever house prices rise quickly, there will always be a slump in which people lose money.* It may be, for example, that patterns of investment or interest rates vary during different periods of rapid house-price rises, so that a slump or loss of money might not automatically follow them.

Passage 6.3

Underlying assumption: *Advertising aimed at children is to blame for peer pressure.* This may be true or untrue. The link between advertising and peer pressure isn't established in the passage itself.

Passage 6.4

Underlying assumption: *A high number of searches on the internet means that 'everyone' must know about the subject.* It may be true, but it is probable that many people haven't heard about Emeagwali. A web page which receives many 'hits' is, nonetheless, visited by a relatively small proportion of people. Also, the same people may have visited the website many times.

Passage 6.5

Underlying assumption: *All jobs could be moved to lower-wage economies.* This assumption is needed for the conclusion that there would be 'no jobs' left. Some reflection would indicate that this is unlikely to be the case. Many jobs, such as medicine, catering, retailing, teaching and caring services, need to be delivered locally so it is unlikely that 'no jobs' would be left in high-wage economies. The passage also assumes that only 'companies' offer

jobs, but other organisations and individuals could also be employers.

Passage 6.6

Underlying assumption: *Some consumers do not understand the information they read about E numbers.* If this was not the assumption, then the conclusion that 'putting information on the label is not necessarily helpful: people need to know what it means' could not be drawn. E numbers mean 'approved for use in every country in Europe' and include chemicals such as vitamins as well as those considered unhealthy. E300 is vitamin C. There is also an assumption that consumers want to eat more healthily, which may not be the case.

Implicit assumptions used as reasons (p. 80)

Passage 6.7

Conclusion: *As there has been so little advance on humanoid robots assisting with housework and construction, it will probably never be achieved.*

The implicit assumptions used as reasons are:

- (1) *Just because a robot was designed a long time ago, there have been continuous efforts since then to design a robot to deal with certain kinds of work.* No evidence is given to show that this is what Leonardo or inventors since him set out to do.
- (2) *If something hasn't been done before a certain time, it never can be.* In the case of designing the robot described, the author doesn't prove this.

These assumptions may be true but are not supported in the passage by evidence.

Passage 6.8

The conclusion is: *Ending postal voting will ensure a return to fair elections.*

It may be true or untrue that postal voting is less fair than other forms of voting. However, the implicit assumption is:

- (1) *Elections were fair before postal voting was introduced.* This is not proved in the passage.

Answers to activities in Chapter 6 (continued)

For example, some people might not consider that elections are fair if those who work away from home on the day of an election through no choice of their own, or those in hospital or serving in the forces overseas, cannot vote.

Other assumptions made are:

- (2) *Intimidation is not used in any other kind of voting system.* This is not established in the passage. For example, intimidation could be used to make people surrender their voting papers in other kinds of election.
- (3) *Postal voting could not be altered to reduce or remove intimidation.*

Passage 6.9

The conclusion is: *It would be better to return to traditional methods of using leaves and roots of plants rather than mass-produced pharmaceuticals.*

The implicit assumptions are:

- (1) *Past methods of using plants were as effective as modern medicines.* This may be true or untrue. The passage does not provide evidence to establish this. Modern medicines often use plants in more concentrated forms and combined with other chemicals that are not locally available. This may make them more, or less, effective.
- (2) *Modern medicines are being used to cure the same range and types of illnesses as in the past.*
- (3) *The range and amounts of plants would be available and accessible to people in the amounts needed.* When one considers the very large amounts of concentrated chemicals stored on chemists' shelves, it is difficult to imagine that the plant equivalent could be made available so readily.

Passage 6.10

The conclusion is: *We should continue to improve sanitation and diet in order to further increase our life expectancy.*

The implicit assumption being used as a reason is that *life expectancy increased in the past because of sanitation and diet.* This may be the case but it

hasn't been established as true in the passage. It might be argued, for example, that many people had good diets but not enough food, and died early as a result of famine. Others died as a result of epidemics and many men died through wars, without these necessarily being affected by poor diet or sanitation.

The passage also contains the implicit assumption that diet, sanitation and life expectancy could be improved further, and that continuing to increase life expectancy is a good thing. Not everyone might agree with this.

Passage 6.11

The conclusion is: *Therefore, in order to keep their businesses afloat, new restaurant owners should delay installing new kitchens until the restaurant is established.*

The implicit assumption which is used as a reason is that *new kitchens are an unnecessary expense when a restaurant is new, contributing to the lack of funds at the end of the year.* This is a reasonable assumption to make but it does not follow from what has been said so far in the passage. This kind of conclusion is also an example of a non-sequitur (see p. 76), as the conclusion seems to jump out of nowhere, rather than following the previous sequence of the reasoning.

Passage 6.12

The conclusion is: *More should be done to reduce the world's population so that food supplies can go round.*

The implicit assumption used as a reason is that *the size of the world's population is the cause of under-nourishment.* The passage also assumes that there is not enough food to go round. This may or may not be the case: the passage does not present evidence to support this. However, under-nourishment can be caused by eating the wrong foods rather than simply not having food to eat. Some countries consume much more food than their populations actually require so other people might argue that better food distribution is more important than population control.

Answers to activities in Chapter 6 (continued)

False premises (p. 83)

Passage 6.13

Sound premises. Petrol prices would be likely to rise for the reasons given.

Passage 6.14

False premises. The argument is based on the false premise that getting wet in the rain gives you a cold. There is no direct link between getting wet and catching a cold. Most of the time when people get wet, they do not later have a cold.

Passage 6.15

False premises. The false premise is that people would and could continue to marry at the same rate each year, which is unlikely. The passage does not take into consideration that some of the population, such as children, would not be eligible to marry, and that others would not choose to.

Passage 6.16

False premises. It is a false premise that a good menu will lead to a new restaurant being filled every night. Most new restaurants struggle to survive and established restaurants local to the one in the passage do not fill to capacity. Good cooking, low prices or a better location might have been reasons for expecting a full restaurant.

Passage 6.17

False premise. The false premise is that the more choice there is, the better the quality of the programmes. This has not been established – and many people would argue to the contrary.

Passage 6.18

Sound premises. The Indian film industry is growing in its worldwide appeal for the reasons given: it is gaining international acclaim, attracts non-Indian audiences and is shown in more countries than in the past.

Passage 6.19

False premise. Even if it were true that people's nationality could be read from their behaviour, the argument would be based on the false premise that similarities are genetically based. Nations such as the English and the French are not genetically homogeneous but descend from a very wide variety of ancestors. The behaviours described are more likely to be the result of cultural than genetic reasons.

Passage 6.20

False premise. The false premise is that the air in the countryside is free of pollution. There are many pollutants, such as agricultural pesticides, that can affect people living in rural areas.

Implicit arguments (p. 85)

Passage 6.21

The implicit argument is that if employees do not do as is expected of them, they are likely to lose their jobs or suffer a similar serious penalty such as lack of promotion. This is not stated explicitly but is an implicit threat.

Passage 6.22

The implicit argument is that the opposing candidate lied about fighting for the country and stealing from the nation and won't keep electoral promises about taxes. This is not stated explicitly but is implied.

Passage 6.23

The implicit argument is that Julian and Ian stole the pipes. A series of statements are presented which, if there was a recognisable structure for an argument, would form a series of reasons. The two workers 'worked late', so we are left to assume this means after other people had all gone home; they can drive the lorries so it is implied that they did drive them; they have given no alibi so we are left to assume both that they have no alibi and that this means they must have committed the theft.

Answers to activities in Chapter 6 (continued)

Passage 6.24

The implicit argument is that people who emigrate from other countries are more likely to be dishonest. No evidence is presented to support this argument.

Passage 6.25

The implicit argument is that as most people want the death penalty, it should be introduced. This is not stated explicitly.

Ideological assumptions (p. 85)

Passage 6.26

In this passage, people 20 years old are still considered children. The age at which one becomes an adult has varied at different historical times and according to the society.

Passage 6.27

The passage assumes these are good working conditions. It considers it to be acceptable for children to work rather than attend school, that a 12-hour working day is reasonable, and that workers don't have extended holidays. In this passage, work is considered a form of morality and not working is regarded as sinful. Novels of the early nineteenth century describe working conditions such as these, which were not unusual at that time.

Passage 6.28

In this case, the ideological assumption is that women cannot inherit estates. This was the case in Britain for several hundred years, and died out mainly in the twentieth century.

Passage 6.29

This passage assumes that women are too emotional to report news about serious issues. For many years, women were not allowed to read the news in Britain, and arguments such as these were commonplace. It was assumed that women would burst into tears at difficult news. It was also argued that if a woman read the news, it would

automatically sound trivial because women were associated only with trivial matters.

Word associations (p. 88)

- 1 = F
- 2 = A
- 3 = E
- 4 = B
- 5 = G
- 6 = C
- 7 = D

Stereotypes (p. 88)

- 1 This reinforces the stereotype that all girls like pink.
- 2 This reinforces the stereotype that being a pilot is a job for males and being a steward is a job for females.
- 3 This reinforces the stereotype that British people only eat roast beef and won't eat food from other countries.
- 4 This reinforces the stereotype that all red-headed people are hot-tempered.
- 5 This reinforces the stereotypes that people from the Caribbean all like Reggae and only want to listen to that music, and that people from Spain all like flamenco music and only want to listen to that.
- 6 This reinforces the stereotype that all football fans are trouble-makers.
- 7 This reinforces the stereotype that students are lazy and can't fend for themselves. It reinforces the idea of students as younger people with parents who live near enough to visit. It doesn't include the concept of students who do not have parents, are older, from overseas, or brought up in care.
- 8 This reinforces the stereotype that people are not interested in fashion or computers once they reach a certain age.

Answers to activities in Chapter 7

Assuming a causal link (p. 92)

Passage 7.1

The assumed causal link: obesity leads to longer life expectancy. The link does not follow logically from the reasons given: it hasn't been shown that those who are obese live longer, nor why obesity should lead to longer life.

Passage 7.2

The assumed causal link: that it was the roof-top protest that led to the prisoners' release, rather than, for example, them having been found innocent, the evidence against them being found to be flawed, or them having completed their sentences. Something which has happened only twice does not establish a solid trend.

Passage 7.3

The assumed causal links are that the man was murdered, that somebody broke in to do this, and that the knife was the murder weapon. However, in actuality, no murder may have occurred.

Identify the nature of the link (p. 94)

Passage 7.4

A The reasons support the conclusion through causal links: children eat sugar; sugar decays teeth; the children's teeth decay.

Passage 7.5

B The conclusion requires the assumption that students are more likely to be found plagiarising if they work electronically. It assumes that there is something about working electronically which enables this to occur, such as, for example, specialist software, to identify students who copy items found on the internet.

Passage 7.6

C There may appear to be a link between being a great scientist and having long hair but this would

be easy to disprove: all that would be needed would be examples of great scientists with short hair, of which there are many. The argument is illogical as it assumes that long hair is a constant, whereas hair can vary in length over relatively short times. To prove the case, the author would have to establish a link between a decrease in scientific ability when hair was cut, and an increase when it grew back.

Passage 7.7

B The conclusion requires the assumption that increases in footballers' wages are paid for primarily by match tickets rather than any other means that clubs have for raising money, such as selling players, advertising, prize money and television payments.

Passage 7.8

B The conclusion requires the assumption that fast food outlets use ice cream containers that hedgehogs can break into. If not, the conclusion would not be supported. It also assumes that nothing or nobody else could have created the wastage except for the hedgehogs, and that there were hedgehogs in the area.

Passage 7.9

A The reasons support the conclusion through causal links: Dubai provides opportunities for jobs and houses to foreign nationals; foreign nationals have settled; the population is rising.

False analogies (p. 99)

Passage 7.10

This compares the earth's atmosphere to a blanket. In this case, the comparison is valid as both are thin coverings that provide protection and warmth.

Passage 7.11

This passage compares a small political party to the biblical character David, and larger political parties to his opponent, Goliath. David was successful against an apparently greater opponent so the

Answers to activities in Chapter 7 (continued)

comparison is an effective one in arguing that the new party has a chance of success. The validity of the comparison would be demonstrated at the elections if the smaller party did better than the bigger parties.

Passage 7.12

This compares the premises of an argument to the foundations of a building. This comparison is valid as both provide an underlying structure for what is added later. In both cases, if the basis is not solid, later additions may be unstable.

Passage 7.13

This compares emotions to a pressure cooker. This comparison is made in order to argue that emotions cannot be controlled. However, the comparison isn't valid as it isn't comparing like with like: human emotions are not like steam under pressure. The underlying argument is based on false premises: that emotions cannot be controlled and that pressure cookers inevitably explode at boiling point. However, there are methods for managing emotions. An explosion isn't inevitable, either, when the contents of a pressure

cooker reach boiling point, as there are control mechanisms to let out the steam. The comparison does not help us to understand why the defendant couldn't control his emotions.

Passage 7.14

This compares failures in the stock market to health and safety matters for the human body. The passage is based on the assumption that it is reasonable to expect compensation for accidents and ill-health, but, in reality, that varies depending on circumstances such as the country and insurance policies. The author is attempting to make the argument for financial compensation seem more plausible by comparing financial loss to other major events for which compensation seems reasonable. The comparison is not valid because:

- Ill-health and accidents do not automatically bring compensation.
- Even if compensation for major health issues were automatic, the comparison still would not be valid. Health and finance are not comparable in terms of the kinds of choices people have, their control over the risks, and the advance action they can take to avert the consequences.

Necessary and sufficient conditions (p. 97)

| | Argument | Necessary? | Sufficient? |
|-----|---|--|--|
| Ex. | <i>Example: Birds have wings. The item has wings. Therefore it is a bird.</i> | <i>Yes. Wings are a necessary condition for the item being a bird.</i> | <i>No. The reasons given to support the argument that the item is a bird are not sufficient to satisfy the definition of a bird. This would include 'usually flies', is animate, lays eggs, has two legs, has feathers. The information given is not sufficient to rule out an aeroplane or a toy.</i> |
| 1 | The report makes reference to branches. It must be about a tree. | No. It is not a necessary condition: a report could be about a tree without referring to branches. | No. The reasons given to support the argument that the report is about a tree are not sufficient to prove the case. The report could be referring to branches of an organisation such as a bank. |

Answers to activities in Chapter 7 (continued)

| | Argument | Necessary? | Sufficient? |
|---|---|--|---|
| 2 | The boxer doesn't eat meat or fish. He does eat dairy products and vegetables. The boxer is a vegetarian. | Yes. It is a necessary condition of being a vegetarian that you don't eat meat or fish but do eat vegetables. | Yes. The reasons given for identifying the boxer as a vegetarian are sufficient to satisfy the definition of a vegetarian. |
| 3 | Amir is under the age of 20. Teenagers are less than 20 years old. Amir must be a teenager. | Yes. Being less than 20 is a necessary condition of being a teenager. | No. The reasons given to support the argument that Amir is a teenager are not sufficient to meet the definition of a teenager. Amir must also be over the age of 12 to qualify as a teenager. |
| 4 | Claire does not play any musical instrument. Therefore, she is not a musician. | No. Playing an instrument is not a necessary condition of being a musician. A composer or conductor might not play an instrument. | No. The reason given to support the argument that Claire is not a musician is not sufficient to prove the case. We would need to know other information such as that Claire was not a composer or a conductor and did not meet any other definition of 'musician'. |
| 5 | The bishop arrived on a vehicle with two wheels, one in front of the other. The bishop must have been on a bicycle. | Yes. It is necessary that the vehicle had two wheels, one in front of the other, in order for the bishop to have arrived on a bicycle. | No. The details given about the vehicle are not sufficient to establish that it was a bicycle. Therefore, the details do not support the conclusion that the bishop arrived on a bicycle. It might have been a scooter or motorbike. |
| 6 | A television usually costs more than a radio. This one costs less than a radio, so it must be a bargain. | No. It isn't always a necessary condition for a television to cost less than a radio for it to be a bargain. | No. We do not know whether the radio is priced at its normal rate. If the radio is more expensive than usual, then the TV could also be more expensive and still cost less than the radio. For the television to be a bargain, we would need to know that there was not a reason for the lower price, such as it being damaged in some way. |
| 7 | Li Yeung had the benefit of an exceptionally happy childhood. She must be a very happy adult. | No. Having an exceptionally happy childhood is not a necessary condition of being a happy adult. A person could have had a miserable childhood but their circumstances might change in later life. | No. Even an exceptionally happy childhood is not a sufficient condition for being a happy adult: many events may have intervened to make a person's circumstances unhappy. |

Answers to activities in Chapter 8

Authenticity (p. 114)

- 1 Probably authentic: such documents originated in cathedrals and could have become lost in library stacks over the years. Cathedrals are unlikely to forge a document as this would be exposed and would reflect badly on a religious organisation. However, checks would need to be made to validate the manuscript's age and origins, or *provenance*.
- 2 Probably not authentic: such items are rare and usually found in libraries, museums, private collections or religious institutions.
- 3 A collection of 1000 autographs by Elvis Presley could be authentic but such a collection would be valuable and it is unlikely that it would be bought without a viewing. It is more likely that an authentic collection would be sold at auction.
- 4 Probably not authentic: it is unlikely, though not impossible, that such an unpublished diary would fall into the possession of a student.
- 5 Probably authentic: such letters are found in collections in major libraries.
- 6 Probably not authentic: such valuable pictures are found occasionally in attics of old houses or behind other paintings, but not usually in modern garages and not in such large numbers.
- 7 Probably authentic: it could be carbon dated to check its age so would be difficult to fake.
- 8 Probably authentic: such items might well be kept at a prison and the governor could have overall responsibility for their care.

Controlling for variables (p. 124)

Passage 8.4 (p. 120)

The experiment requires a control group to compare changes in night vision between those who ate the capsules of carrot extracts and those who didn't. Some variables that would need to be controlled are: diet, which could affect the results; activities which might tire the eyes; previous levels of vision and visual problems; whether participants already had diets high in carrots, allowing no further room for improvement.

Passage 8.5 (p. 120)

The research should take into account such variables as whether participants liked any kind of perfumed soap at all, and whether the scents were equally strong. If not, then participants might have chosen on the basis of the strength of the perfume rather than its scent.

Passage 8.6 (p. 120)

There are many variables that could affect the research outcomes here. The researchers need to check such details as: how closely related the participants were to the bereaved; the frequency and kind of contact and interaction between the people in the sample and the deceased before the bereavement; whether participants attended the funeral; the kinds of work that participants are involved in; for how much time they were usually absent from work before the bereavement; whether they had any illnesses or other conditions likely to make them miss work. Each group would need to have roughly equal numbers of people from each circumstance. However, it could be that a particular combination of these variables has an effect on time off work and it would be hard to control for that in the first set of research.

Triangulation (p. 127)

- (1) You would probably want to contact the venue to find out if there really were cheap tickets available on the night.
- (2) This could be triangulated with reports from other manufacturers about how their brakes were tested and the results, as well as reports in trade magazines. There may also be general information in consumer magazines about different braking systems. If you knew anybody who had bought a car with the new brakes, you could ask their opinion. If you can drive, you would want to try out the braking system for yourself.
- (3) If the book provides references, you can check the original sources to see if they were reported accurately. You would expect to see references to specific 'poor laws' on begging, and the dates

Answers to activities in Chapter 8 (continued)

of these. You can also check other books to see if these contradict or support the chapter in the book. However, several books may refer to the same secondary source, which itself might be incorrect. Where possible, it is useful to check the primary sources, or published versions of these, for yourself.

Evaluating a body of evidence (p. 128 and texts pp. 243–8)

(a) Identifying reputable sources

Reputable

1. Text 3: Extract from a scholarly journal article (it will have been peer-reviewed).
2. Text 4: Extract from a scholarly journal article (it will have been peer-reviewed).
3. Text 6: From a chapter in an academic book (parts of the book are likely to have been reviewed by others in the field prior to commissioning or publishing).
4. Text 7: Material from a recognised public health information site.

Fairly trustworthy

5. Text 10: Article in a professional magazine (though not all in the author's specialism).
6. Text 5: Blog article aimed at professionals by a professional in their field (financial).
7. Text 9: Columnist in a national paper.
8. Text 12: Extract transcript of YouTube video by a leading figure in a recognised student charity (but best to check back to original sources for accuracy and further details).

Little authority

The judgements they make might not be based on expertise, but note that the sources they cite might be useful to check out. The personal views

might also be of interest though are not necessarily representative or accurate.

9. Text 1: Student review of a recommended text as part of a class activity.
10. Text 2: Article on personal website of a person who teaches meditation, potentially aimed at promoting their own services - that is, informational advertising.
11. Text 8: Comment from a student to a media item read online.
12. Text 11: Personal blog from someone not an expert in the field.

(b) Identifying vested interest

The authors of texts 2 and 8 are likely to have vested interest in their own argument. A case for vested interest could be made for other texts, such as those by the student in text 1 who might have a personal interest in the issue, and those texts by researchers and professionals, 5, 9, 10 and 12, who might benefit from promoting a particular point of view.

(c) Reliable sources on student nutrition

Texts 3 is the only item that is peer-reviewed so that you can be most certain that the author is who they purport to be, and their material has been considered as trustworthy by experts in the field.

Text 5 is not peer-reviewed but provides useful leads to other materials.

Text 12 is not peer-reviewed, but is by an expert who might have published these views in a peer reviewed source. It also provides useful leads. If using a blog article, you would need to consider whether the person's expertise is what it purports to be. If you use a peer-reviewed journal, it is more likely that this has been established.

Answers to activities in Chapter 9

Identifying theory (p. 132 and texts pp. 243–8)

Five texts have an explicit theoretical position.

These are:

Text 2: If more mindfulness training was available for students, it would significantly enhance their well-being.

Text 3: 'Risky' behaviour amongst higher education populations will create long-term health and well-being problems.

Text 5: In particular, the eating environment can affect whether and how students access good food, as well as promoting or inhibiting healthy eating.

Text 7: Being unhappy or lacking positivity is not necessarily a sign of poor mental health.

Text 9: Improving sleep habits is the route to better educational achievement.

Categorising arguments (p. 133 and texts pp. 243–8)

Text 1: pedagogical, health (arguably health and psychological)

Text 2: health, psychological

Text 3: medical, health (arguably scientific)

Text 4: health, medical, pedagogic, psychological

Text 5: environmental, psychological, cultural, health (arguably sociological)

Text 6: pedagogic, psychological

Text 7: health, psychological, ethical (arguably humanitarian)

Text 8: psychological, financial

Text 9: pedagogical, psychological, health, medical

Text 10: legal, financial, ethical

Text 11: psychological, health

Text 12: psychological, environmental, health, medical (arguably sociological)

Accurate interpretation when reading (p. 134 and texts pp. 243–8)

Passage 9.1

Accurate interpretation.

Passage 9.2

Inaccurate interpretation. The passage identifies that clusters of risky behaviours contribute to almost half of the 'disease burden' in industrialised countries. It raises that students are engaged to various levels in these behaviours, but the contribution of this to the disease burden is not mentioned.

Passage 9.3

Inaccurate interpretation. The passage states: 'Whilst it is recognised that food plays an important role in health and mental health in terms of nutrition, other aspects of experiences related to food are also important to student well-being.' The author does not state that one is more important than the other.

Passage 9.4

Inaccurate interpretation. This misinterprets the statistic given. The passage does not refer to an overall proportion of students, but rather to an increased likelihood of reporting anxiety.

Passage 9.5

Inaccurate interpretation. The author argues that there are moral and financial reasons for supporting students and that not supporting students could also have financial costs. The author suggests several kinds of support that would support sleep that in his opinion might not be too costly.

Passage 9.6

Accurate interpretation.

Answers to activities in Chapter 9 (continued)

Commentary on the notes activity (page 139)

Texts 3, 5 and 12 are the most relevant, in terms of both contents and reasonable authority, to a consideration of student diet.

On meditation/breathing, only text 2 is relevant. However, this is not a disinterested text (the author has a meditation business), so the note-maker should check its sources and make notes directly from these if useful to the argument. Text 11 is not an authoritative source – anecdotal cases such as this do not carry much weight.

For texts 2 and 12: the note-maker has selected phrases rather than using the text to extract information: it reads as if it has been pasted from the source and edited down. If this was then reproduced in an assignment or published report, it would be regarded as plagiarism.

Text 3 is more relevant to supporting the statement (on food) than challenging it. This note misrepresents the argument in the text.

Text 5: Good selection of relevant points in the note-maker's own words.

Text 10: Not relevant. The note misrepresents the author, who merely mentions a list of many types of support that are recommended – including food.

Practice activity: Criticality when listening (page 143)

- 1) **The speaker's position at start of talk.** The speaker states their position that ecosystems and their biodiversity still hold the key to life on this planet.
- 2) **The speaker's conclusion at end of talk.** The speaker's conclusion is that everyone has a part to play in maintaining bio-diversity, as part of the ecosystem.
- 3) **The mistake in his original argument, identified by the speaker, that left it open to misinterpretation.** The speaker mentions that the simplicity of the message (plant a trillion

trees) was its strength but it was also naïve, as it was open to the misinterpretation that a single solution to global warming was possible.

4) The line of reasoning is:

We need to reduce global warming

- Global warming is one of the greatest challenges facing humanity.
- Reducing carbon emissions is essential to reducing global warming.
- Planting a trillion trees would draw existing carbon out of the atmosphere, offsetting decades of carbon emissions.

It is important to approach restoration and conservation in the right way

- The wrong messages (such as that simply planting trees is enough) can be harmful.
- There isn't a single solution to global warming – and other action should not be neglected.
- Planting lots of trees in the wrong way, such as in monocultures, is harmful.
- Global warming is not the only important issue that restoration projects need to consider.

We also need to protect bio-diversity

- Every species relies on others to survive (stated near the start of the talk).
- Ecosystems and their biodiversity hold the key to life on this planet, including food and medicines and all the resources we need for survival.
- Reducing biodiversity affects important ecosystems.
- It is also important to protect land, soils, grasslands, peat, wetlands – not just forests.
- Biodiversity underpins all life and impacts on other major challenges such as extreme weather, food shortages, and pandemics.

Everyone can contribute to global restoration

- People on the ground are already active in conserving ecosystems.
- They have essential information about what works and what does not.
- Sharing ecological data globally helps promote successes and avoid mistakes.

Answers to activities in Chapter 9 (continued)

- We are interdependent, as part of a whole human ecology.
- Collective action benefits everyone, beyond just climate change.

Practice activity: Criticality when listening (p. 144)

Windhorst, in his satirical presentation, structures his 'argument' in ways that are typical of talks. He makes assertions, and backs them up with reasons and supporting evidence; his conclusion follows from his argument. He structures his argument using words similar to those in a written argument: 'first things first', 'firstly, secondly, thirdly ...'.

However, Windhorst deliberately uses aspects of poor argumentation in order to entertain. He includes personal anecdotes, appeals to the 'emotion', repetition, 'facts' that are evidently fabricated, false evidence (the graphs, for example), and false correlations between unconnected trends (in TV programmes, TED talks and world crises). He claims that manifestly fabricated evidence is 'proof', and appeals to the audience to 'believe him'. His conclusions are a set of grandiose generalisations. His entertaining talk is useful for drawing our attention to how arguments, talks or fake news can be made to sound convincing. He helpfully draws attention to many devices used by speakers to persuade.

Answers to activities in Chapter 10

Setting the scene for the reader (p. 161)

'Is productionism dead?'

Passage 10.1 provides a good introduction to the subject that an intelligent reader without an in-depth knowledge of the subject could follow. The author defines what is meant by 'productionism' and summarises why the theory was developed. The introduction informs the reader about positive and negative aspects of productionism covered in the essay. The author's position and conclusions are presented clearly to orientate the reader.

Passage 10.2 is written in a flowery or theatrical style, and makes grand sweeping statements. However, the style makes it difficult for a reader who does not know the subject well to work out what productionism is. The author's general position is clear, but the reader is not told how the argument will be developed.

Passage 10.3 launches too quickly into the subject, giving little introduction to orientate the reader. The author presents examples of the effects of productionism without having explained what it is and how it led to these effects.

Passage 10.4 makes too much use of broad generalisations about human society. Some of these may be true, but would be hard to prove and are not directly relevant to the essay. As a result, the essay starts very slowly, and uses a lot of words to say very little of relevance.

Words used to signpost conclusions (p. 167)

If you used different words to signpost the argument than those used in the passages opposite, check the table on page 168 to see if you used suitable alternatives. The signal words are indicated in italic.

Passage 10.5

Deaf people have their own languages, based on signs, body position and facial expressions. *However*, as few hearing people understand these languages, communication between deaf and hearing people is not usually very effective. *Although* deaf people often form strong social and cultural groups, they are often excluded from mainstream culture and their talents are not used effectively within the economy. *Similarly*, hearing people can feel excluded from deaf conversations and uncertain of how to behave around deaf people. *Therefore*, it would be in everyone's interests if sign languages were taught in school so that deaf and hearing children grew up able to communicate effectively with each other.

Passage 10.6

Globalisation appears to be inevitable but there is disagreement about whether this is a positive development. *On the one hand*, there are those who argue that increased contact between countries leads to better understanding and has reduced the likelihood of future wars. *Furthermore*, they see benefits to democracy and human rights from information being widely available electronically, so that different nations can compare conditions in their country with those elsewhere. *On the other hand*, there are those who see globalisation as a destructive force. They argue that it leads to less powerful peoples losing their indigenous languages as the languages of more powerful countries are used internationally for business and politics. *Moreover*, they argue that globalisation often means big business buying up resources and land in poorer countries, thus distorting local economies and draining their resources. *Therefore*, although there are some potential benefits to globalisation, some controls are needed to protect poorer economies from exploitation.

Answers to activities in Chapter 13

Example 1: Serina (p. 236)

Serina would not make a good impression on the employer, for the following reasons.

She asks if it is possible to visit the employer, stating that she is available for a visit on any weekend. To the employer, this would suggest:

- 1) That Serina does not make use of available information, which has already indicated that visits are possible via an open evening on April 20th. This suggests that Serina doesn't pay good attention to detail, and/or can't follow instructions.
- 2) That Serina doesn't give thoughtful consideration to the needs of the employer – week-end visits are not likely to be convenient for the employer.

These points would be true for other jobs too, and not just for teachers.

Serina's application does not give a sense of having thought through the needs of the job. As a primary teacher, she may need to be available before term starts to help plan and prepare for the new term. It would be important to the job role that she is present from the start of the term to help settle in children at a critical time of the year. Many jobs recruit new posts such as graduate jobs in line with their annual work cycle. Employers are likely to have good reasons for expecting employees to start work on the dates they have indicated – especially if there are particular tasks, training, or orientation that needs to take place at a given time.

Employers would expect applicants to understand the nature of the role and to have arranged personal matters well in advance, in order to accommodate the requirements of the job. They would not expect that they needed to point out such things. By asking, Serina suggests she either doesn't understand the nature of the role or doesn't care sufficiently about it.

Such enquiries give the employers useful clues about an applicant's attitude and whether they are right for the job.

Example 2: Arno (p. 236)

Arno is likely to be wasting his time for this role. The employer clearly is looking for someone who has already worked in the field and understands the nature of the specialist fields that he or she would be managing. For a deputy director role, this calls for significantly more experience than Arno has to date.

Managing a budget of £500 would not be the equivalent of managing a service budget. Whilst personal experience is often valuable, that is not sufficient without the relevant work experience.

If this area of work interests Arno, he could look for a more junior role in one of the service departments, gain experience and then apply for more senior roles.

Example 3: Kim (p. 236)

Kim would be better advised to spend his time in preparing fewer but better applications. His answers to this section on independent and group working are weakened in the following ways.

He spelt 'Kiaru Holdings' incorrectly as 'Kairu Holdings'.

He hasn't addressed the employer requirement for the ability to work independently so would get no points for that.

Although he provides a sense of where he has been a team member, he doesn't provide any meaningful detail that helps the employer know his strengths as a team player and how these would be relevant to the job.

Saying others find you 'easy to get on with' is vague and doesn't really add anything to the application.

Answers to activities in Chapter 13 (continued)

As a keen member of the Radio Society, Kim could have written something along the lines of this.

I am self-reliant and able to work effectively when working independently and as part of a team. I was an active member of the university's Radio Society, and took on personal responsibility for the Enterprise Report that came out each week. This included making proposals to the team on the content, researching the items, writing these up, agreeing the draft with team, and ensuring my report was ready to go out on time.

My particular strengths in team working are in communicating inside and outside the team, making sure everyone's voice is heard, running focus groups, and using social networking usefully to achieve team objectives. I believe these skills would be useful when working with the customer base at Kiaru Holdings.

Example 4: Lizzy (p. 236)

Lizzy would not make a good impression on the employer, for the following reasons.

Her application contains many grammatical errors and missing words, which make it look careless, and which also make it harder to understand.

She has clearly applied previously to a different company, MTZ-Co, but hasn't spotted that she has left in a mention of that company. Whilst

employers know that people apply for lots of jobs, they take a dim view of such errors.

She seems interested in the job for reasons that would not be relevant to the business itself – her desire to live in the capital city. Employers are more likely to offer opportunities to candidates whose responses suggest that they have a particular interest in the business, such as its values, mission, training programme, clients, and the nature of the work itself.

She does not seem aware of how her application is wasting the employer's time – her approach is rather 'chatty' and goes into far too much detail about matters that an employer doesn't need to know about her life and interests.

The person specification requires flexibility about travel and working hours. Lizzy discusses flexibility only in the context of moving to the capital: that isn't what the employer would mean by flexibility to travel.

Lizzy has attached her CV, despite the job advertisement asking candidates, specifically, not to do so. Employers might find this irritating at best, and could use this as evidence of not being able to follow instructions or to pay attention to details.

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