

Chapter 9

Critical analytical thinking

LEARNING OUTCOMES

This chapter offers you opportunities to:

- understand what is meant by taking a critical or analytical approach
- become more aware of how to use critical and analytical thinking when reading and writing
- develop criteria for evaluating an argument or a line of reasoning in a piece of writing
- develop criteria for evaluating the evidence given in a piece of writing
- learn how to identify and draw valid conclusions.

Critical thinking

Critical thinking means weighing up the arguments and evidence *for* and *against*. Edward Glaser, who developed a test of critical thinking, defined it in this way (1941):

Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends.

In other words, Glaser emphasises the importance of:

- *persistence*: considering an issue carefully, and more than once
- *evidence*: evaluating the evidence put forward in support of the belief or viewpoint
- *implications*: considering where the belief or viewpoint leads – what conclusions would follow; are these suitable and rational; and if not, should the belief or viewpoint be reconsidered?

Analytical thinking

Analytical thinking involves additional processes:

- standing back from the information given
- examining it in detail from many angles
- checking closely whether it is completely accurate
- checking whether each statement follows logically from what went before
- looking for possible flaws in the reasoning, the evidence, or the way that conclusions are drawn
- comparing the same issue from the point of view of other theorists or writers
- being able to see and explain why different people arrived at different conclusions
- being able to argue why one set of opinions, results or conclusions is preferable to another
- being on guard for literary or statistical devices that encourage the reader to take questionable statements at face value
- checking for hidden assumptions
- checking for attempts to lure the reader into agreement.

Develop a detective-like mind

To develop critical and analytical thinking ability, you might imagine that you are developing a detective-like mind.

Reading

Critical thinking when *reading* involves the following:

- 1 identifying the line of reasoning in the text
- 2 critically evaluating the line of reasoning
- 3 questioning surface appearances and checking for hidden assumptions or agendas
- 4 identifying evidence in the text
- 5 evaluating the evidence according to valid criteria
- 6 identifying the writer's conclusions
- 7 deciding whether the evidence given supports these conclusions.

Writing

Critical thinking when writing involves comparable processes:

- 1 being clear what your conclusions are
- 2 showing a clear line of reasoning – an 'argument' leading to your conclusion
- 3 presenting evidence to support your reasoning
- 4 reading your own writing critically, as above, as well as your sources
- 5 viewing your subject from multiple perspectives.



Listening

Critical thinking when *listening* involves the same awareness as when reading, plus:

- 1 checking for consistency in what the speaker is saying – does the speaker appear to contradict herself; and if so, what is going on beneath that contradiction?
- 2 checking that body language, eye contact, and speed and tone of voice are consistent ('congruent') with what is being said – does the speaker look and sound as though he believes what he is saying?

These issues have been touched on in earlier chapters: the following pages explore them in more detail, and include some basic exercises so that you can try out your critical thinking skills.

Critical thinking when reading

Critical thinking when reading is essential to academic success as much of the writing you do for assignments will include critical analysis of the work of other people.

1 Identify the line of reasoning

Most of the texts you are required to read as a student will include an argument. In academic writing, an 'argument' is:

- a line of reasoning *or*
- an angle or a point of view *or*
- a position that is being defended *or*
- a case that is being made
 - backed up by evidence and examples *and*
 - leading to conclusions.

When reading, you need to keep asking yourself, 'What are the main things this writer wants me to accept? What reasons does she present to encourage me to accept this?'

Activity 1

See whether you can identify the main line of reasoning – that is, the writer's main point of view – in the 'Rochborough Health' passage below. (See page 197 for feedback.)

Passage 1: Rochborough Health

Outdoor play has beneficial effects for children in terms of both their health and their levels of social interaction. According to clinical trials carried out by Rochborough's Health Council Advisory Body in September this year, children who played outside for over fifty days in the year had a 20% higher lung capacity, and 30% lower incidence of asthma and bronchial conditions than children who played indoors. Children who played outdoors also reported having more friends than those who played indoors. A survey of 30 families by Rochborough Social Amenities Committee found that parents were more likely to let their children play outdoors if they had their own gardens or if there were supervised play areas nearby. Mr Arkash of Milton Road said his children did not feel safe playing on the Children's Meadow on the outskirts of Rochborough, as his son had been frightened by a fox there in the past. His little son looked quite tearful as his father spoke. 'He often cries because he has nowhere to play,' said his father. Supervised play areas can be expensive to provide. However, only 18% of homes in Rochborough have gardens. Therefore, to improve the health of all its children, Rochborough needs to provide more supervised outdoor play areas.

Rochborough Playcouncil Newsletter

2 Critically evaluate the line of reasoning

An argument can be critically evaluated in terms of whether it contains:

- relevant, contributing and sufficient propositions (reasons)
- logical progression
- false premises
- flawed reasoning.

Each of these is explored below.

Relevant, contributing and sufficient propositions

The Rochborough Health passage makes a number of statements or *propositions*. For example:

- Outdoor play improves levels of social interaction.
- Only 18% of Rochborough homes have gardens.

These are some of the reasons it gives to support its argument. When examining the line of reasoning, you need to consider whether the reasons given are relevant and whether they support (that is, contribute to) the overall argument. For example:

- the reference to the isolated incident of a fox is not very relevant to the argument about health
- the reference to the expense of supervised play areas *is* relevant to the argument – however, it weakens or undermines the argument rather than contributing to it because the piece does not make clear how the expense could be met.

It is important to check that reasons and evidence are both relevant and supportive of the main argument, as this helps you to identify whether the writer's conclusion is valid. Even if the writer has given relevant reasons that contribute to the argument, however, she may not have given sufficient reasons to prove this is the *only* conclusion that could be drawn.

Passage 2: Injuries

There has been a tremendous rise in the rate of industrial injury. This year there were over thirty reports of repetitive strain injury in the factory (Millex Injuries Report 1999). All those injured worked in the fibre department. Ten years ago there were no reported injuries. This shows that our work conditions are taking a more serious toll upon our health than in the past.

Millex News

The writer of Passage 2 begins from the premise (starting point) that there has been a great rise in industrial injury. The conclusion is that work conditions are having a more serious effect on health than in the past. He gives a relevant and contributory reason: the rise in the number of reported injuries. However, he does not consider other reasons why the number of reported injuries might have increased – such as whether repetitive strain injury was known about thirty years ago, or whether people were less likely to report accidents in the past.

In addition, the writer has not looked at figures for any other types of injury nor at the health of workers in other departments. He makes generalisations based on only one kind of injury and one part of the factory. He may still be *right* about the rise in industrial injury, but he has not proved his case. He has not given sufficient reasons (or evidence) to justify the conclusion.

Logical progression

In everyday conversation, it is common practice when someone is speaking to assume that there is a logical connection between one thing that is said and the next. For written arguments and in academic contexts in general, you need to question whether one point does indeed follow logically from another. A line of reasoning will:

- begin from a premise
- follow in logical stages (*A leads to B; B leads to C; C leads to D ...*)
- lead to a conclusion that follows directly from what has gone before (there are relevant reasons, in a logical order, which build towards the stated conclusion).

The premise in Passage 1 is that outdoor play is good for children's health. The logical progression is:

- local evidence supports the health argument (that outdoor play is desirable)
- parents' attitudes support this argument
- a lack of facilities prevents outdoor play
- more outdoor play facilities are needed.

False premises

If there were a reason why outdoor play was *not* good for Rochborough children, the writer of Passage 1 would have started from a 'false premise'. The writer of Passage 2 may indeed have begun from a 'false premise' – believing that industrial injury is on the rise in the Millex factory. No conclusive evidence of this is given, so it may not be true.

It is useful to be on the lookout for false premises: many arguments are based on weak foundations of this kind.

Flawed reasoning

Here are some examples of 'flawed reasoning'.

Assuming a causal connection

If two things occur at the same time or place, it is easy to assume either that they must be connected, or that one must have caused the other. For example:

I revised really well for that exam and got a low mark, so next time I won't revise and I should get a better mark.

This assumes a connection between revision and failure, without considering other possible reasons for failure. Similarly:

The number of cows in Britain has gone down, and the amount of cheese consumed is on the increase. Psychologically, people seem to eat more cheese when they feel that it will run out.

This assumes that the increase in cheese consumption is related to the number of British cows, whereas it may have been for other reasons such as increased vegetarianism, or a rise in cheese imports. The decrease in the cow population might relate only to herds reared for

meat – perhaps the number of milking cows is unaltered.

These examples are chosen to highlight the faulty logic, but flawed reasoning of this sort is not always easy to spot.

Drawing general conclusions based on one or few examples

The woollen jacket caused a serious skin reaction in the three-year-old, so sale of woollen clothing should be banned.

Here a generalised conclusion is made on the basis of a very small sample of experience – just one example. (The importance of using an adequate sample is explored further below.) There may have been reasons for the reaction unique to that child.

Inappropriate comparisons

In the Passage 1 a comparison is drawn between children who play indoors and those who play outdoors. However, it may have been that the children who played outdoors were already healthier, and those who played indoors did so because of poor health which might get worse if they played outdoors. For example, asthma sufferers are often allergic to pollen and might have been discouraged from playing outdoors.

3 Question surface appearances

Critical thinking requires that you examine these factors:

- Is the evidence what it appears to be?
- Might there be other explanations apart from the obvious one?
- Has all necessary information been given, or might other details lead to a different conclusion?
- Are there interested parties who would gain if the conclusions were accepted?
- Are there hidden assumptions or agendas?
- Does the evidence come from a reliable, disinterested source?

You look healthy to me, as your teeth are not blue

Activity 2

Look again at the 'Rochborough Health' passage.

- What hidden agendas might there be in this piece?
- What information may be missing that might lead to a different conclusion?

(See page 197 for feedback.)

4 Identifying evidence in the text

Identifying evidence in the text is usually fairly straightforward. Look for statistics, examples, case histories, findings from experiments, surveys, questionnaires or case studies. The evidence may be anecdotal – that is, stories told by one or a few people about their experiences.

Activity 3

What evidence is given in the 'Rochborough Health' passage? (See page 197 for feedback.)

5 Evaluate the evidence

It is not enough for a student to write in an essay or report: 'There is evidence on both sides.' Evidence is not all of equal weight. How can we decide which evidence is better? Some basic guidelines are outlined below.

Use valid criteria to evaluate evidence

Critical thinking involves identifying valid criteria against which something can be evaluated.



For example, when a doctor declares that somebody is healthy, she takes into account certain criteria, such as body temperature, blood measurements, and the absence of known (or common) symptoms of illness. She evaluates whether signs of potential ill-health are matters for concern and, based on her experience and established medical knowledge, comes to a conclusion about whether the evidence points more towards good health than to sickness.

The following sections give some criteria against which you can evaluate evidence in academic texts and for your own research.

Check the date of the research

Data may be out of date or conclusions based upon it may have been revised. How would your attitude to the 'Rochborough Health' article change if you found out that it was written in 1300, or 1927, or 1999?

Check the source of your information

Articles in academic or professional journals and in recommended textbooks are usually based on in-depth research, and are regarded as more reliable than findings recorded in magazines and newspapers. Newspapers and magazines may be useful primary sources for some subjects such as cultural studies, but are not generally regarded as 'authorities' to quote in essays.

Check for bias in your sources

Bias may not be obvious, and it does not necessarily mean that your source was being 'dishonest' or 'prejudiced'. If somebody has a strong interest in the survival of a particular hospital, for example, the evidence they present may be accurate, yet not the whole story. When thinking critically, we need to be continually questioning in our minds whether there may be hidden agendas, or reasons why the evidence appears to point one way rather than another.

It is always worth considering what political or economic interests might prevent the whole truth from emerging. Consider also how easy it would be, or would have been, for alternative views to be printed and circulated. For example, in some societies, such as sixteenth-century Britain, people who spoke, printed or sold

certain viewpoints could be punished by death or loss of limb.

Today, it can be difficult for small organisations or individuals to get the funding they need to research and validate an alternative viewpoint. The overall picture may be distorted if not all the evidence has come to light.

Whilst it is not necessary for you to write about issues of economics, politics and media access in every essay, it is important to be aware of who has access to power, resources and information, who does not, and the possible implications.

Beware the allure of numbers and statistics

It is important to check numerical data, and words that *imply* numerical data, as these are often misused and amounts misrepresented in order to sway the reader.

Most/many Notice words such as 'most' and 'many':

Most people said that they preferred oranges to apples.

'Most' is a very vague amount. If it *mattered* whether this statement were true or false, we would need more details. How many people were asked? How many preferred oranges? Under what circumstances?

Percentages Notice when percentages are given. Supposing, instead, the statement above read:

60% of people preferred oranges; 40% said they preferred apples.

This looks convincing: numerical quantities are given. But is the difference between 60% and 40% *significant*? Here we would need to know how many people were asked. If 1000 people were asked, of whom 600 preferred oranges, the number would be persuasive. However, if only 10 people were asked, 60% simply means that 6 people preferred oranges. '60%' sounds convincing in a way that '6 out of 10' does not. As a critical reader you need to be on the lookout for percentages being used to make insufficient data look impressive.

Sample size Notice also that if just 2 more people arrived who preferred apples, there

would be 6 of each. A very small increase in the *sample* (the database of people asked) could easily overturn the original percentage, changing it to 50% for apples and 50% for oranges – no difference at all.

The sample size is the number of people, animals or objects used in the research, whether it's an experiment, a survey or whatever. Small samples give very unreliable information. All other things being equal, the bigger the sample, the more reliable the data. A thousand participants is often taken as a reasonable number for considering statistics to be 'significant'.

Representativeness The sample should be representative of the overall group being studied. If all those asked about fruit preference came from Seville and made their living from oranges, we might not consider them to be either typical or reliable as a sample. Similarly, if all those asked about their preferences were women, or aged ten, or from the South of England, it would not be safe to generalise from them to the rest of the population. To make the sample representative, researchers aim for a good mix of men and women, of different ages, backgrounds and interests.

Conditions of data collection If you found out that those who said they preferred oranges had each been given one free by the person conducting the survey, you might wonder whether the participants had had an ulterior motive in giving their answers, and whether the data were reliable.

Similarly, if the data were collected in face-to-face interviews by personnel wearing the logo of a company known for its orange juice, it is possible that some participants wished to please the interviewers. It is important to find out, where possible, about the conditions in which data were collected, to determine how trustworthy they are. Articles in academic journals usually give full details about the research conditions.



Emotive language and persuader words

Certain words can be very persuasive, and can trigger a position of trust in the reader. Which words they are will vary from subject to subject. For example, for some people the word 'experiment' summons up notions of scientific accuracy and reliability. However, the fact that an experimental approach was used does not in itself mean that the evidence is sound.

Emotive words The use of words and phrases such as 'cruel', 'unfair', 'abuse', 'natural', 'normal', 'commonsense', 'innocent child', 'old', 'little', 'massive', 'unique', 'extremist', 'radical', 'youth', 'new' and even 'final offer' can prompt emotional responses that may lead the reader away from an accurate appraisal of the evidence presented. Emotive images, such as people crying, can be used in a similar way.

Persuader words These words and phrases draw you in by appealing to what they claim is evident. It may be true that what follows is evident, but you still need to be on the alert when you see such words. They include 'surely', 'clearly', 'obviously', 'it is evident that', 'it is plain to see that', 'naturally' and 'of course'.

Activity 4

Evaluate the evidence given in the 'Rochborough Health' passage, using the criteria outlined above. (See page 197 for feedback.)

6 Identify the writer's conclusions

Conclusions generally come at the end of the piece of writing. However, they may also be found at the beginning of the text or even in the middle. They are then harder to find and tend to be less effective.

Often conclusions are indicated by 'trigger words', such as 'therefore', 'so', 'hence' or 'thus'; or by the use of imperatives – words indicating that something *has* to be done, such as 'must', 'should' or 'need to'.

Activity 5

Identify the conclusion in the 'Rochborough Health' passage. (See page 197 for feedback.)

7 Evaluating whether the evidence supports the conclusions

A writer may present evidence which could be considered reliable, being based on good research, but then draw conclusions which are not warranted by the evidence. An exaggerated example illustrates this:

- Proposition 1 *The karate champion is a woman.* (Verifiable fact.)
- Proposition 2 *My mother is a woman.* (Verifiable fact.)
- Conclusion *My mother is a woman, therefore she is a karate champion.* (False conclusion.)

Check for hidden false assumptions

In the above example, the faulty reasoning was based on the false assumption that if *one* woman is a karate champion, then *all* women are karate champions. This false assumption is easy to spot, but it is not always so simple. Researchers may try to be objective, but it is very difficult to stand completely outside of the commonsense views and ideological context of the society in which one is writing.

Example

Consider the ideas discussed in the student essays about Bowlby's influential studies of the 1950s (pages 183–6). Bowlby's findings (1951,

1969) suggested that infants who were separated from their mothers at an early age had behavioural and emotional difficulties later. This was used to argue the case against mothers working outside the home. The argument for mothers to stay home was no doubt based on genuine concerns for children's well-being, but the conclusion also suited the economic conditions of the time, in which there was a shortage of jobs for men returned from the Second World War (1939–45).

Later, the conclusion that children were damaged by absent mothers and childcare was heavily criticised (Clarke and Clarke 1976; Clarke-Stewart 1988; Tizard 1991). For example, it was argued that Bowlby's data was based on children in very extreme conditions, such as frightened war orphans and sick children in bleak hospitals and institutions of the 1950s. These children were not typical, and needed to be compared with average, healthy children attending friendly, well-run nurseries, who see their mothers every day. However accurate Bowlby's research may have been, his findings may not have justified the conclusions drawn from them. It is quite likely that Bowlby was affected by the dominant belief system of his day, that a woman's place was at home with the children, and that this influenced his interpretation of the data. It is also likely that his opponents were influenced in their research by changing ideas such as feminism, or by the rising number of women in part-time work.

It is quite typical for research to progress in this way, with advances being made as later researchers question aspects of earlier research, such as whether the sample was representative or whether the research contained assumptions which were invisible to the researchers at the time.

Activity 6

Do you consider that the evidence in the 'Rochborough Health' passage supports the conclusion drawn? What assumptions are made in the passage? (See page 198 for feedback.)

Critical analytical thinking

Now that you have worked through one passage step by step, try analysing Passage 3, 'Children at Play'. This writer covers issues similar to those in Passage 2, so you can compare the passages.

Activity 7

- Is the line of reasoning good?
- What is the conclusion?
- How strong is the evidence?
- What are the underlying assumptions?
- How well do the reasoning and the evidence support the conclusion?

(See page 198 for feedback.)

Passage 3: Children at Play

Children need to play outdoors and yet it is amazing how few children get that opportunity today. Although Smith (1982) argues that 48% of children prefer to play inside, Jones (1964) found that 98% of children in Britain prefer to play outdoors. I spoke to some parents in Rochborough who said their children missed out by not being able to play down by the river or roam the countryside in safety. Most children are now television addicts, or worse, are addicted to computer games. Everybody knows that this is damaging children educationally, and yet nothing is done about it. This is certainly true of Rochborough's children, and the main reason is that they do not have anywhere to play. Hardly anybody in Rochborough has a garden. It would be better for their health if they played outdoors but parents say they won't let them unless supervised play areas are provided. The parents are worried that they cannot see their children when they are playing. What chance is there for the health of citizens in Rochborough if its children do not get to play outdoors and end up as TV addicts?

Critical thinking when writing

Critical thinking when *writing* includes most of the elements of critical thinking when *reading*. It can be more difficult to analyse your own work critically, however, and to recognise and admit to your own opinions and bias.

Students' writing is often weakened because their thinking is not clear before they start to write their final draft. This is partly a question of planning (see Chapter 7), and partly of spending enough time critically evaluating both what they have read and their own ideas and writing. Time spent in critical analysis is equivalent to 'elaborating the problem' – a process which, as we saw in Chapter 3, was one way in which those who achieved good marks differed from those with poor marks.

Be clear about your conclusions

It is surprising how often students hand in work which shows that although they have done the necessary reading and even given their work considerable thought, they are not sure of their conclusions. The whole of the piece of writing should lead to its conclusion: if the conclusions

are vague or understated, *all* of the writing loses its force.

As soon as you are given a piece of work to do, write down what you think your conclusion will be. Put this where you can see it. Whenever you find out something that requires you to revise or fine-tune your conclusion, write out a new one. It may seem paradoxical (or back to front), but your writing will be clearer if you write your conclusions first.

Have a clear line of reasoning

If your conclusions are clear, your argument or line of reasoning is likely to be clear also. The conclusion gives you goalposts at which to direct your shots.

Keep your writing focused, rather than rambling. Bear in mind four guidelines:

- Early drafts may be helpful in elaborating and refining your thinking. However, be sure that your final version says what you really think.
- Work to a writing plan which sets out the reasons, examples and evidence in the most logical order.

- Consider how best to link ideas and pieces of information, so that your writing is not just a list of facts but a line of reasoning.
- Keep your argument clear. From the sea of information gathered at the research stage, select the points that best support your argument and signpost them clearly.

Use evidence to support your reasoning

Use evidence selectively: too many examples may obscure your line of reasoning. Choose a few items that clearly support your case.

Evaluate your own writing through critical reading

As a student, you also have ‘readers’. Your tutors or examiners will take a critical reading

approach when marking your work. Examine your own writing in the same way you would examine someone else’s, as outlined above.

Take multiple perspectives

Whether you are reading, listening, observing or writing, you will be expected to be able to analyse your own and others’ arguments – and indeed work, designs or proposals – from more than one perspective. This will mean considering *both* their good *and* their bad points, *both* their strengths *and* their weaknesses.

When you think critically and analyse things from several perspectives, the answer is seldom a straightforward one of right or wrong. Usually there are many contradictory pieces of evidence to weigh up and evaluate against each other.

Feedback on the activities

Passage 1: Rochborough Health

Activity 1: The main line of reasoning

‘Outdoor play is good for children’s health, so Rochborough needs better facilities for it.’

Activity 2: Vested interests

The article was published by the Playcouncil, who are likely to have a vested interest in arguing for more supervised play spaces.

Activity 3: Types of evidence used

The main evidence is of two kinds: surveys and anecdotes. The detail about the Arkash family is anecdotal (it is just one person’s experience). There is also a statistic about garden ownership.

Activity 4: Evaluating the evidence

The evidence about health and parental attitudes comes from official sources which could be considered relatively good ‘authorities’ and thus reliable. This evidence is relevant and contributes to the argument.

On the other hand, the writer generalises from only one set of health factors (those related to

the lungs). It is possible that children who play outdoors have *different* health problems – such as skin complaints or broken ankles. Alternatively, it is possible that the children who played indoors did so because they were more prone to sickness already (such as asthma and pollen allergies). Sickness may have been the *cause* of their playing indoors, rather than the *effect*.

We don’t know how representative the children in the survey were of all Rochborough children.

The anecdotal details about the Arkash child and the fox are emotive, and not really relevant to the main argument. The anecdote provides human interest for journalistic writing, but would be unacceptable in most academic writing.

No source is given for the figure of 18% home ownership: we can’t judge whether it is reliable.

The writer twice mentions the effects of outdoor play on social interaction, but gives no evidence or details. She or he could link this in more to the main argument.

Activity 5: Conclusion

The conclusion is that Rochborough should provide more supervised outdoor play areas.

Activity 6: Evidence supporting the conclusion

The writer makes a reasonable case and gives supporting evidence. However, there is insufficient evidence to support the conclusion that 'in order to improve the health of its children, Rochborough needs to provide more supervised outdoor play areas'. We don't know what it is about playing outdoors that led to the health improvements. For example, it may be that children ran about more when they were outdoors, and that an indoor running area would have the same effect.

Underlying assumptions

The passage assumes:

- 1 That playing outdoors is better for all children's health. This may not be the case.
- 2 That the health of children who play indoors at present would necessarily improve by playing outdoors. This may not be true.
- 3 That playing outside decreases the incidence of asthma and bronchial conditions.
- 4 That beneficial effects are available only from outdoor play areas. In fact it may have been other factors about the outdoor play, such as space to run or things to climb, that led to improved health indicators.
- 5 That there are not enough supervised play areas already for Rochborough children. No figures are quoted for existing supervised play areas so we do not know whether more spaces are needed. The sources the writer quoted don't mention a need for more play spaces. We do not know what percentage of children already play outdoors. All these gaps mean that writer has not given sufficient evidence to support the conclusion.

Activity 7: Critical analytical thinking

On the right is Passage 3 again, with reference numbers added.

Logical progression: the line of reasoning

This kind of writing is likely to receive a comment such as 'What is your point?' It is difficult to identify the thread running through the passage: the line of reasoning is weak. The writer hops backwards and forwards between

Passage 3: Children at Play

Children need to play outdoors (1) and yet it is amazing how few children (2) get that opportunity today. Although Smith (1982) argues that 48% of children prefer to play inside, Jones (1964) found that 98% of children in Britain prefer to play outdoors (2b). I spoke to some parents in Rochborough (2) who said their children missed out by not being able to play down by the river or roam the countryside in safety (3). Most children are now television addicts, or are addicted to computer games (4). Everybody knows that this is damaging children educationally (5), and yet nothing is done about it. This is certainly true of Rochborough's children (4), and the main reason is that they don't have anywhere to play (6). Hardly anybody in Rochborough has a garden (2). It would be better for their health if they played outdoors (7) but parents say they won't let them unless supervised play areas are provided (2). The parents are worried that they cannot see their children when they are playing. What chance is there for the health of citizens in Rochborough if its children don't get to play outdoors and end up as TV addicts? (8)

different types of information, as at (8), having already mentioned these points earlier. The final sentence does not add to what has been stated earlier, at (4).

The conclusion

The conclusion is not clear. The nearest approximation to a conclusion is at (1), 'Children need to play outdoors', as this largely sums up the passage. The writing does not draw its information towards a final conclusion, and the final lines of the passage don't lead anywhere. Compare this to the 'Rochborough Health' passage, which leads to a clear conclusion.

The evidence

The evidence is weak, with insufficient detail. The places marked (2) all require further evaluation of the evidence: 'How many children? How many parents? How representative are they of Rochborough parents as a whole? What other views were expressed? How many exactly have gardens? How do we know this?'

A tutor might also comment that the writer has not analysed the sources. At (2b), although the writer uses statistics, these are not recent. She or he offers no possible explanations for why Smith and Jones' research had different findings – such as that they were looking at two different generations of children. The evidence cited confuses the argument rather than supporting it.

Offering evidence to support reasoning

At (7) and (5) issues about health or education could be developed into interesting points, but no evidence or details are given so the reasoning is weak. Compare (7) to the same point in the 'Rochborough Health' passage, which is more convincing.

The evidence: emotive language

At (3) the writer appeals to a 'golden age' when childhood was safer or better. Referring to children as 'addicts' is also very emotive.

The evidence: sources of information

The assertions at (4) may or may not be true. No reliable sources are quoted, so it may be just speculation.

Underlying assumptions

That 'Everybody knows' (5) is an assumption on the part of the writer. How does he or she know what 'Everybody knows'? Our own experience might suggest to us that most children are not 'addicts'.

Does the reasoning support the conclusion?

The main conclusion, that children need to play outdoors, is poorly supported by the reasoning. Although some reasons are given, these are in a jumbled order, without supporting evidence, and are mixed in with irrelevancies such as computer addiction. It is not clear whether an argument is being made on grounds of children's health.

Review

This chapter has looked at ways of developing your critical analytical thinking skills, building on what you learnt from earlier chapters.

You should now be able to link critical reading with analytical writing. Tutors often use terms such as 'critical analysis' or 'analytical writing' interchangeably. They are referring to the 'detective-like' approach outlined on page 188, and to your ability to explain how people arrived at different conclusions or different results.

You need to read, write and think with increasingly critical awareness. You will be

expected to examine arguments, evidence and conclusions closely, as well as the links between them. You will be asked to evaluate other people's reasoning and evidence, using criteria to guide you.

Be aware of how easy it is for readers to be swayed by an emotive style. Appreciate the importance of standing back and evaluating in detail.

If you are interested in developing your critical thinking further, you may find it useful to look at Thompson (1996) – see page 232 in this *Handbook*.