The experimenters devised this story the same way schoolteachers devise word problems for students of mathematics. That is, the contextual material is nothing more than a kind of window dressing. Smart students quickly learn to disregard the window dressing and seek out the mathematical problem it hides. In the same way, the Kpelle subjects hearing the story about Spider and Black Deer are supposed to demonstrate 'logic' by disregarding the contextual material about the feast, and seeking out the syllogism embedded within it. However, Kpelle subjects did not understand that they were being read this story in a testing situation for which considerations of context or meaningfulness were irrelevant. In the preceding example, the subject seemed to have difficulty separating the logical problem both from the introductory material about the feast and from the rest of his experiential knowledge.

Cole and Scribner interpreted their subject's response to this problem as being due not to irrationality but to a 'failure to accept the logical task'. In a follow-up study, Cole and Scribner discovered that Kpelle high school children responded 'correctly' to the logical problems 90 percent of the time. This suggests a strong correlation between Western-style schooling and willingness to accept context-free analytic tasks in testing situations.

But this is not all. David Lancy, one of Cole and Scribner's colleagues, discovered that Western-style syllogisms are very similar to certain forms of Kpelle riddles. Unlike syllogisms, however, those riddles have no single, 'logically correct' answer. 'Rather, as the riddle is posed to a group, the right answer is the one among many offered that seems most illuminating, resourceful, and convincing as determined by consensus and circumstance. This emphasis on edification as a criterion for "rightness" is found in Kpelle jurisprudence as well.'

Cole and Scribner conclude: 'We cannot draw conclusions about reasoning processes from the *answers* people give to logic problems. We have first to ask: "What is their understanding of the task? How do they encode the information presented to them? What transformations does the information undergo, and what factors control these?"'

6 Emotion

'We think and name in one world, we live and feel in another.'
Marcel Proust, 1871–1922

'Conquer your passions and you conquer the world.'
Hindu proverb

'The heart has its reasons of which reason knows nothing.'
Blaise Pascal, 1623–62

'Philosophy is the finding of bad reasons for what we believe on instinct.'
F. H. Bradley, 1846–1924

'Deep thinking is attainable only by a man of deep feeling.'
Samuel Taylor Coleridge, 1772–1834

'Axioms in philosophy are not axioms until they are proved upon our pulses.'
John Keats, 1795–1821

'If you can keep your head when all about you are losing theirs... you have probably misunderstood the situation.'
Anon

'Laws are only reached by non-logical methods. To make a law one has to have an intellectual love of the subject.'
Albert Einstein, 1879–1955

'Nothing great is accomplished in the world without passion.'
Georg Wilhelm Friedrich Hegel, 1770–1831

'All emotions were abhorrent to his cold, precise but admirably balanced mind.'
Sir Arthur Conan Doyle, 1859–1930 – about Sherlock Holmes

'The opinions that are held with passion are always those for which no good ground exists, indeed the passion is the measure of the holder's lack of rational conviction.'
Bertrand Russell, 1872–1970

'Man is a rational animal who always loses his temper when called upon to act in accordance with the dictates of reason.'
Oscar Wilde, 1854–1900

'Reason is always and everywhere the slave of the passions.'
David Hume, 1711–76

Introduction

In Theory of Knowledge the emotions are treated as one of the four ways of knowing, together with language, reason and perception. Since the emotions have traditionally been seen as more of an obstacle to knowledge than a source of it, this may initially seem surprising. There are some good reasons for the traditional suspicion of the emotions; for an angry, frightened or infatuated person is unlikely to see clearly or reason well. That is why we usually advise people to 'be reasonable' rather than 'be emotional'. When we have recovered from an emotional outburst, we typically say things like 'I don't know what came over me', and this suggests that we think reason *ought* to be in control.

At the same time, our feelings matter to us a great deal, and we naturally consult them when we make important decisions. Indeed, some people believe that feelings are a better guide to the truth than reason. This view was popularised by romantic writers and poets in the early nineteenth century and it is still common today.

Activity 6.1

1 'You're being emotional' is usually taken as a criticism. Why? Could 'You're being rational' ever be seen as a criticism?
2 To what extent do you think we are able to control our emotions? Which emotion is the most difficult to control?
3 'What reason weaves, by passion is undone' (Alexander Pope, 1688–1744). Illustrate and analyse this quotation, by choosing a character from a novel, play or film whose reason is overcome by emotion.

Before looking in more detail at the relevance of the emotions to our search for knowledge, we should begin by saying something about their nature.

The nature of the emotions

The word 'emotion' is derived from the Latin verb *movere* meaning 'to move'. We shall be using it in a broad sense to include such things as feelings, passions and moods. An emotion usually consists of various internal feelings and external forms of behaviour, and it can vary in intensity from, say, mild irritation to blind anger. The word 'passion' is usually reserved for a strong emotion. You can, for example, be in a passionate rage, but you cannot be passionately irritated. A mood is an emotion which continues for a period of time. Thus you may be in a bad mood all day long and your behaviour may be punctuated by fits of anger. (Later in this chapter, we will also be looking at intuition – something which does not fit comfortably into the category of either reason or emotion.)

Activity 6.2

Which of the following words do you naturally associate with reason and which do you naturally associate with emotion?

a Hot	b Folly	c Impulsive	d Controlled
e Cool	f Powerful	g Subjective	h Objective
i Voluntary	j Blind	k Wisdom	l Instinctive
m Reflective	n Weak		

Primary emotions

According to psychologists, there are six basic emotions, or **primary emotions**, that are common to all cultures:

- happiness
- sadness
- fear
- anger
- surprise
- disgust.

When photographs of faces displaying these states of mind are shown to people they can readily identify the relevant emotion no matter what country they come from. Moreover, children who are born blind and deaf also show these emotions – which suggests that they are inborn rather than learnt.

Activity 6.3

1 Study the six faces below and say which face goes with which of the emotions mentioned above.

Figure 6.1

2 Do different cultures have different rules about the extent to which one should *display* one's emotions?

The James–Lange theory

The fact that primary emotions have a typical facial expression associated with them suggests that there is a close connection between our emotions and our bodies. Indeed, according to the **James–Lange theory** (which is named after the psychologists who came up with it), the emotions are essentially *physical* in nature, and bodily changes come before, and cause, emotional changes.

Activity 6.4

Imagine the following situation. You are about to sit an exam and you are feeling very nervous. Your mouth is dry, you have a sinking feeling in the pit of your stomach, the palms of your hands are sweaty, and you want to go to the washroom. Now remove each of these physical symptoms one by one. What is left of your exam nerves?

If you went through the above thought experiment, you may have found that when you removed all the physical symptoms of nervousness, the nervousness itself disappeared. According to the James–Lange theory the same holds true for *all* of our emotions – if you remove the physical symptoms the corresponding emotion disappears.

Interestingly, the theory also suggests that if you mimic the appropriate physical symptoms you can generate the corresponding emotion. For example, if you smile you will feel happy, and if you scowl you will feel angry. You might like to test this idea out on yourself!

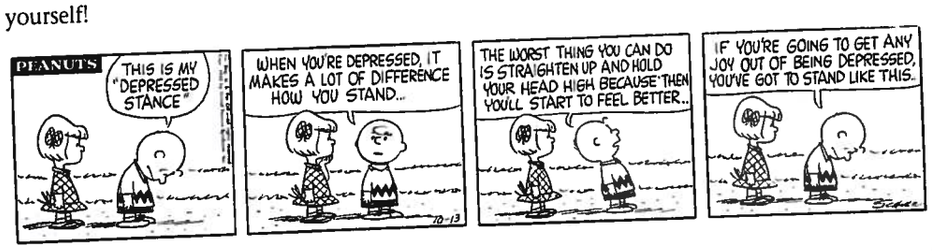


Figure 6.2

The James–Lange theory also suggests a mechanism through which we can come to know and **empathise** with other people's feelings. The idea is that when you talk to someone who is, say, feeling depressed, you unconsciously mimic some of the physical expressions of his mood. When he tells you his troubles, you might say something like 'Oh dear, I am sorry', and find yourself instinctively adopting his flat, depressed tone and hunched posture. As a result, you may pick up at least an echo of his depressed mood.

Activity 6.5

1. Have you ever noticed a class atmosphere or mood develop in a particular lesson at school? How helpful is the above mechanism in explaining how this comes about?
2. To what extent do you think that moods are generally infectious?

The role of beliefs

Despite the attractions of the James–Lange theory, it can be criticised because it ignores the fact that our emotions have a mental as well as a physical aspect. Although our emotions are closely connected with our bodies, they can also be affected by our beliefs. This, I think, is what distinguishes human emotions from the emotions of other animals. If you have a pet dog, you cannot seriously doubt that it has emotions, but dogs – and other animals – appear to lack the range and complexity of many distinctively human emotions.

Activity 6.6

1. How do you think human emotions differ from the kinds of emotions a dog can feel?
2. The picture below, called *The Scream*, is by the Norwegian expressionist painter Edvard Munch (1863–1944).
   a. What is your response to the emotion being conveyed in this painting?
   b. If the human figure was replaced by a dog in the same pose, would your response be different? Why?

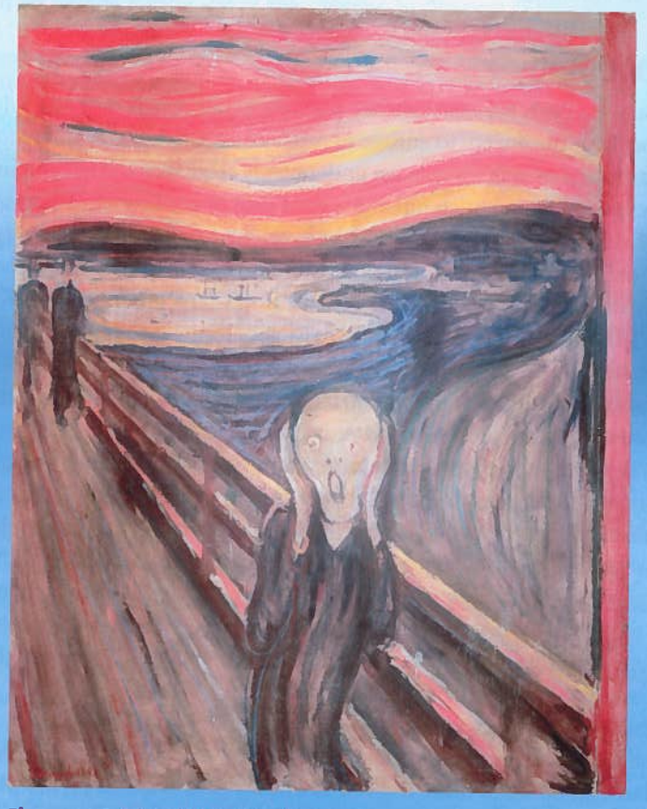


Figure 6.3 Edvard Munch's *The Scream*

As well as the primary emotions mentioned above, we human beings can experience **social emotions** such as ambition, contempt, embarrassment, envy, gratitude, guilt, indignation, jealousy, pride, shame and sympathy. Our intelligence and imagination mean that we are also able to anticipate and picture more distant dangers. A dog may worry about threats in its immediate environment, but you can also be worried about your final exams, or the fact that you are going to die, or the eventual heat-death of the universe! One of the ways in which dogs have an easier time of it than we do is that they don't have to worry their heads about the meaning of life!

Since emotions have both a physical and a mental aspect, they can be affected not only by our bodies, but also by our beliefs. This suggests – in theory at least – that a change in our beliefs can lead to a change in the corresponding emotion. For example, if you enter a badly lit cellar and see a snake in the corner, you will probably be frightened. But if, when you look more closely, you discover that it is not a snake but a coiled rope, your fear will vanish. A change in your beliefs has led to a change in your emotions.

There is, then, a two-way relationship between emotions and beliefs: not only do our emotions affect our beliefs – as we saw when discussing perception in Chapter 4 – but our beliefs affect our emotions.

Emotional energy

One of the ways in which the emotions are relevant to our search for knowledge is that they provide us with the energy to engage in intellectual activity. The ability to come up with new ideas in any area of knowledge undoubtedly requires a certain amount of genius, but it also needs a long apprenticeship and a great deal of persistence. According to Thomas Edison's (1847–1931) famous estimate, 'Genius is one per cent inspiration and ninety-nine per cent perspiration.' A great deal of day-to-day academic work can be boring and repetitive. A mathematician sharpens her pencils, works on a proof, tries a few approaches, gets nowhere and finishes for the day. A biologist goes to the lab, gets the equipment out, does an experiment, it doesn't work, puts the equipment away again and goes home. A writer sits down at his desk, produces a few hundred words, decides they are no good, throws them in the bin and hopes for better inspiration tomorrow. To produce something worthwhile – if it ever happens – may require years of labour. The mathematician Andrew Wiles (1953–) spent eight years trying to prove Fermat's Last Theorem – one of the great unsolved problems in mathematics – before making his crucial breakthrough in 1994. The Nobel-prize-winning biologist, Peter Medawar (1915–87), estimated that four-fifths of his time in science was wasted, adding glumly that 'nearly all scientific research leads nowhere'. The Chilean writer Isabel Allende suffered from writer's block for more than three years. What sustained all of these people in their work, and motivated them when things were going badly, was a *passion* for their subject.

The fact that emotions provide energy for the pursuit of knowledge does not in itself mean that they are a source of knowledge. Food also gives us energy for the pursuit of knowledge, but that does not make it a way of knowing. In order to decide whether or not the emotions can be a source of knowledge we will need to take a closer look at the role that they play in our mental lives.

Activity 6.7

1. What do you think are the main qualities that make a person a good teacher? Would you include a word like 'passion' in your list? Give reasons.
2. What do you think is the relationship between liking a subject and being good at it? Do you like a subject if you are good at it, or are you good at a subject if you like it?
3. What are the pros and cons of holding a belief with passion?

Emotions as ways of knowing

If, as the traditional view claims, the emotions are more of an obstacle than a source of knowledge, we still need to look at them and consider how to guard against their disruptive influence. It could, however, be argued that the emotions play a more positive role in our mental lives and that without them we would be unable to make sense of the world. We also need to take a closer look at the nature of intuition. For some of our most fundamental beliefs seem to be more emotional matters of the heart than rational matters of the head.

This gives us an agenda for the rest of this chapter. In the next three sections, we shall look at:

1. emotions as an obstacle to knowledge
2. emotions as a source of knowledge
3. intuition.

Emotions as an obstacle to knowledge

Since emotions are an integral part of our mental lives, they are likely to influence the way we see and think about the world. Strong emotions can sometimes distort the three other ways of knowing.

- ***Perception*** Our perception of things can be coloured by strong emotions, and there is doubtless some truth in sayings like 'love is blind' and 'fear has many eyes'. Such **emotional colouring** can make us aware of some aspects of reality to the exclusion of others. If, for example, you are in love with someone you are likely to be blind to their faults; whereas if you loathe them you are likely to see only their faults.
- ***Reason*** Reason can also be negatively affected by our emotions, and if you hold your beliefs with too much passion, this can prevent you being open-minded and lead to a 'my theory right or wrong' kind of attitude.
- ***Language*** A person in the grip of a powerful emotion is likely to use slanted and emotive language.

You can find many examples in everyday life of the way in which emotions can undermine our ability to think clearly. At some time or other, you have probably been in a 'rational discussion' with someone which degenerated into a slanging match. When our emotions are aroused, it is all too easy to stop listening to the person we are arguing with and to start trading insults rather than reasons.

Activity 6.8

1 To what extent do rival sports fans see and interpret what is happening on the pitch in accordance with their emotional prejudices? Give examples.
2 Analyse a famous speech and explain how it appeals to the emotions of the listeners. (A good one to look at might be Mark Antony's speech in *Julius Caesar* – the one which begins 'Friends, Romans, Countrymen'.)

Rationalisations

When we are in the grip of strong emotions, we tend not to reason in an objective way but to *rationalise* our pre-existing prejudices. To clarify the difference between reasons and rationalisations, consider the following story by Aesop (sixth century BCE?), the legendary writer of Greek fables.

> A famished fox saw some clusters of ripe black grapes hanging from a trellised vine. She resorted to all her tricks to get at them, but wearied herself in vain, for she could not reach them. At last she turned away, hiding her disappointment and saying: 'The grapes are sour, and not ripe as I thought.'

This story suggests that if we have a particular emotional attitude about something we may manufacture bad reasons in order to justify it. According to psychologists, this kind of behaviour is quite common. We tend to rationalise when there is a conflict between two or more of our beliefs. For example, a cigarette smoker who is familiar with the evidence that smoking is bad for her health may try to explain away the evidence as follows:

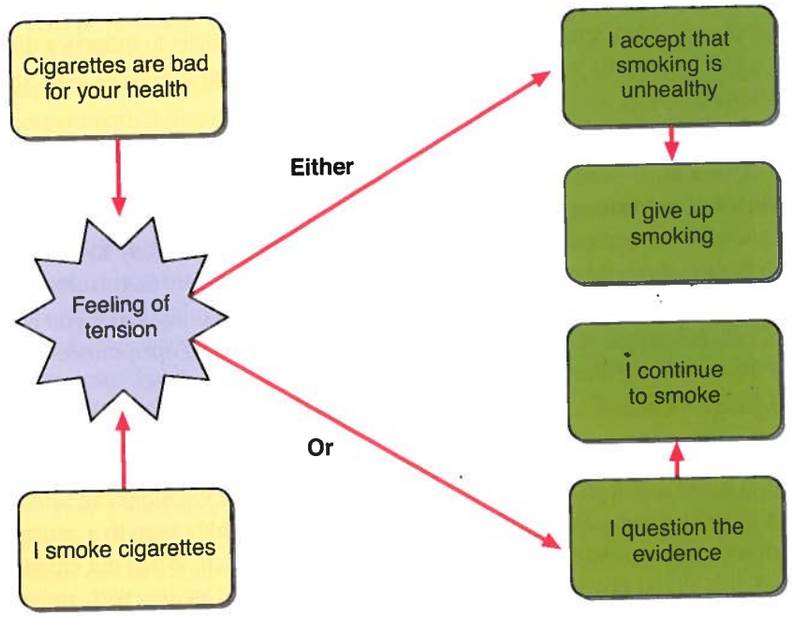


Figure 6.4

Activity 6.9

1 What is going on when someone who is losing badly at a game says that it is a 'stupid game'? Do you think they would say that if they were winning?
2 Are students who do badly on a test more or less likely to say that the test was unfair than students who do well on it? Give reasons.

At the limit, the tendency to rationalise can lead a person to develop an illusory but self-confirming belief system. The diagram below shows how this can happen.

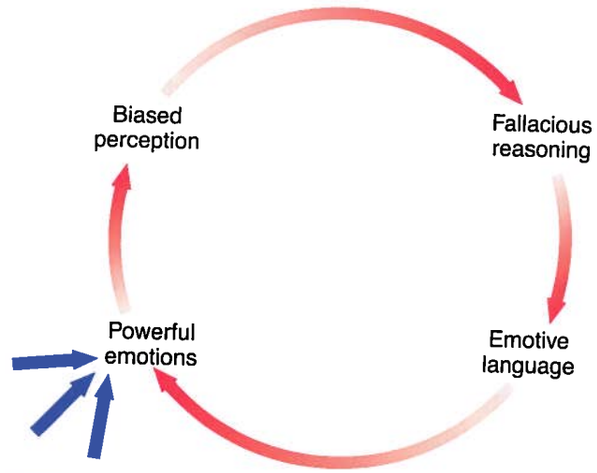


Figure 6.5 Rationalisation

To illustrate, imagine that Henry has an emotional prejudice against immigrants. His prejudice will probably lead to the following:

1 *Biased perception* He notices only lazy immigrants and overlooks hard-working ones.
2 *Fallacious reasoning* He makes hasty generalisations from his own limited experience.
3 *Emotive language* He concludes that immigrants are 'bone idle' and 'don't know the meaning of hard work'.

The above factors will reinforce the original prejudice and make it difficult for Henry to be objective. He can escape from such a vicious circle only if he is willing to question his prejudiced assumptions and actively consider other ways of looking at things.

The trouble is that fanatics – by definition – refuse to question their assumptions or consider evidence that runs contrary to their own distorted way of looking at the world. As the psychologist Leon Festinger (1919–90) observed:

> A man with a conviction is a hard man to change. Tell him you disagree and he turns away. Show him facts or figures and he questions your sources. Appeal to logic and he fails to see your point. We have all experienced the futility of trying to change a strong conviction, especially if the convinced person has some investment in his belief. We are familiar with the variety of ingenious defenses with which people protect their convictions, managing to keep them unscathed through the most devastating attacks.

Irrational behaviour

Our emotions can not only distort our beliefs, but also lead us to make poor decisions. Some emotions are urgent and short sighted and they can easily blind us to the longer-term consequences of our actions. How often have you said something in a moment of anger that you immediately regretted? Or given in to temptation when it would have been better to exercise self-control? Aristotle defined man as a rational animal, and economics is based on the assumption that we are all – producers and consumers alike – rational people. But the underlying reality may be more in line with Thomas Schelling's (1921–) amusing description:

> How should we conceptualize this rational consumer whom all of us know and who some of us are, who in self-disgust grinds his cigarettes down the disposal swearing that this time he means never again to risk orphaning his children with lung cancer and is on the street three hours later looking for a store that's still open to buy cigarettes; who eats a high calorie lunch knowing that he will regret it, does regret it, cannot understand how he lost control, resolves to compensate with a low-calorie dinner, eats a high-calorie dinner knowing he will regret it, and does regret it; who sits glued to the TV knowing that again tomorrow he'll wake early in a cold sweat unprepared for that morning meeting on which so much of his career depends.

As this suggests, we are all masters of acting against our own best interests and making resolutions that we break at the first sign of temptation. ('I can resist everything except temptation', Oscar Wilde wryly observed.) We will have more to say about weakness of the will when we look at ethics in Chapter 12.

Since turbulent emotions can distort our ability to think clearly and behave intelligently, you might think that the ideal situation would be one in which we did not have any emotions at all and could look at the world in a balanced and objective way. In ancient times, such a belief was held by a group of philosophers known as the **Stoics**. The Stoics advocated a state of mind called **apathy** – literally 'without passion' – in which the mind could mirror reality in a calm and untroubled way.

Activity 6.10

1. What problems might there be in trying to be a good Stoic and striving to be apathetic?
2. Can you imagine a human life without emotions? If so, try to characterise what it might be like. If not, explain why not.
3. Under what emotional conditions do you think you are most likely to make an unbiased judgement about something: (a) a good mood; (b) a bad mood; (c) a neutral mood?

Emotions as a source of knowledge

Despite the Stoic ideal, it is difficult to imagine a meaningful human life without any emotions. If you describe someone as being 'cold and unemotional', you do not literally mean that they have no emotions, but that they have few emotions *compared with the average person*. You might think that Mr Spock, the half-human, half-Vulcan character in the original *Star Trek* series, comes close to having no emotions. But, as Steven Pinker has pointed out, Spock is not so much *lacking* in emotions as *in control* of his emotions.

> Spock's emotionlessness really just amounted to his being in control, not losing his head, coolly voicing unpleasant truths, and so on. He must have been driven by some motives or goals. Something must have kept Spock from spending his days calculating pi to a quadrillion digits or memorizing the Manhattan telephone directory. Something must have impelled him to explore strange new worlds, to seek out new civilizations, and to boldly go where no man had gone before. Presumably it was intellectual curiosity, a drive to set and solve problems, and solidarity with allies – emotions all. And what would Spock have done when faced with a predator or an invading Klingon? Do a headstand? Prove the four-color map theorem? Presumably a part of his brain quickly mobilized his faculties to scope out how to flee and to take steps to avoid the vulnerable predicament in the future. That is, he had fear. Spock may not have been impulsive or demonstrative, but he must have had drives that impelled him to deploy his intellect in pursuit of certain goals rather than others.

Some recent studies of brain-damaged patients in fact suggest that if you did not have any emotions then your life would quickly disintegrate. The psychologist Antonio Damasio cites the case of a patient called Elliot who suffered damage to the emotional centres in his brain. Elliot appeared normal in many respects and performed just as well on IQ tests as he did before his accident. Nevertheless, he became a 'rational fool' whose life fell apart because he had lost the ability to make decisions.

Damasio speculates that emotions help us to make rational decisions about things by narrowing down our options so that we can choose between a manageable number of them. Since patients such as Elliot do not have any emotions to guide them, they try to decide what to do on the basis of reason alone and end up experiencing a kind of mental paralysis.

Activity 6.11

1. Have you ever been in a situation where you had to choose between two equally attractive options? How did you come to a decision?
2. What role do you think is usually played by reason and emotion when people decide which universities to apply to? What role do you think each of these *should* play?
3. Peter has decided that he wants to marry Heloise. He came to his decision by weighing up all of Heloise's good points and bad points and comparing them with those of other potential life-partners. Heloise came out as the most rational choice. What can be said for and against this way of deciding whom you would like to marry? How would you feel if you were Heloise?

The relation between reason and emotion

The above discussion suggests that although we tend to think of reason and emotion as two different things, in practice they are closely related to one another and it is difficult to make a clear distinction between them.

Activity 6.12

1 Since you got out of bed this morning, how much time have you spent thinking and how much time feeling? What does this suggest about the relationship between thinking and feeling?
2 Can you ever feel literally nothing? Can you ever think literally nothing?

Rather than think of reason and emotion as completely different *either–or* things, it probably makes more sense to say that there is a *more-or-less* continuum of mental activity running from the very rational to the very emotional. When you are engrossed in a mathematics problem you are at one end of the continuum, and when you lose your temper you are at the other end. Most of the time you are probably somewhere in the middle and have a mixture of thoughts and feelings floating around in your mind.

Figure 6.6 Reason–emotion continuum

Furthermore, rather than think of reason and emotion as being opposed to one another, it may make more sense to say that our emotions can themselves be more or less rational. When we discussed the nature of the emotions, we saw that they have a mental as well as a physical aspect, and that a change in our beliefs can lead to a change in the corresponding emotion. While it might be reasonable to fear a snake in the cellar, if you later discover that it is in fact a coiled rope then your fear is no longer justified. Similarly, if you are angry with someone because they insulted you and you later find out that you misunderstood what they said, then your anger should disappear. With these examples in mind, we might say that in general *an emotion that is sensitive to the real nature of a situation is more rational than one that is not.*

The philosopher, Aristotle (384–322 BCE), was one of the first to suggest that emotions can be more rational or less rational. In speaking of anger, he observed that:

> Anyone can be angry – that is easy. But to be angry with the right person to the right degree, at the right time, for the right purpose and in the right way – that is not easy.

To get a sense of what Aristotle meant by this, compare the following two imaginary scenarios:

1 Paul has arranged to meet Tom at 3:00 p.m. Tom arrives at 3:02 p.m. and apologises for being late. Rather than accept Tom's apology, Paul starts screaming and shouting about Tom's lack of consideration and completely loses his self-control.
2 The hospital phones Judy with some terrible news. Her boyfriend has been assaulted by some hooligans and is lying unconscious in the intensive care unit. 'Oh dear', she says, 'that *is* annoying! I was hoping to play tennis this afternoon, but I suppose I had better come and visit him.'

The reactions of Paul and Judy in the above scenarios could both be described as irrational. Paul's problem is that he shows too much emotion, Judy's that she shows too little. If a friend arrives two minutes late for an appointment, you might reasonably show mild annoyance, but it is inappropriate to lose your temper. On the other hand, if you *only* show mild annoyance on learning that a loved one has been assaulted, then there is surely something wrong with your emotional responses; in this situation, you surely *ought* to feel shock, concern and anger. This suggests that showing too little emotion is as irrational as showing too much emotion. We need to find a balance between the two.

Activity 6.13

1 'If you are not horrified by genocide then you have not understood it.' Do you agree or disagree with this statement? Does it follow that the more horrified you are by genocide, the better you understand it? Could you be horrified by something and yet not really understand it at all?
2 What problems does the above raise for someone who is trying to write an 'objective' account of the genocide in Rwanda in 1994?

Allowing that our emotions may be more or less rational, there is still a problem that we may be able to see that a particular emotion is irrational and yet find it difficult to change it. This is particularly true with strong emotions such as fear and disgust. You may, for example, know that grass snakes are harmless, or that it is statistically safer to fly than to drive, but you may still be unable to contain your fear when you encounter a grass snake or are sitting in a plane. Many people also find it difficult to override unjustified feelings of disgust, as is shown by the following bizarre experiment. When subjects were invited to eat fudge that had been shaped to resemble dog poop, or drink apple juice poured out of a brand-new bed pan, the vast majority refused – even though such food and drink are usually desirable.

We all experience irrational emotions but, since it is difficult to switch them off, we may find it easier to adjust our beliefs to our emotions than bring our emotions into line with reason. We are back to the problem of rationalisation. When the object of our irrational fear and disgust is, say, an ethnic minority, the consequences can be serious.

Activity 6.14

Since you are much more likely to die in a car on the way to the airport than you are in a plane, would you agree that the fear of flying is an irrational fear? How would you explain it?

Intuition

For the rest of this chapter we will focus on a particular kind of feeling that is often given as a source of knowledge – namely intuition. Intuitions are, of course, very different from hot emotions, such as love and hate. But since they are usually seen as being more a matter of feeling than of thinking, it makes sense to discuss them here.

The word 'intuition' is typically associated with the aha moment of insight when you suddenly see the solution to a problem without going through any conscious process of reasoning. You are probably familiar with the story of Archimedes (*c.* 287–212 BCE) who hit upon his famous principle while lying in the bath. So excited was he by his insight that he leapt out of his bath and ran naked down the street shouting 'Eureka! Eureka!' ('I've found it! I've found it!'). You may not have run naked down the street, but you have probably had your own moments of insight when the solution to a problem suddenly dawned on you. The change from not being able to solve a problem to suddenly seeing the answer is quite mysterious and no one really understands how intuition works.

We use 'intuition' to describe not only flashes of creative insight but also our 'sixth sense' hunches about things. You may, for example, have an *intuition* that someone behind you is staring at you, and when you turn round you discover you are right! However, such intuitions do not seem to be very reliable. Sometimes when you turn round, no one is there!

Given their range and variety, we might distinguish between three different types of intuitions:

- *Core intuitions* – our most fundamental intuitions about life, the universe and everything
- *Subject-specific intuitions* – the intuitions we have in various areas of knowledge such as science and ethics
- *Social intuitions* – our intuitions about other people, what they are like, whether or not they can be trusted, etc.

Core intuitions

In an abstract sense, it could be argued that *all* of our knowledge is based on intuition. For although reason and perception are usually said to give us knowledge, they ultimately depend on intuition.

Reason The laws of logic are the starting point for all our reasoning, but we cannot prove them in terms of any more fundamental laws. If asked to justify them, most people would say that they are *intuitively* obvious.

Perception Perception is an important source of knowledge, but we cannot be sure on the evidence of our senses alone that life is not a dream. (This is because any evidence we appeal to could itself be part of the dream.) Yet we have an overwhelmingly strong intuition that the dream hypothesis is false and that what we are experiencing is reality.

A good way of seeing that our knowledge claims are ultimately based on intuition is to play the *Why?* game. Ask a friend to tell you one thing she claims to know, and then ask her why she believes it. When she answers, ask her why she believes *that*, and so on. The game is usually quite short. Your friend may be able to explain *A* in terms of *B*, and *B* in terms of *C*, and *C* in terms of *D*..., but sooner or later she will run out of reasons and tell you that her final knowledge claim is self-evident or intuitively obvious. We cannot, of course, take such intuitions for granted, but nor can we deny the important role they play in our thinking.

Activity 6.15

If someone asked you why you believe each of the following statements, what evidence, if any, could you give in support of them?

a I exist.
b Life is not a dream.
c If something is a banana, then it is a banana.
d 1 + 1 = 2.
e Parallel lines never meet.
f The laws of physics will not break down tomorrow.
g My friends are not androids.
h You should not torture innocent people for the fun of it.
i All human beings are created equal.
j Time has no beginning or end.
k Nothing comes from nothing.

There is a school of thought called **romanticism** that is associated with the emotions in much the same way that there are schools of thought associated with perception (empiricism) and reason (rationalism). Many people in the romantic movement were literary figures rather than philosophers, but what they had in common was an emphasis on the importance of the emotions for making sense of the world. Our discussion of core intuitions could be poetically summarised in Pascal's (1623–62) famous observation that, 'The heart has its reasons of which reason knows nothing', or John Keats' (1795–1821) claim that, 'Axioms in philosophy are not axioms until they are proved upon our pulses.' Since many – if not all – of our most fundamental beliefs seem to be based on intuition, romanticism may have something to be said for it.

But, before we get carried away singing the praises of hearts and pulses, we should take a reality check. A major objection to the claim that intuition is an important source of knowledge is that different people have conflicting intuitions. Wouldn't it be nice to think that decent, open-minded, well-educated people could all agree about what is intuitively obvious? But we only have to look around us to see that this is not the case. Does the

existence of the universe require an explanation? Could a machine think? Could a mind exist without a body? Is abortion murder? Many people have strong intuitions about the answers to these kinds of questions, but as often as not they disagree with one another! What is obvious to you may not be obvious to me; and we can all too easily be blinded by our own sense of what is blindingly obvious!

Here are three general questions that might cast doubt on the value of taking intuition as a source of knowledge:

1. If something is intuitively obvious, must everyone agree about it? (Is there *anything* that everyone agrees about?)
2. Could you be wrong in thinking that something is intuitively obvious? (Might you one day come to see that what you now think is intuitively obvious is in fact a deeply rooted prejudice?)
3. Whose intuitions should you trust? Are some people's intuitions better than others?

Activity 6.16

Give some examples of things that once struck you as intuitively obvious which you no longer believe are true.

Subject-specific intuitions

We sometimes appeal to intuition to justify our knowledge claims in various areas of knowledge, but research suggests that such intuitions should be treated with caution. There is a wealth of evidence to suggest that our uneducated intuitions in subjects such as logic, mathematics, physics, biology, history, economics and ethics are at best confused and at worst false.

Activity 6.17

Test the reliability of your intuitions by trying the following questions.

1. **Linda is thirty-one years old, single, outspoken, bright, and very much involved in social issues like disarmament and equal rights. Which of the following statements is more likely?**
   - a **'Linda is a bank teller.'**
   - b **'Linda is a bank teller and is active in the feminist movement.'**
2. **If an unbiased coin is tossed six times in a row, which of the following sequences is more likely?**
   - a **H-T-H-T-H-T**
   - b **H-H-H-H-H-H**
3. **Take a soccer match with eleven players on each side and a referee. What are the odds of two people on the field sharing the same birthday?**
4. **Briefly describe what will happen to the path of a ball after it is propelled through a spiral tube (see Figure 6.7) and shot out of the top of it.**
5. **Imagine that you are standing on a large flat plain holding a bullet in your left hand and a loaded gun in your right hand. If you fire the gun horizontally and at the same instant drop the bullet from your left hand, which of the two bullets will hit the ground first?**
6. **You and a friend have just spent $10 each to see a movie. After about half an hour you both realise that it is a really bad movie. List some good reasons for staying until the end of the movie, and then list some good reasons for leaving after half an hour.**

[You will find the answers to the above questions at the end of this chapter.]

The fact that many people get the above questions wrong shows that our natural intuitions are poor guides to the truth. Perhaps this is because they evolved to cope with the stone-age environment rather than with the modern world. At one time, it was believed that knowledge is simply organised common sense. But most psychologists would now say that we need to 'debug' – rather than blindly follow – our intuitions. Indeed, it could be argued that the aim of education is to help us 'unlearn' our naive intuitions so that we can acquire a more sophisticated and reliable understanding of the world.

To show why we need to be cautious about trusting our natural intuitions, let us briefly consider three subject areas: physics, biology and ethics.

Physics According to a common-sense belief that can be traced back to Aristotle (384–322 BCE), objects move only to the extent that they are given impetus or 'oomph', and if no force is applied to them they will grind to a halt. If something is going to move, you've got to push it, and if you stop pushing, it will stop moving. This reflects our everyday experience of the world, and for many centuries it struck people as intuitively obvious. However, this belief turns out to be false. For according to Newton's first law of motion, 'Every object continues in its state of rest or uniform motion unless acted upon by a force.' Since you learnt this at school, you probably have no difficulty in accepting this law as true, but it is worth noticing that it is far from obvious and is in many respects counter-intuitive. After all, when did you last see an object continuing endlessly in a state of uniform motion?

There are many other examples of the gap between the physicists' description of the world and our common-sense description of it. For example, as we saw in Chapter 4 (page 100), the desk I am sitting at strikes me as an obstinately solid object, but according to the physicists it consists mainly of empty space. And it gets worse. Many of the mainstream ideas of modern physics – such as quantum mechanics – are so contrary to our ordinary ways of thinking that even physicists struggle to make sense of them. At this level, our natural intuitions are not so much a guide as an obstacle to understanding. As one physics teacher ruefully observed, 'With each freshman class, I must again face the fact that the human mind was not designed to study physics.'

Biology Two hundred years ago, it was intuitively obvious to biologists that everything in nature had a purpose, and that since each species had its own unique essence one species could not evolve into another. Since Darwin, however, there has been a consensus among biologists that nature works blindly with no goal in mind, and that species gradually evolve into other species.

Ethics The problem with trusting our moral intuitions is that different people at different times have had different intuitions about what is right and wrong. For example, for many centuries it was 'obvious' that men were superior to women, and that some people were natural slaves; but I imagine that few people would accept such beliefs today.

Social intuitions

One of the problems with intuition as a source of knowledge is not only that it is fallible, but also that we tend to be over-confident about our own intuitions. This is particularly apparent in the case of social intuitions. We tend to put a lot of trust in our intuitions about other people and we pride ourselves on being good judges of character. (When did you last hear someone admit to being a *bad* judge of character?) However, the evidence suggests that our intuitions are not as good as we like to think. Can you, for example, tell if someone is lying to you? You probably think you can – that it is written all over the person's face (see Figure 6.8). But countless experiments have shown that when people try to distinguish true stories from false ones they do no better than they would if they simply guessed at random.

Figure 6.7

Activity 6.18

Test your social intuitions by studying the two faces below. One shows a genuine smile and one a false smile. Can you tell which is which?

Figure 6.8

Natural and educated intuitions

At the beginning of this section, we suggested that there is a sense in which all knowledge is based on intuition, but our subsequent discussion has raised doubts about its reliability. This raises the question of when, if ever, we should trust our intuitions.

At this point, I think it is worth making a distinction between *natural intuitions* on the one hand and *educated intuitions* on the other. We have seen that our natural intuitions do not always help us to understand the world. Expert intuition is another matter. Think of the way in which a chess grandmaster can survey a chessboard and intuitively see the right move to make. His intuition is the product not only of raw talent but also of a vast mental database of background knowledge. Top-level professionals in areas as varied as biology, brain surgery and baseball have similar intuitions.

Many of the great breakthroughs in the history of ideas have come about as a result of flashes of creative intuition. Typically, the person in question has been working doggedly on a problem without any success, only for the solution to hit them like a thunderbolt when they are idly daydreaming or taking a walk – or lying in the bath. (One eminent scientist even confessed to having his eureka moment of insight while sitting on the toilet!) The French mathematician Henri Poincaré (1854–1912) described how he came to one of his great intuitions as follows:

> For fifteen days I strove to prove that there could not be any functions like those that I have since called Fuchsian functions. I was then very ignorant; everyday I seated myself at my work table, stayed an hour or two, tried a great number of combinations and reached no results. One evening, contrary to my custom, I drank black coffee and could not sleep. Ideas rose in crowds; I felt them collide until pairs interlocked, so to speak, making a stable combination. By the next morning I had established the existence of a class of Fuchsian functions, those which come from the hypergeometric series; I only had to write out the results, which took but a few hours.

In reflecting on his experience, Poincaré came to the conclusion that mathematical creativity is not a matter of mechanically following rules to generate endless combinations of symbols, but of having the insight to see which combinations are worth exploring. 'It is', Poincaré concluded, 'by logic that we prove, but by intuition that we discover.'

Activity 6.19

1. Have you ever had the following experience: a really good idea comes to you in the middle of the night, but when you think about it again the following morning it seems much less impressive? Why do you think this is?
2. Do you think it is possible to have a valuable insight in an area in which you have little background? Has this ever happened to you?
3. From your own experience, what do you think is the relationship between intuition, background knowledge and intellectual effort?

In reflecting on the nature of these kinds of intuitions, we should keep in mind that despite appearances they are not a short-cut to knowledge. Some people might be tempted to celebrate intuition as an inexplicable and mysterious source of knowledge out of a kind of laziness. After all, wouldn't it be great if, from time to time, you effortlessly came up with brilliant new insights into the nature of things? Imagine that, like Newton, you are sitting under a tree one day when an apple falls on your head, and – 'pow!' – you suddenly come up with a revolutionary scientific theory! Sadly, it doesn't happen like that! For although the nature of intellectual creativity is still poorly understood, there seem to be at least two necessary conditions for having good ideas: (1) a thorough knowledge of the relevant field; and (2) unusually good powers of concentration. If your creative insights are to be of lasting value, you will have to sweat for them.

How reliable is intuition?

How reliable, then, is intuition as a source of knowledge? We can, I think, say that expert intuition is generally more reliable than natural intuition. But since most of us will never operate at the rarefied intellectual level of a Newton or a Poincaré, we might ask to what extent should we trust our own intuitions.

Since good intuitions are not God-given, we need to test them against other sources of knowledge. If your intuitions coincide with reason and experience and other people's intuitions, then it makes more sense to trust them than if they do not. What, then, should you do if your intuitions conflict with another source of knowledge? There is no easy answer to this question.

When we make decisions in the real world, such as which of two university offers to accept, reason and intuition may contradict one another. In the end, most people tend to go with their intuitions, but, as our discussion has suggested, we blindly trust them at our peril.

Conclusion

Our discussion of the emotions in this chapter has, I hope, convinced you of their relevance to the search for knowledge. For not only do they provide the energy that fuels intellectual endeavour, but they also play a central role in our mental lives. Some of our deepest beliefs about the world seem to be as much intuitive matters of the heart as rational matters of the head. So rather than think in terms of an either–or choice between reason and emotion, it might be better to say that a balanced intellectual outlook requires both reason *and* emotion.

At the same time, we need to be aware that the emotions can sometimes be an obstacle to knowledge. For, strong emotions can easily cloud our judgement and tempt us to find bad reasons to justify our pre-existing prejudices; and, despite their value, intuitions do not have any magical authority and cannot always be trusted. So it is worth keeping in mind that having strong convictions about something does not in itself guarantee that it is true.

In the last four chapters, we have seen that all of our knowledge tools are double-edged, and that they can both contribute to our knowledge of the world *and* be an obstacle to it. Rather than rely on any one way of knowing, we need to test them against one another when trying to establish the truth. The step beyond that is to compare our own opinions with those of other people to see how they stand up in the free market of ideas.

Answers to questions (pages 160–1)

1a It is more probable that Linda is a bank teller than that she is *both* a bank teller and an active feminist.

2 The probability of any two particular sequences of heads and tails is the same in each case – in this case $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{64}$

3 The simplest way to prove this surprising result is to begin by calculating, not the thing we are looking for, but its complement – i.e. the probability of no one sharing a birthday. Imagine people entering a room one-by-one. When the second person enters the room, there are 364 possible days for him to have a birthday that differs from the first person. So the probability that he will have a different birthday from the first person is $\frac{364}{365}$. When the third person enters, there are 363 possibilities of him having a birthday different from both of the first two, so the probability that all three will have different birthdays is $\frac{364}{365} \times \frac{363}{365}$. When the fourth person enters, the probability of all four having different birthdays is $\frac{364}{365} \times \frac{363}{365} \times \frac{362}{365}$. Continuing in this way, when 23 people are in the room, the probability of all of them having different birthdays is

$$\frac{364}{365} \times \frac{363}{365} \times \frac{362}{365} \times \ldots \times \frac{343}{365}$$

This works out to be 0.492. The above product first drops below 0.5 when you have 23 people. Thus, the probability that at least two of the 23 have the same birthday is $1 - 0.492 = 0.508$.

4 If no other force were acting on the ball, it would continue in a straight line at the angle from which it emerged from the tube, but the force of gravity will bring it down to the ground.

5 The two bullets will reach the ground at the same time because a bullet's rate of fall is independent of its horizontal motion.

6 As a reason for staying, you should *not* list the fact that you have already spent $10 on the ticket. If that were your only reason for staying, then you would end up wasting not only your money but also your time. All that matters now is how best to use your time.

Key points

- The emotions are relevant to the search for knowledge because they provide us with energy, affect our thinking and are sometimes used to justify our beliefs.
- The six primary emotions of happiness, sadness, fear, anger, surprise and disgust are found in all cultures.
- The James–Lange theory says that emotions are essentially physical in nature; but they also seem to be influenced by our beliefs.
- The emotions are sometimes an obstacle to knowledge, and strong emotions can colour our perception, distort our logic and inflame our language.
- Nevertheless, emotions give meaning and colour to our lives, and studies of brain-damaged patients suggest that without them we would become 'rational fools'.
- Rather than think of reason and emotion as opposites, it may make more sense to say that our emotions can themselves be more or less rational.
- Intuition is an immediate insight into something, and we can distinguish core intuitions, subject-specific intuitions and social intuitions.
- While there is a sense in which all knowledge is based on intuition, the problem is that people have conflicting intuitions.
- Our intuitive beliefs about many subjects are not very reliable and it could be argued that one of the aims of education is to debug human intuition.
- Many intellectual breakthroughs have come about in a flash of intuition; but you have to work hard for such intuitions.

Terms to remember

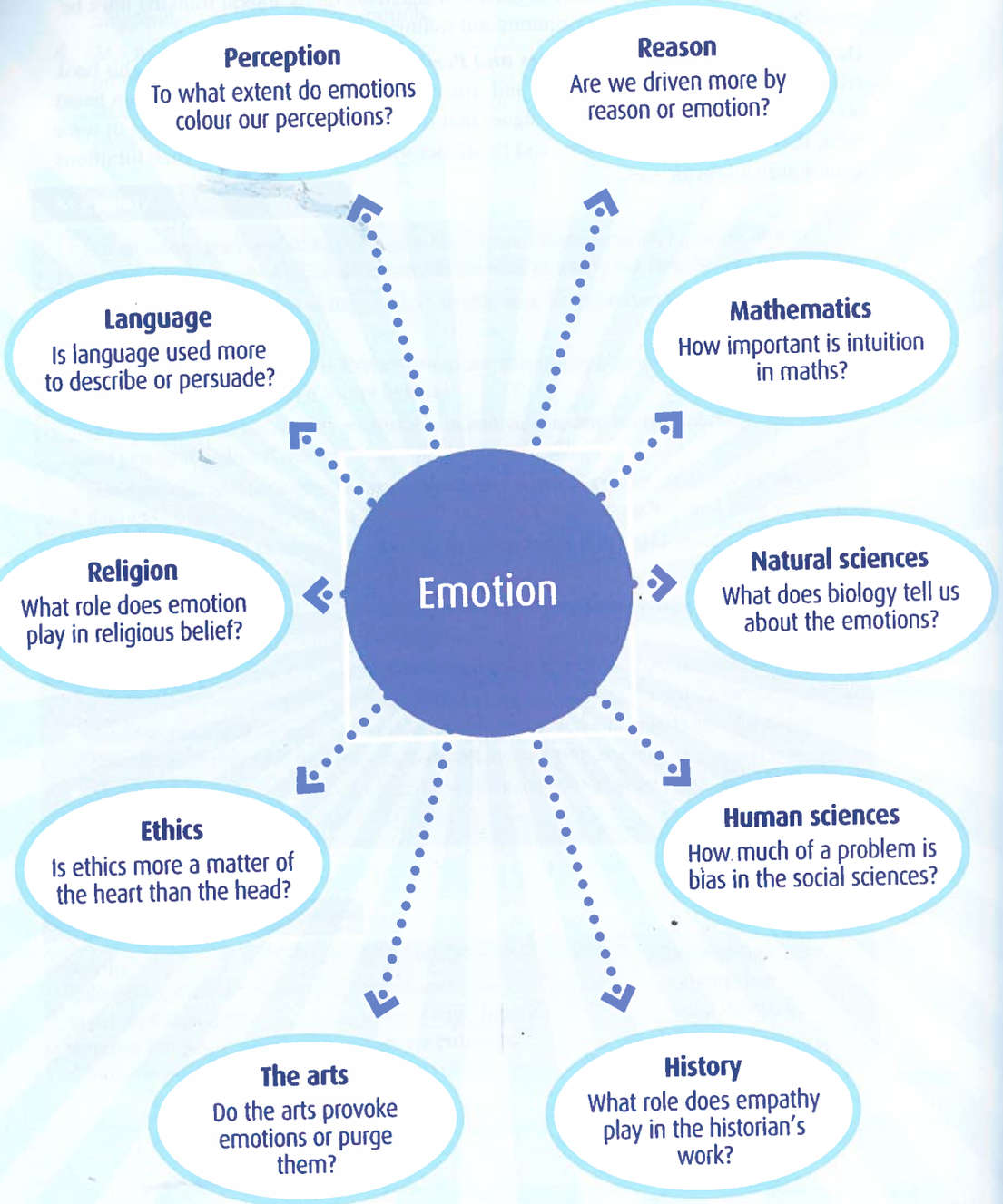
apathy	empathy	rational fool
debugging intuition	intuitions	romanticism
emotional colouring	James–Lange theory	social emotion
emotive language	primary emotions	stoicism

Further reading

Antonio Damasio, ***Descartes' Error*** (Grosset/Putnam, 1994). In this fascinating book, Damasio, a neuroscientist, goes beyond the traditional either–or approach of reason versus emotion, and argues that, in order to make intelligent decisions, logical thinking must be grounded in and supported by emotions and feelings.

David Myers, ***Intuition: Its Powers and Perils*** (Yale University Press, 2002). This book gives a balanced appraisal of the pros and cons of making judgements and decisions based on intuition. Myers, a psychologist, argues that while our intuitions are very good in some areas, they are very poor in others, and he advises smart thinkers 'to check their intuitions against available evidence'.

Linking questions



Reading resources

RETHINKING THINKING

The Economist, 16 December 1999

Traditional economics is based on the assumption that we are rational beings. This article from *The Economist* questions how accurate that assumption is.

Economists are starting to abandon their assumption that humans behave rationally, and instead are finally coming to grips with the crazy, mixed up creatures we really are.

'Are economists human?' is not a question that occurs to many practitioners of the dismal science, but it is one that springs to the minds of many non-economists exposed to conventional economic explanations. Economists have typically described the thought processes of homo sapiens as more like that of Star Trek's Mr Spock—strictly logical, centred on a clearly defined goal and free from the unsteady influences of emotion or irrationality—than the uncertain, error-prone groping with which most of us are familiar. Of course, some human behaviour does fit the rational pattern so beloved of economists. But remember, Mr Spock is a Vulcan, not a human.

Even economists are finally waking up to this fact. A wind of change is now blowing some human spirit back into the ivory towers where economic theory is made. It is becoming increasingly fashionable for economists, especially the younger, more ambitious ones, to borrow insights from psychologists (and sometimes even biologists) to try to explain drug addiction, the working habits of New York taxi-drivers, current sky-high American share prices and other types of behaviour which seem to defy rationality. Alan Greenspan, the chairman of the Federal Reserve, made a bow to this new trend when he wondered about the 'irrational exuberance' of American stockmarkets way back in December 1996 (after an initial flutter of concern, investors ignored him).

Many economic rationalists still hold true to their faith, and some have fought back by devising rational explanations for the apparent irrationalities studied by the growing school of 'behavioural economists'. Ironically, orthodox economists have been forced to fight this rearguard action against heretics in their own ranks just as their own approach has begun to be more widely applied in other social sciences such as the study of law and politics.

The golden age of rational economic man began in the 1940s. Famous earlier economists, such as Adam Smith, Irving Fisher and John Maynard Keynes, had made use of irrationality and other aspects of psychology in their theories. But in the post-war years these aspects were mostly brushed aside by the new wave of rationalists. The dominance of rationality went hand-in-glove with the growing use in economics of mathematics, which also happened to be much easier to apply if humans were assumed to be rational.

Rational behaviour was understood to

have several components. At a minimum – so-called 'narrow rationality' – homo economicus was assumed to be trying always to maximise his general 'happiness': what John Stuart Mill, a 19th-century philosopher, called 'utility'. In other words, given a choice he would take the option with the highest 'expected utility'. And he would be consistent in his choices: if he preferred apples to oranges, and oranges to pears, he also preferred apples to pears. In addition, there is a broader definition of rationality which includes the notion of a person's beliefs being based on logical, objective analysis of all the available evidence. Whether this is a meaningful definition continues to be the subject of much philosophical debate...

During the 1980s... the door of the ivory tower opened... to theories that included irrational behaviour. Today there is a growing school of economists who are drawing on a vast range of behavioural traits identified by experimental psychologists which amount to a frontal assault on the whole idea that people, individually or as a group, mostly act rationally.

A quick tour of the key observations made by these psychologists would make even Mr Spock's head spin. For example, people appear to be disproportionately influenced by the fear of feeling regret, and will often pass up even benefits within reach to avoid a small risk of feeling they have failed. They are also prone to cognitive dissonance: holding a belief plainly at odds with the evidence, usually because the belief has been held and cherished for a long time. Psychiatrists sometimes call this 'denial'.

And then there is anchoring: people are often overly influenced by outside suggestion. People can be influenced even when they know that the suggestion is not being made by someone who is better informed. In one experiment, volunteers were asked a series of questions whose answers were in percentages—such as what percentage of African countries is in the United Nations? A wheel with numbers from one to 100 was spun in front of them; they were then asked to say whether their answer was higher or lower than the number on the wheel, and then to give their answer. These answers were strongly influenced by the randomly selected, irrelevant number on the wheel. The average guess when the wheel showed 10 was 25%; when it showed 65 it was 45%.

Experiments show that most people apparently also suffer from status quo bias: they are willing to take bigger gambles to maintain the status quo than they would be to acquire it in the first place. In one common experiment, mugs are allocated randomly to some people in a group. Those who have them are asked to name a price to sell their mug; those without one are asked to name a price at which they will buy. Usually, the average sales price is considerably higher than the average offer price...

There is also a huge amount of evidence that people are persistently, and irrationally, over-confident. Asked to answer a factual question, then asked to give the probability that their answer was correct, people typically overestimate this probability. This may be due to a representativeness heuristic: a tendency to treat events as representative of some well-known class or pattern. This gives people a sense of familiarity with an event and thus confidence that they have accurately diagnosed it. This can lead people to 'see' patterns in data even where there are none...

Another delightfully human habit is magical thinking: attributing to one's own actions something that had nothing to do with them, and thus assuming that one has a greater influence over events than is actually the case. For instance, an investor who luckily buys a share that goes on to beat the market may become convinced that he is a skilful investor rather than a merely fortunate one. He may also fall prey to quasi-magical thinking—behaving as if he believes his thoughts can influence events, even though he knows that they can't.

Most people, say psychologists, are also vulnerable to hindsight bias: once something happens, they overestimate the extent to which they could have predicted it. Closely related to this is memory bias: when something happens people often persuade themselves that they actually predicted it, even when they didn't.

Finally, who can deny that people often become emotional, cutting off their noses to spite their faces. One of the psychologists' favourite experiments is the 'ultimatum game' in which one player, the proposer, is given a sum of money, say $10, and offers some portion of it to the other player, the responder. The responder can either accept the offer, in which case he gets the sum offered and the proposer gets the rest, or reject the offer in which case both players get nothing. In experiments, very low offers (less than 20% of the total sum) are often rejected, even though it is rational for the responder to accept any offer (even one cent!) which the proposer makes. And yet responders seem to reject offers out of sheer indignation at being made to accept such a small proportion of the whole sum, and they seem to get more satisfaction from taking revenge on the proposer than in maximising their own financial gain. Mr Spock would be appalled if a Vulcan made this mistake.

FOOLS FOR LOVE

This extract from *How the Mind Works* by Steven Pinker casts an unsentimental eye on the nature of romantic love.

Why does romantic love leave us bewitched, bothered, and bewildered? Should we blame it on the moon, on the devil, on raging hormones?

Unsentimental social scientists and veterans of the singles scene agree that dating is a marketplace. Everyone agrees that Mr or Ms Right should be good-looking, smart, kind, stable, funny, and rich. People shop for the most desirable person who will accept them, and that is why most marriages pair a bride and a groom of approximately equal desirability. The 10s marry the 10s, the 9s marry the 9s, and so on. Mate-shopping, however, is only part of the psychology of romance; it explains the statistics of mate choice, but not the final pick.

Somewhere in this world of five billion people there lives the best-looking, richest, smartest, funniest, kindest person who would settle for you. But your dreamboat is a needle in a haystack, and you may die single if you insist on waiting for him or her to show up. Staying single has costs, such as loneliness, childlessness, and playing the dating game with all its awkward drinks and dinners (and sometimes breakfasts). At some point it pays to set up house with the best person you have found so far. But that calculation leaves your partner vulnerable. The law of averages says that someday you will meet a more desirable person, and if you are always going for the best you can get, on that day you will dump your partner.

But your partner has invested money, time, childrearing, and forgone opportunities in the relationship. If your partner was the most desirable person in the world, he or she would have nothing to worry about, because you would never want to desert. But failing that, the partner would have been foolish to enter the relationship.

Marriage laws offer some protection, but our ancestors had to find some way to commit themselves before the laws existed. How can you be sure that a prospective partner won't leave the minute it is rational to do so – say, when a newly single Tom Cruise or Cindy Crawford moves in next door? One answer is, don't accept a partner who wanted you for rational reasons to begin with; look for a partner who is committed to staying with you because you are you. Committed by what? Committed by an emotion. An emotion that the person did not decide to have, and so cannot decide not to have. An emotion that was not triggered by your objective mate-value and so will not be alienated by someone with greater mate-value. An emotion that is guaranteed not to be a sham because it has physiological costs like tachycardia, insomnia, and anorexia. An emotion like romantic love.

It is often said that people who are sensible about love are incapable of it. Even when courted by the perfect suitor, people are unable to will themselves to fall in love, often to the bewilderment of the matchmaker, the suitor, and the person himself or herself. Instead it is a glance, a laugh, a manner that steals the heart. Research on identical twins suggests that the spouse of one twin usually is not attracted to the other; we fall in love with the individual, not with the individual's qualities. The upside is that when Cupid does strike, the lovestruck one is all the more credible in the eyes of the object of desire. Murmuring that your lover's looks, earning power, and IQ meet your minimal standards would probably kill the romantic mood, even though the statement is statistically true. The way to a person's heart is to declare the opposite – that you're in love because you can't help it. Concerned parents and politicians notwithstanding, the sneering, body-pierced, guitar-smashing rock musician is typically not singing about drugs, sex, or Satan. He is singing about love. He is courting a woman by calling attention to the irrationality, uncontrollability, and physiological costs of his desire. I want you so bad, it's driving me mad, Can't eat, can't sleep, Heart beats like a big bass drum, You're the only one, Don't know why I love you like I do, You drive me crazy, Can't stop lovin' you, I like the way you walk, I like the way you talk, et cetera, et cetera.

Of course, one can well imagine a woman not being swept off her feet by these proclamations. (Or a man, if it is a woman doing the declaring.) They set off a warning light in the other component of courtship, smart shopping. Groucho Marx said that he would not belong to any club that would have him as a member. Usually people do not want any suitor who wants them too badly too early, because it shows that the suitor is desperate (so they should wait for someone better), and because it shows that the suitor's ardour is too easily triggered (hence too easily triggerable by someone else). The contradiction of courtship – flaunt your desire while playing hard to get – comes from the two parts of romantic love: setting a minimal standard for candidates in the mate market, and capriciously committing body and soul to one of them.