A CUSTOM EDITION

Psychology PSY1011 and PSY1022

2nd Edition

Monash University

Compiled by:

Dr Shruti Mujumdar and Dr Sean Cain

ALWAYS LEARNING

PEARSON

A PEARSON AUSTRALIA CUSTOM BOOK

Psychology PSY1011 and PSY1022

2nd Edition

This custom book is compiled from:

PSYCHOLOGY

FROM INQUIRY TO UNDERSTANDING

2ND EDITION

LILIENFELD, LYNN, NAMY, WOOLF, JAMIESON, MARKS & SLAUGHTER

Pearson Australia
Level 10
151 Castlereagh Street
Sydney NSW 2000
Phone: 02 9454 2200
www.pearson.com

Project Management Team Leader: Jill Gillies
Custom Product Specialist: Lucie Bartonek
Production Controller: Brad Smith
Indexer: May Coe

ISBN: 978 1 4886 1305 0

ISBN: 978 1 4886 1306 7 (Vital Source)

Brief contents

Contents

PART ONE
PSY1011

3 Biological psychology

THE BRAIN–BODY COMMUNICATION SUPERHIGHWAY 130

4 Sensation and perception

HOW WE SENSE AND CONCEPTUALISE THE WORLD 172

6 Learning

HOW NURTURE CHANGES US 220

10 Human development

HOW AND WHY WE CHANGE 262

15 Personality

WHO WE ARE 314

PART TWO
PSY1022

7 Memory

CONSTRUCTING AND RECONSTRUCTING OUR PASTS 364

13 Social psychology

HOW OTHERS AFFECT US 412

16 Psychological disorders

WHEN ADAPTATION BREAKS DOWN 464

A NOTE ABOUT THE CONTENTS OF THIS CUSTOM BOOK

The chapters in this custom book have been chosen by your lecturer specifically to meet your course requirements. Please be aware that as this custom book has been tailored for your course, it includes only the chapters required for your course. There are therefore some chapter numbers from the original source title that have not been included.

We wish you success with your course.

This page is intentionally left blank.

PART ONE
PSY1011

CHAPTER

1

Science and pseudoscience in psychology

SKILLS FOR THINKING SCIENTIFICALLY IN EVERYDAY LIFE

LEARNING OBJECTIVES

- **LO 1.1** Define psychology.
- **LO 1.2** Explain how science can safeguard against the major fallacies of human thinking.
- **LO 1.3** Describe the features of psychological pseudoscience, and distinguish it from psychological science.
- **LO 1.4** Identify reasons we are drawn to pseudoscience.
- **LO 1.5** Identify the key features of scientific scepticism.
- **LO 1.6** Explain the basic principles of scientific thinking.
- **LO 1.7** Identify and outline the major theoretical frameworks of psychology.
- **LO 1.8** Describe different types of psychologists and outline their roles.
- **LO 1.9** Describe the two great debates that have shaped the field of psychology.
- **LO 1.10** Describe how psychological research applies to our daily lives.
- **LO 1.11** Explain how evidence-based practice can help bridge the scientist–practitioner gap.

(*Sources:* Lourens Smak/Alamy; Image Source/Getty Images.)

THINK: PREVIEW

First, think about these questions. Then, as you read, think again …

- Is psychology mostly just commonsense?
- How should we judge what we read in self-help books?
- Is psychology really a science?
- Are we good at evaluating evidence that contradicts our views?
- Are claims that cannot be tested by observation unscientific?
- Is anecdotal evidence that a treatment works good evidence for its effectiveness?
- Is the number of people who share a belief a dependable guide to its accuracy?

For most of you reading this book, this is your first or second psychology unit. But it is a safe bet that you have learned an awful lot of beliefs about psychology already. Pause for a moment and ask yourself these questions: Where have I learned my beliefs about psychology? How do I know whether they are true?

If you are like most beginning psychology students, you have gleaned much of what you know about psychology from watching television programmes and movies, listening to talkback radio shows, reading self-help books and popular magazines, surfing the internet and talking to friends. In short, most of your psychology knowledge probably derives from the **popular psychology industry**: a sprawling network of everyday sources of information about human behaviour.

TEST OF POPULAR PSYCHOLOGY KNOWLEDGE		
true	false	1. Most people use only about 10 per cent of their brain capacity.
true	false	2. Newborn babies are virtually blind and deaf.
true	false	3. Hypnosis enhances the accuracy of our memories.
true	false	4. All people with dyslexia see words backwards (for example, 'tac' instead of 'cat').
true	false	5. In general, it is better to express anger than to hold it in.
true	false	6. The lie-detector (polygraph) test is 90 to 95 per cent accurate at detecting falsehoods.
true	false	7. People tend to be romantically attracted to individuals who are the opposite to them in personality and attitudes.
true	false	8. The more people present at an emergency, the more likely it is that at least one of them will help.
true	false	9. Schizophrenics have more than one personality.
true	false	10. All effective psychotherapies require clients to get to the root of their problems in childhood.

Take a moment to review the preceding 10 questions. Beginning psychology students typically assume that they know the answers to most of them. That's hardly surprising, as these assertions have become part of popular psychology lore. Yet most students are surprised to learn that *all* 10 of these statements are false! This little exercise illustrates a take-home message we will emphasise throughout the text: *Although commonsense can be enormously useful for some purposes, it's sometimes completely wrong* (Chabris & Simons, 2010). This can be especially true in psychology, a field that strikes many of us as self-evident, even obvious. In a sense, we are *all* psychologists, because we deal with psychological phenomena such as love, friendship, anger, stress, happiness, sleep, memory and language in our daily lives (Lilienfeld, Ammirati & Landfield, 2009). As we will discover, everyday experience can often be helpful in allowing us to navigate the psychological world, but it doesn't necessarily make us an expert (Kahneman & Klein, 2009).

What is psychology? Science versus intuition

LO 1.1 Define psychology.

LO 1.2 Explain how science can safeguard against the major fallacies of human thinking.

William James (1842–1910), one of the great pioneers in psychology, once described psychology as a 'nasty little subject'. As James noted, psychology is difficult to study, and simple explanations of behaviour are few and far between. If you enrolled in this unit expecting cut-and-dried answers to psychological questions, such as why you become angry or fall in love, you might emerge disappointed. But if you enrolled in the hopes of acquiring more insight into the hows and whys of human behaviour, stay tuned, because a host of delightful surprises are in store. When reading this textbook, prepare to find many of your preconceptions about psychology challenged; to encounter new ways of thinking about the causes of your everyday thoughts, feelings and actions; and to apply these ways of thinking to evaluating psychological claims in everyday life.

popular psychology industry
sprawling network of everyday sources of information about human behaviour

Psychology and levels of analysis

The first question often posed in introductory psychology textbooks could hardly seem simpler: What is psychology? Although psychologists disagree about many things, they agree on one thing: psychology isn't easy to define (Henriques, 2004; Lilienfeld, 2004). For the purposes of this text, though, we will simply refer to **psychology** as the scientific study of the mind, brain and behaviour.

Psychology is a discipline that spans multiple **levels of analysis**. We can think of levels of analysis as rungs on a ladder, with the lower rungs tied most closely to biological influences and the higher rungs tied most closely to social influences (Ilardi & Feldman, 2001; Kendler, 2005). The levels of analysis in psychology stretch all the way from molecules to brain structures on the low rungs to thoughts, feelings and emotions, and to social and cultural influences on the high rungs, with many levels in between (Cacioppo et al., 2000; Satel & Lilienfeld, 2013) (see Figure 1.1). The lower rungs are more closely tied to what we traditionally call 'the brain'; the higher rungs to what we traditionally call 'the mind'. It is crucial to understand that 'brain' and 'mind' can be complementary ways of describing and analysing the same underlying psychological processes. Although psychologists may choose to investigate different rungs, they are united by a shared commitment to understanding the causes of human and animal behaviour.

We will cover all of these levels of analysis in coming chapters. When doing so, we will keep one crucial guideline in mind: *To fully understand psychology, we must consider multiple levels of analysis*. That's because each level tells us something different, and we gain new knowledge from each vantage point. Some psychologists believe that biological factors—like the actions of the brain and its billions of nerve cells—are most critical for understanding the causes of behaviour. Others believe that social factors—like parenting practices, peer influences and culture—are most critical for understanding the causes of behaviour (Meehl, 1972). In this text, we will steer away from these two extremes, because both biological and social factors are essential for a complete understanding of psychology (Kendler, 2005).

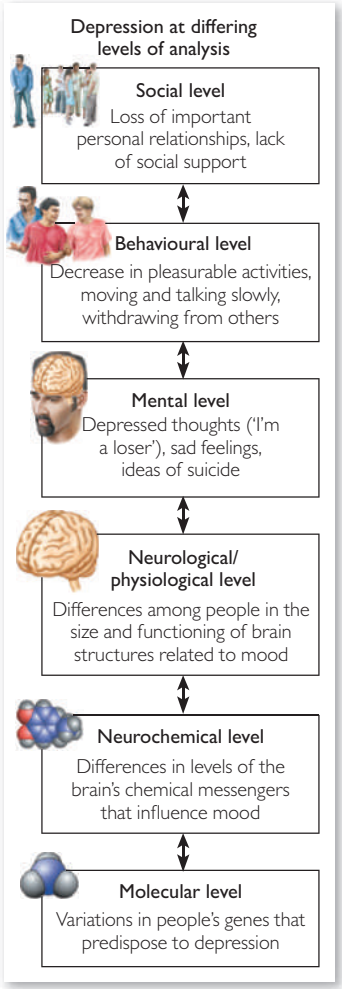


FIGURE 1.1 Levels of analysis in depression. We can view psychological phenomena, in this case the disorder of depression, at multiple levels of analysis, with lower levels being more biological and higher levels being more social. Each level provides unique information and offers a distinctive view of the phenomenon at hand. (*Source:* Based on data from Ilardi, Rand & Karwoski, 2007.)

What makes psychology distinctive—and fascinating

A key theme of this textbook is that we can approach psychological questions scientifically, with important similarities to how we approach questions in biology, chemistry and physics. Yet each of these sciences is also unique in its own way, and importantly, psychology is also unique and distinct from the other sciences. A host of challenges make the study of mind, brain and behaviour especially complex; yet it is precisely these challenges that also make psychology fascinating, because they contribute to scientific mysteries that psychologists have yet to solve. Here, we will touch briefly on five especially intriguing challenges that we will be revisiting throughout the text.

First, human behaviour is difficult to predict, in part because almost all actions are **multiply determined**—that is, they are produced by many factors. That is why we need to be sceptical of *single-variable explanations* of behaviour, which are widespread in popular psychology. Although it is tempting to explain complex human behaviours like violence in terms of a single causal factor such as poverty, bad upbringing or genes, these behaviours are almost surely due to the interplay of an enormous array of factors (Stern, 2002).

Second, psychological influences are rarely independent of each other, making it difficult to pin down which cause or causes are operating. Imagine you are a scientist attempting to explain why some women develop anorexia nervosa, a severe eating disorder that we will discuss in Chapter 12. You could start by identifying several factors that might contribute to anorexia nervosa, such as anxiety-proneness, compulsive exercise, perfectionism, excessive concern with body image, and exposure to television programmes that feature thin models. Let's say that you want to focus on just one of these potential influences, such as perfectionism. Here is the problem: women who are perfectionists also tend to be anxious, to exercise a lot, to be overly concerned with their body image, to watch television programmes that feature thin models, and so on (Egan et al., 2013). The fact that

psychology
the study of the mind and brain

multiply determined
caused by many factors

all of these factors tend to be interrelated makes it tricky to pinpoint which one actually contributes to anorexia nervosa. The odds are high that they all play at least some role.

Third, people differ from each other in thinking, emotion, personality and behaviour. These **individual differences** help to explain why each person responds in different ways to the same objective situation, such as an insulting comment from a boss (Harkness & Lilienfeld, 1997). Entire fields of psychology—such as the study of intelligence, interests, personality and mental illness—focus on individual differences (Lubinski, 2000). Individual differences make psychology challenging because they make it difficult to come up with explanations of behaviour that apply to everyone; at the same time, they make psychology exciting, because people we might assume we understand well often surprise us in their reactions to life events.

Fourth, people often influence each other, often making it difficult to pin down what causes what (Wachtel, 1973). For example, if you are an extraverted person, you are likely to make the people around you more outgoing. In turn, their outgoing behaviour may 'feed back' to make you even more extraverted, and so on. This is an example of what Albert Bandura (1973) called *reciprocal determinism*—the fact that we mutually influence each other's behaviour (see Chapter 15). Reciprocal determinism can make it challenging to isolate the causes of human behaviour.

Fifth, people's behaviour is often shaped by culture. Cultural differences, such as individual differences, place limits on the generalisations that psychologists can draw about human nature (Henrich, Heine & Norenzayan, 2010). To take one example, Richard Nisbett and his colleagues found that European Americans and Asian Americans often pay attention to strikingly different things in pictures (Chua, Boland & Nisbett, 2005). In one case, the researchers showed people a photograph of a tiger walking on rocks next to a river. Using eye-tracking technology, which allows researchers to determine where people are moving their eyes, they found that European Americans tend to look mostly at the tiger, whereas Asian Americans tend to look mostly at the plants and rocks surrounding it. This finding dovetails with evidence that European Americans tend to focus on central details, whereas Asian Americans tend to focus on peripheral or incidental details (Nisbett, 2003; Nisbett et al., 2001).

All five of these challenges are worth bearing in mind as we move on to later chapters. The good news is that psychologists have made substantial progress toward solving all of them, and that a deeper and richer appreciation of these challenges helps us to better predict—and in some cases understand—behaviour.

Why we can't always trust our commonsense

To understand why others act as they do, most of us trust our commonsense—our gut intuitions about how the social world works. Yet, as we have already discovered, our intuitive understanding of ourselves and the world is frequently mistaken (Cacioppo, 2004; van Hecke, 2007). As the quiz at the start of this chapter showed us, sometimes our commonsensical understanding of psychology isn't merely incorrect but entirely back-to-front. For example, although many people believe the old adage 'There's safety in numbers' (statement 8 in the quiz above), psychological research actually shows that the more people present at an emergency, the less likely it is that at least one of them will help (Darley & Latané, 1968; Latané & Nida, 1981; see also Chapter 13).

Here is another illustration of why we cannot always trust our commonsense. Read the following 10 well-known proverbs, expressing commonsense or popular beliefs about human behaviour, and ask yourself whether you agree with them.

1. Birds of a feather flock together.	6. Opposites attract.
2. Absence makes the heart grow fonder.	7. Out of sight, out of mind.
3. Better safe than sorry.	8. Nothing ventured, nothing gained.
4. Two heads are better than one.	9. Too many cooks spoil the broth.
5. Actions speak louder than words.	10. The pen is mightier than the sword.

individual differences
variations among people in their thinking, emotion and behaviour

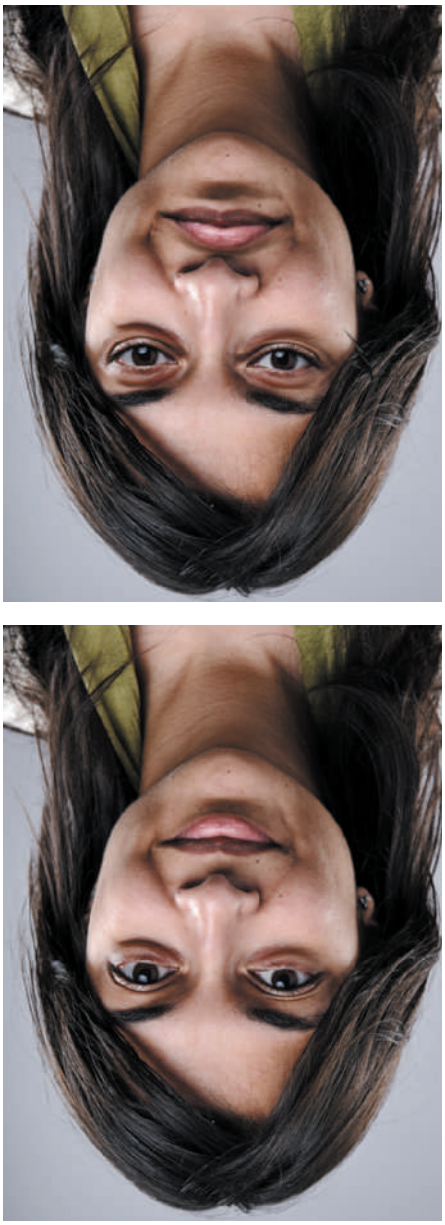
These proverbs similarly ring true, do they not? Yet each one contradicts the proverb across from it. So our commonsense can lead us to believe two things that cannot both be true simultaneously, or at least that are largely at odds with each other. Strangely enough, in most cases we never notice the contradictions until other people, such as the authors of an introductory psychology textbook, point them out to us. This example reminds us of why scientific psychology doesn't rely exclusively on intuition, speculation or commonsense.

NAIVE REALISM: SEEING IS BELIEVING—OR IS IT? We trust our commonsense largely because we are prone to **naive realism**: the belief that we see the world precisely as it is (Lilienfeld, Lohr & Olatunji, 2008; Ross & Ward, 1996). We assume that 'seeing is believing' and trust our intuitive perceptions of the world and ourselves. In daily life, naive realism often serves us well. If you are driving down a one-lane road and see a tractor-trailer barrelling towards you at 120 kilometres per hour, it is a wise idea to get out of the way. Much of the time, we *should* trust our perceptions.

Yet appearances can sometimes be deceptive. The Earth seems flat. The sun seems to revolve around the Earth. Yet in both cases, our intuitions are wrong. Sometimes, what appears to be obvious can trip us up when it comes to evaluating ourselves and others. Our commonsense tells us that our memories accurately capture virtually everything we have seen, although scientific research demonstrates otherwise (Loftus, 1997; see Chapter 7). Our commonsense also assures us that people who do not share our political views are biased, but that we are objective. Yet psychological research demonstrates that we are all susceptible to evaluating political issues in a biased fashion (Pronin, Gilovich & Ross, 2004). So our tendencies to believe appearances can lead us to draw erroneous conclusions about human nature. In many cases, 'believing is seeing' rather than the reverse: our beliefs shape our perceptions of the world (Gilovich, 1991).

WHEN OUR COMMONSENSE IS RIGHT. That is not to say that our commonsense is always wrong. Our intuition comes in handy in many situations, and sometimes guides us to the truth (Gigerenzer, 2007; Gladwell, 2005; Myers, 2002). For example, our snap (five-second) judgements about whether someone we have just watched on a videotape is trustworthy or untrustworthy tend to be right more often than would be expected by chance (Fowler, Lilienfeld & Patrick, 2007). Commonsense can also be a helpful guide for generating hypotheses that scientists can later test in rigorous investigations (Redding, 1998). Moreover, some everyday psychological notions are indeed correct. For example, most people believe that happy employees tend to be more productive on the job than unhappy employees, and research indicates that they are right (Kluger & Tikochinsky, 2001).

To think like scientific psychologists, we must learn to test our 'commonsense' beliefs before we accept them. Doing so will help us become more informed consumers of popular psychology and make better real-world decisions. One of our major goals in this text is to provide you with thinking tools for making this crucial distinction. These thinking tools should help you to better evaluate psychological claims in everyday life.



Here is another case in which our naïve realism can trick us. Take a look at these two upside-down photos. They look quite similar, if not identical. Now turn your book upside-down. (*Source:* Warren Goldswain/ Shutterstock.)

Psychology as a science

A few years ago, one of our academic colleagues was advising a psychology major about his career plans. Out of curiosity, our colleague asked him, 'So why did you decide to go into psychology?' He responded, 'Well, I took a lot of science courses and realised I didn't like science, so I picked psychology instead'.

We hope to persuade you that this student was wrong—not about selecting a psychology major, that is, but about psychology not being a science. A central theme of this text is that modern psychology, or at least hefty chunks of it, is scientific. But what does the word 'science' really mean, anyway?

naive realism
belief that we see the world precisely as it is

WHAT'S SCIENCE, ANYWAY? Most students think that 'science' is just a word for all of that really complicated stuff they learn in their biology, chemistry and physics classes. But science is not a body of knowledge. Instead, it is an approach to evidence and explanations of the world around and in us (Chalmers, 1999). Science is not a single method but rather a toolbox of knowledge skills designed to prevent us from fooling ourselves. As Nobel Prize–winning physicist Richard Feynman (1985) put it, doing science means bending over backwards to see whether you are wrong.

SCIENTIFIC ATTITUDES: AN ETHIC OF KNOWLEDGE. Science carries with it a profoundly ethical attitude towards knowledge. Foremost is what philosopher Karl Popper (1979) described as the public nature of scientific knowledge. The commitment to **public knowledge** means a willingness by scientists to share their methods and findings with others. The public nature of scientific knowledge underscores the point that scientists are part of a community of scholars who work together. Without such open access, the scientific enterprise grinds to a screeching halt, because research progress hinges on the ability of the scientific community to independently evaluate other investigators' findings.

Another crucial scientific attitude is that scientists should try their best to be objective when evaluating evidence. That is, scientists should try not to allow personal or financial investments in their research to influence their conclusions. **Objectivity** is easier to say than to achieve, because scientists are human and therefore almost inevitably biased to some degree. The ethics of knowledge on which science is founded have always been, and continue to be, profoundly challenged by the legal, commercial and social frameworks in which scientists, as human beings, must operate.

public knowledge
willingness to share our findings with others

objectivity
attempt to set aside personal interests when evaluating the evidence for a scientific claim

scientific theory
explanation for a large number of findings in the natural world

hypothesis
testable prediction derived from a theory

psychomythology

WHAT IS SCIENTIFIC THEORY?

Few terms in science have generated more confusion than the deceptively simple term *theory*. Some of this confusion has contributed to serious misunderstandings about how science works. We will first examine what a scientific theory is, and then address two misconceptions that show what a scientific theory is not.

A **scientific theory** is an explanation for a large number of findings in the natural world, including the psychological world. A scientific theory offers an account that ties multiple findings together into one conceptual package.

But good scientific theories do more than account for existing data. They generate predictions regarding new data we haven't yet observed. For a theory to be scientific, it must generate novel predictions that researchers can test. Scientists call a testable prediction a **hypothesis**. In other words, theories are general explanations, whereas hypotheses are specific predictions derived from those explanations (Bolles, 1962; Meehl, 1967). Based on their tests of hypotheses, scientists can provisionally accept the theory that generated these hypotheses, reject the theory outright, or revise it (Proctor & Capaldi, 2006).

Misconception 1: *A theory explains one specific event.* The first misunderstanding is that a theory is a specific explanation for an event. The popular media get this distinction wrong much of the time. We often hear television reporters say something such as, 'The most likely theory for the robbery at the downtown bank is that it was committed by two former bank employees who dressed up as armed guards'. But this isn't a 'theory' of the robbery. For one thing, it attempts to explain only one event rather than a variety of diverse observations and, for another, it doesn't generate testable predictions.

Misconception 2: *A theory is just an educated guess.* A second myth is that a scientific theory is merely a guess about how the world works. People often dismiss a theoretical explanation on these grounds, arguing that it's 'just a theory'.

In fact, *all* general scientific explanations about how the world works are theories. A few theories are extremely well supported by multiple lines of evidence; for example, the Big Bang theory, which proposes that the universe we see today began in a gigantic explosion about 14 billion years ago, helps scientists to explain a diverse array of observations. They include the findings that: (1) galaxies are rushing away from each other at remarkable speeds; (2) the universe exhibits a background radiation suggestive of the remnants of a tremendous explosion; and (3) powerful telescopes reveal that the oldest galaxies originated shortly after 14 billion years ago, right around the time predicted by the Big Bang theory. Like all scientific theories, the Big Bang theory can never be 'proved' because it is always conceivable that a better explanation might come along one day. Nevertheless, because this theory is consistent with many differing lines of evidence, the overwhelming majority of scientists accept it as a good explanation. Darwinian evolution, the Big Bang, and other well-established theories aren't just guesses about how the world works, because very many of their predictions have been substantiated over and over again by independent investigators. In contrast, many other scientific theories are only moderately well supported, and still others are questionable or entirely discredited. Not all theories are created equal.

So, when we hear that a scientific explanation is 'just a theory', we should remember that theories aren't just guesses. Some theories have survived repeated efforts to test them and are well-confirmed models of how the world works (Kitcher, 2009).

SCIENCE AS A SAFEGUARD AGAINST BIAS: PROTECTING US FROM OURSELVES. Some people assume that, because scientists strive for objective knowledge, scientists themselves are free of biases. Yet scientists are only human and so they have their biases, too (Mahoney & DeMonbreun, 1977). However, the best scientists try to be aware of their biases and try to find ways of compensating for them. This principle applies to all scientists, including psychological scientists—those who study mind, brain and behaviour. In particular, the best scientists realise that they *want* their pet theories to turn out to be correct. After all, they have invested months or even years in designing and running a study to test a theory, sometimes a theory they have developed. If the results of the study are negative, they will often be bitterly disappointed. They also know that because of this deep personal investment, they may bias the results unintentionally to obtain the ones they want (Greenwald et al., 1986). Scientists are prone to self-deception, just like the rest of us. There are several traps into which scientists can fall unless they are careful. We will discuss two of the most crucial next.

Confirmation bias. To protect themselves against bias, good scientists adopt procedural safeguards against errors, especially errors that could work in their favour (see Chapter 2). In other words, science contains powerful tools for overcoming **confirmation bias**—the tendency to seek out evidence that supports our hypotheses, and neglect or distort evidence that contradicts them (Nickerson, 1998; Risen & Gilovich, 2007). We can sum up confirmation bias in five words: *Seek and ye shall find.*

Because of confirmation bias, our preconceptions often lead us to focus on evidence that supports our beliefs, resulting in psychological tunnel vision. One of the simplest demonstrations of confirmation bias comes from research on the Wason selection task (Wason, 1966), an example of which is shown in Figure 1.2. There you will see four cards, each of which has a number on one side and a letter on the other. Your task is to determine whether the following hypothesis is correct: *all cards that have a vowel on one side have an odd number on the other.* To test this hypothesis, you need to select two cards to turn over. Which two will you pick? Decide on your two cards before reading further.

Most people pick the cards showing E and 5. If you selected E, you were right, so give yourself one point there. But if you selected 5, you have fallen prey to confirmation bias, although you would be in good company because most people make this mistake. Although 5 seems to be a correct choice, it can only confirm the hypothesis, not disconfirm it. Think of it this way: if there is a vowel on the other side of the 5 card, this does

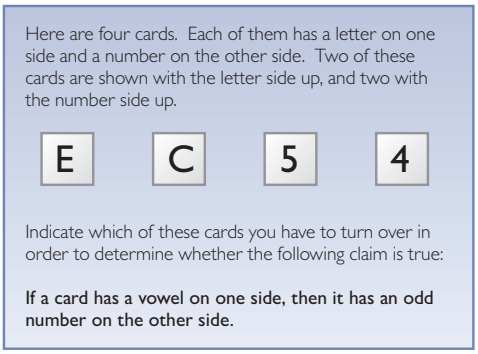


FIGURE 1.2 Diagram of Wason selection task. In the Wason selection task, you must pick two cards to test the hypothesis that all cards that have a vowel on one side have an odd number on the other. Which two will you select?

confirmation bias
tendency to seek out evidence that supports our hypotheses and neglect or distort evidence that contradicts them