

PSYCHOLOGY

WA ATAR

Self and others

UNITS 1&2

Janet Fletcher & Alison Garton
3rd Edition

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Psychology WA ATAR: Self & Others Units 1 & 2

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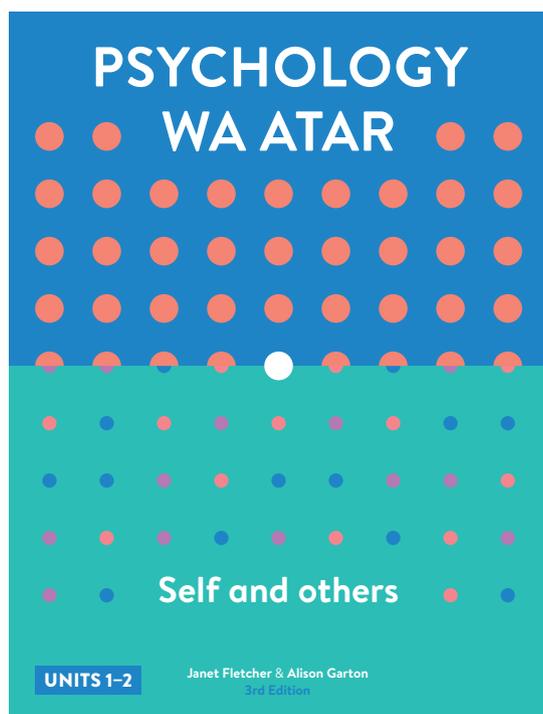
About this series

Psychology WA ATAR: Self and Others Units 1 & 2 has been specifically written to meet the requirements of the Psychology ATAR course in Western Australia. Written by an experienced author team the student book comprehensively addresses the Outcomes for Units 1 & 2 in an engaging and accessible manner.

These outstanding resources adopt a student-centred approach and are structured to provide students with easy access to information and activities for completing each unit. Various contexts are used to stimulate and engage students, allowing them to see how psychology applies to their everyday lives.

The structure of the Student Book draws on the Psychology ATAR course to produce a cohesive resource that will allow teachers and students to meet the demands of this subject.

The Student Book is supported by a NelsonNetBook, a NelsonNet teacher website and a NelsonNet student website containing a range of digital support material.



Student Book

The Student Book has the following features:

- It covers the course content from Units 1 and 2 of the Psychology ATAR course in Western Australia.
- The units are divided into chapters based on the three key areas of Self, Others, and Research methods.
- Each chapter is organised to closely follow the course.
- Content (key knowledge and understanding) is outlined at the start of each chapter.
- The book has a contextual approach, integrating content into student-friendly contexts.
- ‘Broaden your understanding’ boxes engage students in *doing* and *thinking* about psychology.
- It is easy to read and follow, and makes clear use of illustrations and photographs.
- Chapter reviews allow students to develop and apply their psychological understanding.
- Extended chapter summaries recap essential knowledge and key learning.

NelsonNetBook

The *Psychology WA ATAR: Self and Others Units 1 & 2* NelsonNetBook is an interactive ebook that can be used online or offline. It is compatible with interactive whiteboards, computers and tablets, with optional Web2 functionality for class groups. Students can add highlights, annotations, audio and video clips and weblinks, and teachers can use it to share their personalised version with the class.

Please note that complimentary access to the NelsonNetBook is only available to teachers who use the accompanying Student Book as a core educational resource in their classroom. Contact your sales representative for information about access codes and conditions, or visit the NelsonNet portal at www.nelsonnet.com.au to find out more, register or log in if you have already registered.

Workbooks

Separate Workbooks are available for Year 11 (Units 1 & 2) and Year 12 (Units 3 & 4).

The Workbooks have the following features.

- Each Workbook contains coursework questions based on the three key areas of Self, Others and Research methods to consolidate Student Book content.
- Each Workbook contains examination-type questions and tasks to help students learn, understand and apply their psychological knowledge further.
- Each question or task addresses specific Outcomes and is built around student interests to contextualise learning.
- Content maps for each content organiser provide a visual picture for students.
- Each Workbook contains a wealth of support materials to guide students in completing the different types of tasks – investigation, response, project and examination.

NelsonNet website

NelsonNet is your portal to a wealth of extra digital resources.

The student version includes:

- review questions: including multiple-choice, labelling, matching, fill-in-the-blanks questions and short-answer questions for revising chapter content
- weblinks: a list of reviewed websites that support research and exploration.

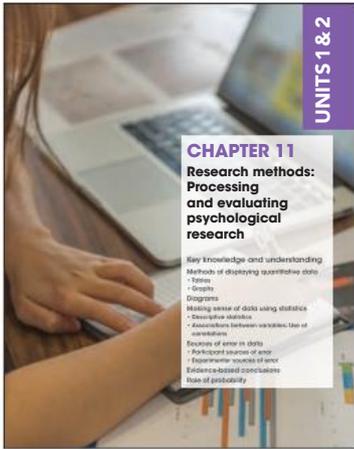
The teacher version includes:

- teaching programs: mapping Outcomes and content to the Student Book and Workbooks, in a logical teaching sequence
- syllabus mapping
- Student Book answers: detailed solutions to all Student Book questions
- Workbook answers: detailed solutions to all Workbook questions
- support notes for the Workbooks, including tips, hints and advice to support teachers in using the resources.

Please note that complimentary access to NelsonNet is only available to teachers who use the accompanying Student Book as a core educational resource in their classroom. Contact your sales representative for information about access codes and conditions, or visit the NelsonNet portal at www.nelsonnet.com.au to find out more, register or log in if you have already registered.



How to use this book



Psychology WA ATAR: Self and Others Units 1 & 2 has been written to meet the requirements of the Psychology ATAR course in Western Australia.

The structure of each Student Book draws on the Psychology course to produce a cohesive suite of resources that will allow teachers and students to meet the demands of this course.

- There are separate Student Books for Units 1 & 2 and Units 3 & 4.
- Each unit is divided into chapters based on the key areas of Self and Others.
- The final two chapters focus on the key area of Research methods.



- Each chapter is organised to follow the course closely. The chapter opening page allows you to see the key knowledge and understandings that are being covered in the chapter.

- Each chapter is divided into topical sections to make learning concepts and finding information easy. Subheadings in the chapter follow the structure outlined on the chapter opening page.



- Student-friendly contexts are integrated throughout each chapter and feature boxes offer more information to engage students.

Racism on the rise in Australia: Migrants report cultural shift

Dealing with prejudice is a way of life for many Australians. Cosima Marriner and Natalie O'Brien spoke to a range of people about how they have risen above discrimination.

It is being harassed on public transport, constantly being asked, "Where are you from?" when you've had more than your fill, not getting a job interview because of your Middle Eastern-sounding name, or missing out on a rental property because of your skin colour. This is how racism looks in Australia today – and it is becoming increasingly prevalent.

The latest Mapping Social Cohesion survey by the Australian Foundation found 19 per cent of Australians who discriminated against people because of their skin colour, ethnic origin or religious belief last year – up from 12 per cent in 2012. It was the highest level since the survey began in 2007.

Eighteen percent of the survey respondents said they were in a job or business that was not open to people of their race or ethnicity.

The government has sought to ease tensions by appointing Andrew Giles as the first Muslim member of the Australian community, and by the standard of the privileged majority, and the official statistics will determine whether something is racist.

30 per cent of Australians who feel uncomfortable with cultural diversity were exposed to an ethnic prejudice. The perceived racism or through the legislative, abuse or institutional racism because of their race, colour, or national or ethnic origin.

"These off-the-cuff comments are more damaging than changing the legislation," says Monash University Professor Andrew Markus, who tracks changing attitudes to immigration and asylum seekers.

"The sentiment of the legislation is for the courts, but the way the issues are discussed in public can be of immense significance."

Duques University's Vin Paradise says that although the *Racial Discrimination Act* has not done much to stop racism, widening it means a kind of climate where people are not to think it is to be racist.

"Being far from home, and in a job or business that was not open to people of their race or ethnicity, is a very difficult and challenging task," he says.

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- ‘Broaden your understanding’ boxes contain activities and information that will enhance learning by engaging students in *doing* and *thinking* about psychology and testing out and expanding some of the ideas and concepts covered within the chapter.

Broaden your understanding

Mindfulness

Mindfulness has been described as meditation for everyday life by Jon Kabat-Zinn, the man who is usually credited for introducing the practice to Western psychologists (Kabat-Zinn, 2001). However, unlike some other forms of meditation, it involves focused, non-judgmental attention on both our internal and external experiences at the present moment. By being focused on the present, the mindful person avoids the trap of dwelling on the past or thinking about the future, both of which are distractions and can be sources of anxiety.

While mindfulness is used clinically as a way of coping with anxiety and depression, it has also been found to be beneficial to a wide range of people. For example, research by Schonert-Reichl and Lawlor (2010) found that a mindfulness-based educational program had beneficial effects on the wellbeing and social and emotional competence of pre- and early adolescents.

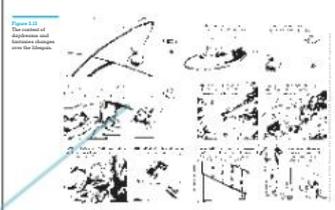
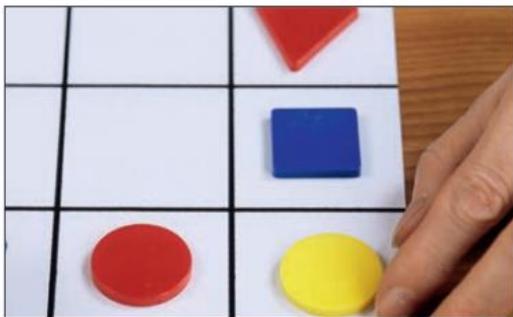


Figure 10.1
The nature of pain and changes over time.

Meditation
The term meditation refers to techniques used by people to help them relax physically and mentally and to achieve inner calm. There are many different approaches to meditation. Two of the better-known forms are vipaśyana and transcendental meditation, which have their origins in Eastern religions. When practicing meditation, the individual usually sits in a comfortable position with eyes closed in a dark environment. A key to meditation is focusing on one thing, such as one's breathing, and ignoring everything else. During meditation, breathing slows, and heart rate, muscle tension and blood pressure are reduced. This has therapeutic value for many people who suffer from anxiety. It has also been found that the experience of pain is greatly reduced while in a meditative state.

Broaden your understanding
Mindfulness has been described as meditation for everyday life by Jon Kabat-Zinn, the man who is usually credited for introducing the practice to Western psychologists (Kabat-Zinn, 2001). However, unlike some other forms of meditation, it involves focused, non-judgmental attention on both our internal and external experiences at the present moment. By being focused on the present, the mindful person avoids the trap of dwelling on the past or thinking about the future, both of which are distractions and can be sources of anxiety. While mindfulness is used clinically as a way of coping with anxiety and depression, it has also been found to be beneficial to a wide range of people. For example, research by Schonert-Reichl and Lawlor (2010) found that a mindfulness-based educational program had beneficial effects on the wellbeing and social and emotional competence of pre- and early adolescents.

- The Student Book is easy to read and follow, and make clear use of illustrations and photographs.



In achieving this outcome, students:

- use psychological knowledge and understandings to explain thoughts, feelings and behaviour
- apply knowledge and understandings reflecting the values of the discipline of psychology
- explain and interpret human behaviour in the everyday world using psychological theory and principles

Outcome 4 – Communication in psychology
Students use appropriate skills and processes to communicate their understanding of human behaviour.

In achieving this outcome, students:

- use psychological discourse
- interpret information received and communicate feelings, thoughts and ideas with purpose, understanding and critical awareness
- explain psychological understandings to a range of audiences for a variety of purposes

Each unit contains a range of contexts that can be used to cater for students' different interests and needs. You should think about how the units apply to yourself, at home, at school and in the community. Other contexts where psychology is relevant include knowing more about yourself and your relationships with others around you, such as your families and friends.

The content in the focus of learning programs so that you can maximise your achievement of outcomes, demonstrate your achievement of assessments, both school-managed and external, and satisfy any requirements of post-school institutions. The content is summarised at the start of each chapter.

To provide continuity and coherence across the course, each pair of units at Years 11 and 12 is designed around the same essential content areas.

Unit 1

- Biological influences/bases of behaviour
- Cognition
- Developmental psychology
- Personality

Others

- Relational influences
- Communication
- Social psychology
- Culture and values

Research methods

- Planning and conducting psychological research
- Processing and evaluating empirical research

The course is designed over a Year 11 syllabus and a Year 12 syllabus and the content has been written to increase in complexity as you progress from year to year.

Unit 1 focuses on a number of concepts that enable students to gain an understanding of how they only people behave. The way that students learn about the brain and explore the impact of internal factors on behaviour, such as biological activity and neurotransmitters. Cognitive processes, such as sensation and perception and other related activities, are investigated. Students examine different types of relationships and the role of verbal and non-verbal communication in relating, maintaining and negotiating these. Students are introduced to ethics in psychological research and carry out investigations.



- Chapter summaries are included at the end of each chapter to clearly indicate the topics and skills covered throughout the unit.
- Chapter review sections at the end of each chapter allow students to develop and apply their psychological understanding through varied question types. These questions support completion of the required Outcomes. Answers to the chapter review sections can be found on the NelsonNet teacher website.

CHAPTER SUMMARY

Biological bases of behaviour

The nervous system

- Peripheral nervous system (PNS)
 - Autonomic
 - Sympathetic
 - Central nervous system (CNS)
 - Brain
 - Spinal cord

Major parts of the brain and their functions

- Hindbrain (brain stem)
 - Cerebellum
 - Medulla
 - Pons
- Midbrain
- Forebrain
 - Thalamus
 - Hypothalamus
 - Cerebral cortex
 - Left hemisphere
 - Right hemisphere
 - Corpus callosum
- Lobes of the cerebral cortex
 - Frontal
 - Temporal
 - Occipital
 - Parietal

Structure of the senses

- Cutaneous
- Olfaction
- Vision
- Hearing
- Taste
- Pain
- Vestibular

Methods for investigating brain functions

- People with brain injuries
- Lesion: Clinger – a case study
- External recording techniques
 - Electrical stimulation
 - EEG
 - Scanning techniques
 - PET
 - CT
 - MRI
 - Dynamic pictures
 - fMRI
 - PET
- Factors that affect behaviour, sensation and thought
 - Physiological activity
 - Drug effects
 - Depressants
 - Stimulants

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1. Social norms
2. Social identity
3. Conformity
4. Social loafing
5. Deindividuation

Multiple-choice questions

1. A group is two or more people who
 - a. like to be together.
 - b. interact with each other in some way.
 - c. are together in a social setting.
 - d. attend the same class.
2. Social norms
 - a. are the shared rules of a group.
 - b. are written or stated rules about how to behave.
 - c. are important for group membership.
 - d. all of the above.
3. A teacher notices seeing 'The Winner' in achieving the reward
 - a. social norms
 - b. social influence
 - c. social role
 - d. social identity
4. Subconscious development
 - a. do we get some benefits.
 - b. do we get some benefits.
 - c. do we seem to talk.
 - d. do we understand more about our social world.
5. People join groups to
 - a. avoid stress.
 - b. fulfil the need to belong.
 - c. need to belong.
 - d. get out of the house.
6. Group members stay together because they
 - a. have longevity.
 - b. perform activities together.
 - c. share skills.
 - d. all of the above.
7. Deindividuation
 - a. is a form of social comparison.
 - b. decreases as group size increases.
 - c. is a sense of helping us judge what people are like.
 - d. is a type of social system.
8. The two social dimensions that lead to social loafing are
 - a. group size and anonymity.
 - b. work to become rights.
 - c. being people for their contributions.
 - d. the anonymity of identity people are aware that not everyone is likely to watch.
9. Loosening of identity towards the identity
 - a. is a form of social comparison.
 - b. is a form of social comparison.
 - c. is a form of social comparison.
 - d. is a form of social comparison.
10. In deindividuating individuals are encouraged to
 - a. offer ideas, whether they are practical or not.
 - b. generate ideas in groups.
 - c. build on or combine ideas already offered.
 - d. all of the above.
11. Social loafing best describes
 - a. groups with a poor work ethic.
 - b. people helping out naturally.
 - c. individuals putting in less effort when in groups.
 - d. individuals obliging others' ideas.
12. Business leaders who make awards to individuals
 - a. depend on group outcomes are trying to boost competition.
 - b. competition.
 - c. competition.
 - d. who are business.

About the authors

Dr Janet Fletcher

Janet is a registered educational and developmental psychologist and Fellow of the Australian Psychological Society. Her paid and voluntary work has always involved children. She started her working life as a school psychologist for the WA Department of Education. Later she worked at WAIT (now Curtin University) and then the University of Western Australia (UWA) where she became a professor in the School of Psychology and Director of the Child Study Centre. While at UWA, she coordinated the Master of Psychology (Educational and Developmental) program, working with students who would go on to work in disability services, schools, and institutions such as the Dyslexia SPELD Foundation WA Inc, which provides services and support for adults and children with special learning difficulties, and the Telethon Kids Institute.

Janet's clinical work has primarily been with children with language and literacy difficulties. Much of her research has also been in this area, although she has carried out research and produced written materials in areas ranging from parenting typically developing young children to optimising the development of children with visual impairments. In her voluntary work Janet has also been keen to promote learning and development, as can be seen in her current role as WA Orienteering's manager for the Sporting Schools Program. When the Curriculum Council decided to offer psychology as a subject area for students in secondary schools, Janet was invited to chair the committee that developed the original syllabus. When this was completed, she collaborated with Professor Alison Garton to write a textbook to support its introduction to schools. Now, with the changes to the Psychology syllabus, she and Alison have authored a new textbook to support the ATAR course.

Professor Alison Garton

Alison is Adjunct Professor of Psychology at Edith Cowan University, having previously been Professor of Psychology and Director of the Graduate School at Edith Cowan University. Before her academic appointments, Alison was Executive Director of the national Australian Psychological Society (APS), taking up that leadership and management role after being elected as Director of Training and Standards, where she was responsible for the establishment of professional development for members of the APS and implementing the five-year accreditation cycle for university education and training courses along with uniform standards. Alison was elected to Fellowship of the APS in 1991.

Alison is the author of two monographs, co-author of one volume and co-editor of three volumes, all concerned with literacy and cognitive development in children. She also co-authored the first edition of this textbook, *Psychology: Self, Others and Society*, with Professor Janet Fletcher. She is an author of more than 80 published scientific papers and chapters.

Alison maintains her professional and community service through membership of the Board of Directors of the Australian Psychology Accreditation Council, the Department of Health WA Human Research Ethics Committee, of which she is Deputy Chair, and the State Administrative Tribunal in the human rights and vocational regulation streams, where she is a senior sessional member.



CHAPTER 1

Introduction



About the Psychology course

Psychology

Psychology is the scientific study of how we think, feel and act. It aims to answer important questions such as what motivates people to behave the way they do and what factors influence the way they think, feel and behave as they grow up and develop.

Psychological knowledge also helps us to understand the way that individuals function within groups. This consists of knowledge relating to social behaviour in groups, moral development and the formation of attitudes, and also how people relate to and communicate with each other.

On a larger scale, psychological knowledge can be applied to society as a whole, helping us to understand how individuals function within different contexts and how this is influenced by culture shaping people's values, attitudes and beliefs.

Psychology is very useful, both to individuals on a personal level, assisting us to improve ourselves and our relationships, and to society as a whole.

Through the Psychology course you will gain valuable insights and understandings into yourself, the people you relate to and the world in which you live. The course has a strong emphasis on investigation. This first-hand experience will help you to understand the different theories in psychology and to think critically and analyse what you have observed in your daily lives. For example, you may examine phenomena that appear difficult to measure, such as intelligence, personality, conflict and friendship. Such phenomena are covered in activities in many of the chapters where practical research exercises are introduced and elementary statistical terms explained. Psychology is a science and therefore requires you to have some scientific and mathematical knowledge in order to conduct research and understand its basis.

The Psychology course will introduce you to the language of psychology. The terms that are used and the way the information is written and reported will vary according to the targeted audience. You will learn how to communicate what you have learned about human behaviour to your friends, parents, carers, teachers and members of your local community.

This course is designed specifically for ATAR students but can be taken by any student who wishes to proceed directly to the workplace, pursue studies at the tertiary level, continue studying psychology, or develop skills for his or her own enjoyment. The study of this discipline is highly relevant to further studies in the health professions, education, human resources, social sciences, sales, media, marketing and management, and aims to provide you with a better understanding of human behaviour and the means thereby to enhance your quality of life.

Figure 1.1 Psychologists do many different things as they study and help people.



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Dreamstime.com/Monkey Business Images

What is psychology?

Psychology versus popular belief

Popular beliefs are usually based on common sense or intuition. Are they worth holding? Look at the beliefs listed in the box below. Which ones do you think are true?

Broaden your understanding

The differences between psychology and popular beliefs

Decide whether you think the beliefs noted below are true or false.

Popular belief	True or false?*
1 Older people are a burden to their families and society.	
2 Looking after children at home is always better for them than daycare.	
3 Psychics have special insights and can help police solve crimes.	
4 Watching violent movies makes children aggressive.	
5 Males are more aggressive than females.	

*Check the answers online at NelsonNet.

As you can see from this list, many popular beliefs are incomplete explanations or even totally wrong!

Why does psychology do a better job at explaining and predicting behaviour? Psychology is a **science** and is based on a **scientific attitude** and **scientific methods**. A scientific attitude involves being curious, trying to understand without being misled, and above all looking for **evidence** to back up all conclusions. There is a popular story about a magician and sceptic called James Randi who had a scientific attitude when testing those who claimed to see auras around people's bodies. He was critical and looked for evidence.

Randi: Do you see an aura around my head?
Aura-seer: Yes, indeed.
Randi: Can you still see the aura if I put this magazine in front of my face?
Aura-seer: Of course.
Randi: Then if I were to step behind a wall barely taller than I am, you could determine my location from the aura visible above my head, right?

Randi said that no aura-seer had agreed to take this simple test.

In looking for evidence, psychologists use the scientific method. In general terms we can think of this as a step-by-step process of:

- identifying a question or problem to investigate
- developing the exact research question or hypothesis (testable prediction)
- choosing a research design – deciding how we will gather the data (evidence)
- gathering data
- examining the evidence (data analysis)
- coming to conclusions based on the evidence.

Psychologists then try to share their findings by writing about their research in reports or journals or by talking about their studies at meetings and conferences. When they report on their research, they try to provide enough information to allow colleagues to replicate it; that is, to repeat the research to check the findings for themselves.

Pop psychology

Open almost any popular magazine and you are likely to find a pop psychology article: a test of your emotional intelligence, an article on how to improve your relationship with your step-child or how to attract the man of your dreams. But how useful is pop psychology and how does it differ from real psychology? Pop psychology uses the language and ideas of psychology to try to convince the reader that the information is based on science. People 'buy' it because they are looking for quick-fix answers to questions about how they think, feel and behave, or for easy solutions to life's problems. However, the reader needs to beware that pop psychology is rarely scientific. One of the advantages for you in studying psychology is that you will learn to be critical and look for evidence when you read these articles.

Broaden your understanding

The need for evidence to back claims

Look in a magazine for a pop psychology article, one that offers self-help advice. Copy and complete the table below: list the advice given and the evidence provided. Does the evidence convince you? Why or why not?

Advice	Evidence

What is a psychologist?

Write down what you think of when you hear the word 'psychologist'. Did you write someone taking notes while a client lies on a couch? Someone in a white lab coat putting rats through a maze? Someone talking with a student about subject choices and career possibilities? People have many different ideas about psychologists and some of these are very wide of the mark! While some incorrect ideas are due to psychologists being inaccurately portrayed in the media, others are due to confusion of the terms psychologist and psychiatrist. Incorrect ideas about psychologists can also occur because there are many different kinds of psychologists and people may know of only one type.

The difference between a psychologist and a psychiatrist

Psychiatrists are medical practitioners who have completed a medical degree before taking further studies that allow them to specialise in the diagnosis, treatment and prevention of mental illness and emotional problems. Because they are doctors, they can prescribe medication to treat or control symptoms of mental illnesses. They can also arrange admission to hospital if they consider this necessary. Some treatment methods that they use are non-medical and overlap with treatments used by clinical or counselling psychologists.

The area of interest of psychologists is much broader than that of psychiatrists. Psychologists are concerned with the whole range of human thinking, emotion and behaviour.

Generally speaking, psychologists fall into two main groups: those who are involved in teaching and research and who can usually be found in university settings, and those who work as practising psychologists in the community, in community or private agencies, or in private practice. Because the area of psychology is so broad, psychologists, whether they are researchers or practitioners, tend to specialise.

Working as a psychologist

In Australia anyone who wants to work as, and call themselves, a psychologist must, by law, be registered to practise as a psychologist by the Psychologists Board of Australia (PsyBA). The Registration Board sets standards of practice to protect the public. In Australia the qualifications that lead to general registration are:

- i a Board-approved postgraduate qualification accredited as a fifth and sixth year of study; or
- ii all fifth and sixth year-level coursework and practicum of a Board-approved postgraduate qualification accredited as a fifth, sixth and seventh year of study, and having made sufficient progress in the research thesis; or
- iii a Board-approved qualification accredited as a fifth year of study followed by successful completion of a Board-approved 5+1 internship program; or
- iv a Board-approved 4+2 internship program; or
- v an overseas qualification and supervised practice assessed by the Board as substantially equivalent to either (i), (iii) or (iv) and successful completion of a Board-approved transitional program (unless exempt).

In addition to the completion of an approved qualification, the Board requires evidence of having passed the National Psychology Examination prior to accepting an application for general registration.

All psychologists must follow the Code of Ethics developed by the Australian Psychological Society (2007) and adopted by PsyBA. This Code is designed to make sure that the wellbeing of the client comes first. We will be looking at ethics in later units and will find that some tricky situations can arise.

Psychologists may be endorsed by PsyBA to practise in one of the areas described below.

- **Clinical neuropsychology** is concerned with how brain injuries or illness affect a person's thinking, emotions and behaviour.
- **Clinical psychology** is concerned with the assessment and treatment of mental disorders and psychological problems in adults and children.
- **Community psychology** is concerned with helping improve people's wellbeing as members of communities.
- **Counselling psychology** is concerned with assisting individuals, groups and organisations in areas such as personal wellbeing, relationships, health and crisis.
- **Educational and developmental psychology** is concerned with understanding and supporting the development and learning of people throughout their lives.
- **Forensic psychology** is involved with applying psychological understandings to the legal and criminal justice system.
- **Health psychology** focuses on understanding processes that are relevant to health and illness and on improving health at an individual and societal level.
- **Organisational psychology** is concerned with understanding complex relationships in workplaces to improve an organisation's effectiveness and productivity.
- **Sport and exercise psychology** deals with what affects a person's participation and performance levels in sport and physical exercise.

Figure 1.2 An educational and developmental psychologist might use props and toys to gauge a young child's understanding of a situation.



To be eligible to apply for an area of practice endorsement with PsyBA, a psychologist must have advanced training (an accredited qualification in the area of practice followed by a period of supervised practice) over the requirements for general registration. All people who work as professional psychologists are trained to be **scientist-practitioners**. This means that they keep up to date with psychological research and base their practice on research evidence, not unproven fads.

Structure of the course

Student information

The course is focused on your achievement of four outcomes related to understanding and applying knowledge and skills in psychology. These are based on the School Curriculum and Standards Authority outcomes from the Science learning area.

Outcomes are statements of what you should:

- know
 - understand
 - value
 - be able to do
- as a result of your learning.

They are written as open-ended statements and are subsequently elaborated to identify underpinning knowledge, concepts and skills. The open-ended nature of outcomes allows achievement to be demonstrated at all levels on the learning continuum.

The Psychology ATAR course has the following outcomes.

Outcome 1 – Psychological understandings

Students understand the bases of human behaviour.

In achieving this outcome, students:

- understand how human behaviour can be defined, and the relationship between the internal and external factors that influence how humans think, feel and act
- understand the different theoretical approaches to the various areas or domains of psychology
- understand psychology provides scientific explanations of behaviour with particular principles, procedures and approaches to data.

Outcome 2 – Investigating in psychology

Students use information-gathering methods to explore and answer questions about human thinking, emotion and behaviour.

In achieving this outcome, students:

- develop and select questions and ideas or hypotheses and plan and conduct research to test these ideas in a reliable, valid and ethical way
- collect, record, classify, quantify and process data and information in organised, logical and ethical ways
- interpret and evaluate findings in relation to ideas or hypotheses being tested and reflect on the design of the research.

Outcome 3 – Applying and relating psychological understandings

Students select and apply knowledge, understandings and skills to the study of human behaviour.

In achieving this outcome, students:

- use psychological knowledge and understandings to explain thoughts, feelings and behaviour
- apply knowledge and understandings reflecting the values of the discipline of psychology
- explore and interpret human behaviour in the everyday world using psychological theory and principles.

Outcome 4 – Communication in psychology

Students use appropriate skills and processes to communicate their understanding of human behaviour.

In achieving this outcome, students:

- use psychological discourse
- interpret information received and communicate feelings, thoughts and ideas with purpose, understanding and critical awareness
- explain psychological understandings to a range of audiences for a variety of purposes.

Each unit contains a range of contexts that can be used to cater for students' different interests and needs. You should think about how the units apply to yourself, at home, at school and in the community. Other contexts where psychology is relevant include knowing more about yourself and your relationships with others around you, such as your families and friends.

The content is the focus of learning programs so that you can maximise your achievement of outcomes, demonstrate your achievement of assessments, both school-managed and external, and satisfy any requirements of post-school destinations. The content is summarised at the start of each chapter.

To provide continuity and coherence across the course, each pair of units at Years 11 and 12 is designed around the same essential content areas.

Self

- Biological influences/bases of behaviour
- Cognition
- Developmental psychology
- Personality

Others

- Relational influences
- Communication
- Social psychology
- Culture and values

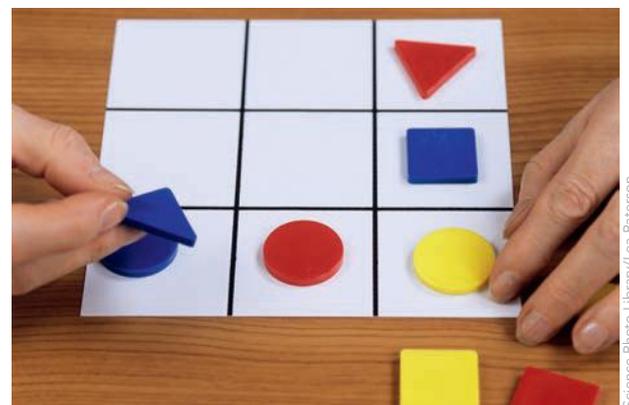
Research methods

- Planning and conducting psychological research
- Processing and evaluating psychological research

The course is organised into a Year 11 syllabus and a Year 12 syllabus and the content has been written to increase in complexity by degrees from one year to the next.

Unit 1 focuses on a number of concepts that enable students to gain an understanding of how and why people behave the way they do. Students learn about the human brain and explore the impact of external factors on behaviour, such as physical activity and psychoactive drugs. Cognitive processes, such as sensation and perception and selective and divided attention, are investigated. Students examine different types of relationships and the role of verbal and non-verbal communication in initiating, maintaining and regulating these. Students are introduced to ethics in psychological research and carry out investigations.

Figure 1.3 Psychology will help you learn about solving problems.



Science Photo Library/Lea Paterson

Unit 2 focuses on developmental psychology. Students analyse twin and adoption studies to gain insight into the nature/nurture debate and look at the role of play in assisting development. Students explore what is meant by the term personality and examine historical perspectives used to explain personality. They also explore behaviour and causes of prejudice. Psychological research methods are studied in Units 1 and 2.

Unit 3 focuses on the functions of the lobes of the cerebral cortex and examines how messages are transmitted from the brain to the body. It explores how behaviour is influenced by learning and other factors, and the impact of others on individual behaviour. Students examine socialisation processes observed within families and how social background and gender can shape communication styles. Students expand on their knowledge of ethics in psychological research as they engage in detailed investigations.

Unit 4 focuses on developmental and contemporary personality theories, and behaviours observed when individuals are examined in the social context. Students analyse the causes of conformity and obedience and gain an understanding of the factors that shape a sense of community. Students continue to develop their understanding and application of psychological research methods.

Psychology ATAR Course: Year 11 Syllabus, Government of Western Australia, © School Curriculum and Standards Authority, 2015, pp. 3 & 4

As a student, the Psychology course can be best understood by focusing on three major areas:

- understanding the outcomes and what you need to do to achieve them at different levels
- understanding the different types of tasks and assessment of the outcomes
- learning the essential content within different learning contexts.

Schools report student achievement in terms of grades A to E for each unit. This is used to identify your achievement in each task and at the completion of a course. Assessment tasks are designed to meet the needs of students and include investigation, response, a project and an examination.

Authors' postscript for readers

Throughout this textbook you will find that we have provided information that goes beyond the specifics outlined in the Psychology syllabus. This material will not be examined but we hope that it will prove useful to you. We have done this in two ways. First, at the start of some chapters or sections we have provided information to give a framework for the details that follow. Research has shown that students find it easier to recall and understand information when they can see how the details fit into the 'bigger picture'. Second, we have provided 'Broaden your understanding' boxes. The material here provides activities or interesting related information that is designed, as the title suggests, to help you gain a broader and better understanding of the material that has been presented.

We hope you will enjoy studying psychology and that the textbook gives you lots of ideas not just for your learning but also in your personal development so you can become confident, competent and independent. We anticipate that you will gain a deeper understanding of how humans as social beings interact with and relate to others. We hope you will also understand how psychology is a science and learn how we go about 'doing' or applying psychology as a tool for greater understanding and knowledge about humans. And, finally, we encourage you to think about how psychology is meaningful and relevant to you and your day-to-day living in contemporary Australian culture and society.

Figure 1.4 Is this the way we will communicate our knowledge of psychology?



UNIT 1

CHAPTER 2

Self: Biological bases of behaviour

Key knowledge and understanding

The nervous system

Major parts of the brain and their function

- The hindbrain
- The midbrain
- The forebrain
- Lobes

Structure of the neuron

Methods for investigating brain function

- People with brain injuries
- External recording techniques
- Scanning techniques

Factors that affect behaviour, emotion and thought

- Physical activity
- Drug effects

Biological bases of behaviour

The nervous system

The nervous system is a vast, complex communication system. It receives messages about our environment, monitors our body and sends messages to control and direct all that we do. It has two main sections: the central nervous system (CNS), which is made up of the brain and spinal cord, and the peripheral nervous system (PNS), which involves all our other nerves. Although these two systems are often described separately, they form an integrated whole and are built of nerve cells called neurons. In this chapter we will look at some of the major components of the CNS and how they influence the way we behave.

Major parts of the brain and their function

We describe clever people as being 'brainy' but people have not always thought highly of the brain or connected it with behaviour. When the ancient Egyptian pharaoh Tutankhamen died, he was mummified to prepare his body for the afterlife. His heart and other organs were carefully preserved but his brain was thrown away because it was thought to be of no importance! Today we know how important the brain is, and a range of different scientists, including psychologists, study it. Psychologists are interested in learning more about the different parts of the brain, how they work and how they affect our behaviour.

The adult human brain is about the size of a small cauliflower and weighs about 1.4 kg. It has a jelly-like consistency. The brain can be divided into three main physical sections: the hindbrain, the midbrain and the forebrain. We will look at the basic structure of each of these and the functions they play. These are shown in Figure 2.2.

The hindbrain

The **hindbrain** is at the base of the brain near the back of the skull. It controls vital activities over which we have no conscious control, such as breathing, as well as coordinating voluntary muscle movements and reflex actions. It is made up of several structures, the most important of which are the cerebellum and the medulla. The **cerebellum** receives

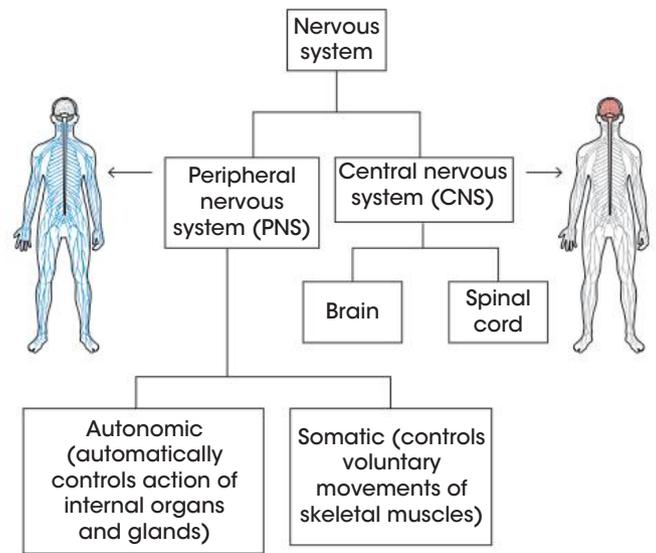


Figure 2.1 Main components of the human nervous system

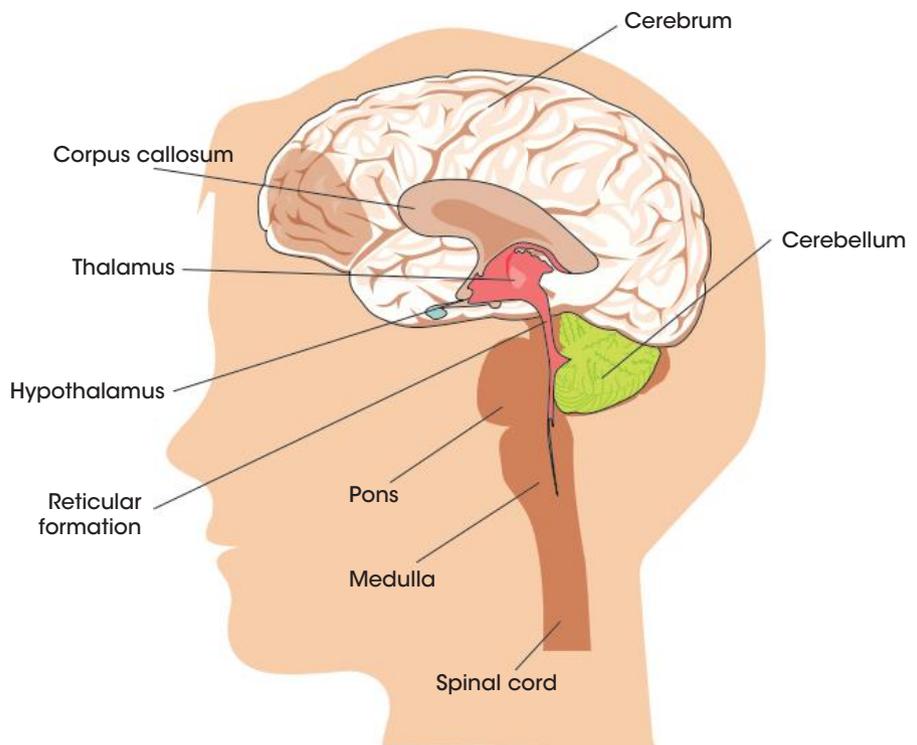


Figure 2.2 Structure and function of the brain



Figure 2.3 The cerebellum coordinates the body's movements, as when David Warner hits a six.

information from the sensory systems, spinal cord and other parts of the brain and uses this information to regulate posture and balance and coordinate fine muscle movements. It is also thought to be involved in motor learning that involves practice. For example, when a goal shooter in netball practises the action of shooting many times, information relating to body position and balance and the force needed to throw the ball over different distances is learned. The cerebellum is much smaller than the cerebral hemispheres but has as many neurons as the hemispheres combined and has extensive connections with the cerebral cortex and spinal cord. The cerebellum is affected by alcohol consumption, with the result that excessive consumption of alcohol leads to a stumbling gait. If your cerebellum were injured, you might walk as if you were drunk.

The **medulla** is at the base of the hindbrain in front of the cerebellum. It controls vital functions such as heart rate, breathing, digestion and swallowing. As a result, damage to the medulla is likely to lead to an individual being placed on life support machines to regulate breathing and heart function. If the damage is too severe, the person will be pronounced 'brain dead', and when life support is turned off, they will die.

The midbrain

The **midbrain** sits on top of the hindbrain under the cerebral hemispheres. For an apparently simple structure its functions are extremely diverse (Bear, Connors, & Paradiso, 2007). It acts like the brain's sensory switchboard passing information from the spinal cord to the forebrain and vice versa. It receives messages from all the senses except smell and sends them on to higher brain regions that deal with hearing, seeing, tasting and touching. It also receives replies that it directs to places such as the cerebellum. So if your mobile rings when you are in a café with friends, the sound registers in your midbrain, which then triggers muscles in your neck to turn your head in the direction of the sound. Although it coordinates movement in this way it does not deal with complex motor coordination of the type carried out by the cerebellum.

Through the centre of the midbrain running from the forebrain to the hindbrain is the **reticular formation**. This is a network of nerves about the thickness of a finger. Its main function is to screen incoming information so that the higher brain centres can attend to important information and not be overloaded with less important information. It also plays a role in controlling sleeping and waking and our level of alertness and so is often referred to as the brain's arousal system. The reticular activating system (RAS) is part of the reticular formation. It has both ascending pathways that extend to the cerebral cortex and descending pathways that extend to the spinal cord. The RAS increases or dampens down arousal level and muscle tone in response to feedback from the brain. When our RAS activity is low, we go to sleep. Many general anaesthetics used before surgery work by reducing the activity of the RAS and making the patient unconscious.

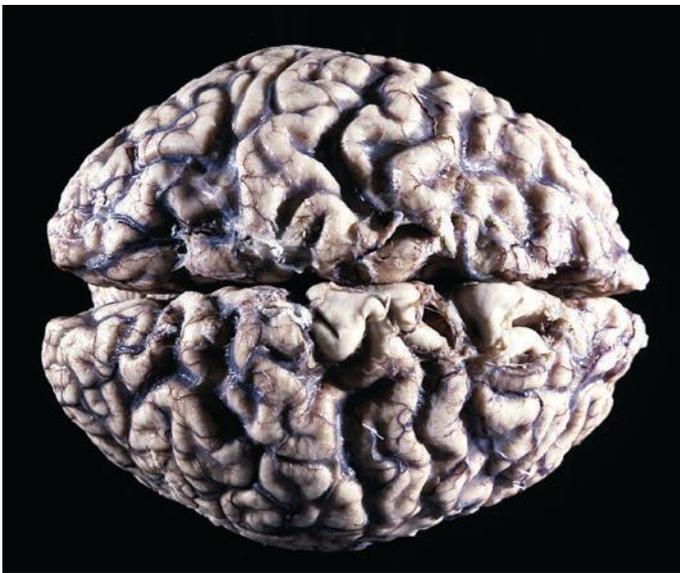


Figure 2.4 The cerebrum has two hemispheres and a wrinkled surface.

The forebrain

The **forebrain** is the most highly developed and largest part of the brain. It plays a major role in how we think, feel and behave. Many neural pathways in the forebrain connect with parts of the midbrain and hindbrain to coordinate and regulate functions of the brain. The forebrain consists of various structures, the most important being the hypothalamus, the thalamus and the cerebral cortex.

The **thalamus** is in line with our ears, in the middle of our head. It is about 3 cm in length and made up of two oval parts that sit side by side in the two hemispheres. It filters information from all the senses except the nose and passes it on to the appropriate part of the brain for processing. In this way it acts as a relay system. Damage can result in reduced sense of touch, or visual or hearing impairment. The thalamus also plays an important role in regulating our level of arousal, how awake, energetic and attentive we feel, through its connection to the RAS (Kinomura et al., 1996). If it is damaged, arousal is reduced, resulting in lethargy or even coma.

The **hypothalamus** is located just below the thalamus. It is small, only about the size of a grape, but its role is extremely important since its main function is to regulate the release of hormones controlling body temperature, our biological clock, sex drive and thirst and hunger needs.

The **cerebrum** comprises most of the forebrain. It lies above and in front of the cerebellum. It consists of an outer layer, the cerebral cortex, as well as masses of neural tissue where nerves form connections. The cerebrum, including the cerebral cortex, has two halves, or **hemispheres**, that are separated by a deep groove, as can be seen in Figure 2.4.

The **cerebral cortex**, or simply **cortex**, which is wrinkled like a walnut and in a healthy living brain is soft and pinkish-grey in colour, is located over and around most of the other brain structures. The left and right hemispheres are almost symmetrical and each hemisphere has sensory and motor functions that are found in virtually the same place in each hemisphere. The two hemispheres are joined by a thick band of fibres called the **corpus callosum**, which lets messages be sent from one hemisphere to the other. It is easy to see why this is important. The left hemisphere gets sensory information from the right side of the body. It also mainly controls the movement on the right side of the body. In the same way, the right hemisphere receives sensory information from the left side of the body and mainly controls the movement of the left side of the body. If the corpus callosum were cut so that the two hemispheres could not communicate then your right hand literally would not know what your left hand was doing. That would make activities like typing very difficult!

The two hemispheres have some functions in common but they also have their own specialised functions. For most people the left hemisphere is more important than the right in controlling verbal functions. It is important in speaking, reading, writing and understanding language. It also plays a major role when we reason or analyse or interpret information. In contrast the right hemisphere controls non-verbal activities that do not require language, such as drawing, doing jigsaw puzzles and appreciating works of art. It is also involved when we are doing spatial tasks such as following maps, recognising faces and finding our way through mazes.

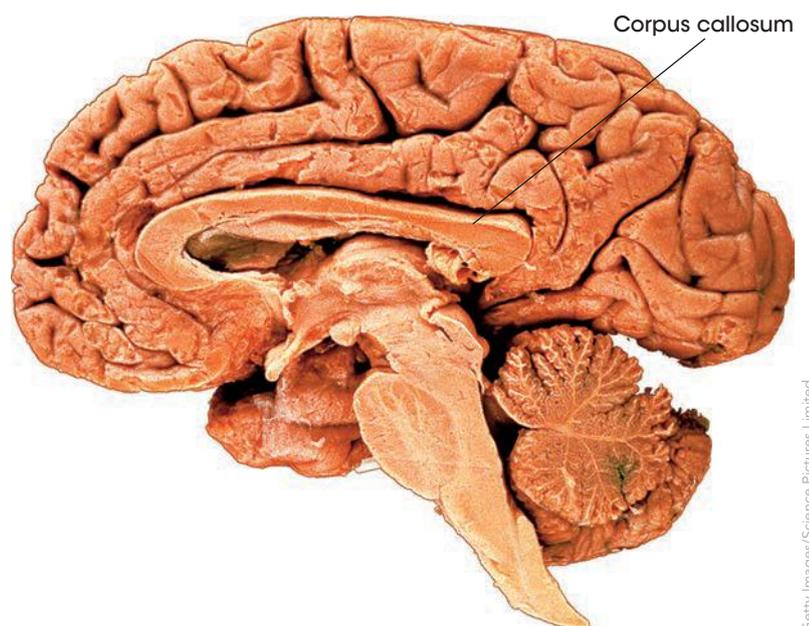


Figure 2.5 The corpus callosum is a thick band of nerves that allows messages to be sent from one hemisphere to another.

Table 2.1 Specialised functions of hemispheres

Left hemisphere specialisations	Right hemisphere specialisations
Reception and processing of sensations from the right side of the body	Reception and processing of sensations from the left side of the body
Control of voluntary movements on the right side of the body	Control of voluntary movements on the left side of the body
Language-based tasks (speaking, reading, writing)	Visual-spatial tasks (reading a map, completing a jigsaw puzzle)
Analytical thinking	Appreciation of art and music
Sequential processing	Detection and expression of emotion
Logical reasoning	Recognition of faces and patterns

From Darby and Walsh (2005)

Lobes of the cerebral cortex

The hemispheres of the cortex can be further subdivided into **lobes**. These are areas defined by deep grooves (or fissures) in the cortex as well as by having separate functions. Each cerebral hemisphere has four lobes. These are the frontal lobe, the temporal lobe, the occipital lobe and the parietal lobe. We will look at these in turn.

The **frontal lobes** are located in the upper front half of each hemisphere and are the largest of the four pairs of lobes. They are associated with higher mental ability and the control of movement. They are also associated with regulation of emotion, self-awareness and ability to inhibit inappropriate actions and so are said to play an 'executive' role. If frontal lobes are damaged, a person's personality may change markedly and the capacity for reasoning and problem solving is reduced.

Table 2.2 Major functions of the lobes

Lobes of the cerebral cortex	Location	Major functions
Frontal lobe	At the front of each hemisphere, in front of the parietal lobe and above the temporal lobe	Control of voluntary movement Abstract thinking Regulation of emotional behaviour Personality
Temporal lobe	On each side of the brain under the cerebral hemispheres	Receive and process auditory information, both verbal, e.g. language, and non-verbal, e.g. door shutting
Parietal lobe	Above the occipital lobe and behind the frontal lobe	Integrates sensory information relating to touch, temperature, position in space and muscle movement
Occipital lobe	At the back of the brain above the cerebellum	Receive and process visual information such as colour, shape and motion

The **temporal lobes** receive auditory (sound-based) information and are the main site for processing this information. They play a critical role in our ability to interpret different sorts of sounds and understand speech. Damage to the temporal lobe affects a person's language ability. The **occipital lobes** are at the back of the brain and are responsible for vision, or seeing. Damage to this area can affect vision even if the eyes and their connecting nerves to the brain are normal. The **parietal lobes** are located on the top of the cortex and receive information about touch and temperature from the skin as well as information about the body's position in space and muscle movement. Damage to this area leads to a reduction in bodily feelings.

Apart from the lobes, cortical areas known as **association areas**, make up the frontal lobes. Association areas cover the front of each lobe. They do not have a specific motor or sensory role but they integrate information received from other brain structures, giving it meaning and leading to appropriate responses.

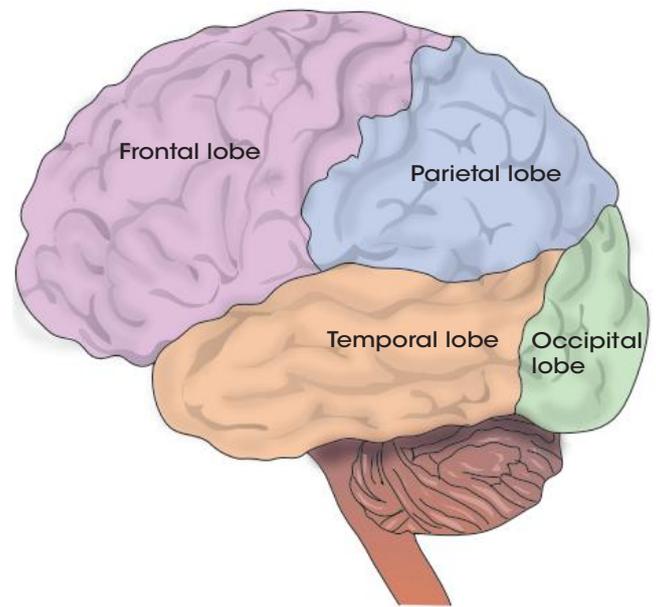


Figure 2.6 Lobes of the brain

Structure of the neuron

The brain is made up of billions of nerve cells called neurons. A **neuron** is a type of cell that is specialised to receive, transmit and process information. To understand how they work we need to know the different parts of the neuron and what they do. A schematic representation of a neuron is shown in Figure 2.7. Providing the connections between neurons are trillions of synapses. These connections enable messages to be transmitted from one neuron to another throughout the body.

While there are different types of neurons, and they vary in shape and size, most have the following features in common:

- a cell body
- dendrites
- an axon
- a myelin sheath.

The **cell body**, or soma, contains a nucleus that controls the maintenance and function of the cell. At one end it has an axon. At the other end thousands of dendrites protrude from the cell. The cell body integrates information received from many dendrites and passes it to the axon. The energy needed for processes such as growth or repair is provided by mitochondria in the cell body and dendrites. **Dendrites** are the fine branches from the cell body that receive incoming information from other neurons and transmit it to the cell body. The more dendrites a neuron has, the more information it can take in. An **axon**, a structure found only in neurons, is highly specialised for the purpose of transferring information over distance in the nervous system (Bear et al., 2007). Information is passed from the cell body to other neurons or to cells in glands and muscles. While most neurons only have one axon, many axons have branches (collaterals) that allow information to be passed to multiple cells.

In motor and sensory neurons the axon is surrounded by a fatty **myelin sheath** that is interrupted periodically, leaving gaps where the membrane of the axon is exposed. These gaps are known as nodes of Ranvier.

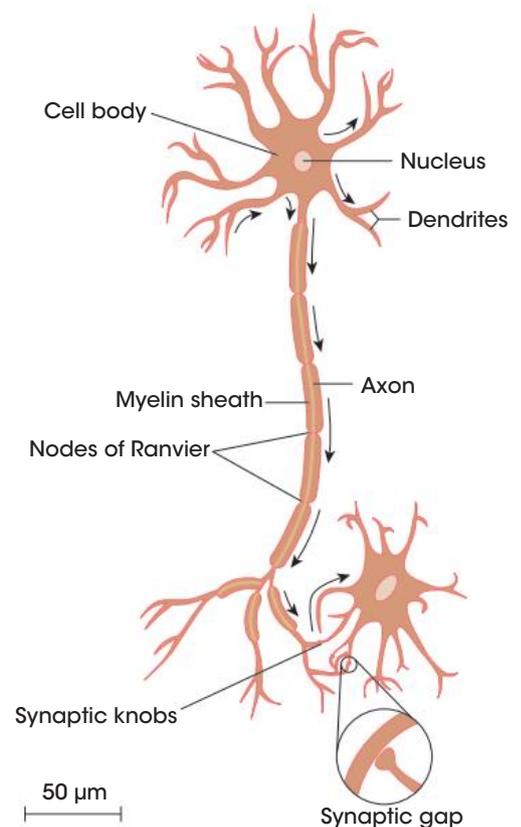


Figure 2.7 Components of a nerve cell

They speed the transmission of the electrical signal. They also allow nutrients to enter the axon and waste products to leave. The myelin sheath protects the axon and assists with speedy transmission of electrical impulses. This transmission of impulses occurs at synapses where there is a tiny gap between the axon terminal and a dendrite known as the synaptic gap. Here the electrical impulses are converted into a chemical signal that crosses the gap (Bear et al., 2007).

Methods for investigating brain function

We have talked about what different parts of the brain do, but how do we know? While there is still a lot we do not know, we have come a long way since the 1800s when Franz Gall, a German anatomist and physician, believed that bumps on the skull over certain parts of the brain could tell us about people's abilities and personality. Phrenology, the study of head shape, was popular for a number of years and people would see a phrenologist to have the bumps on their heads examined to learn about their 'strengths'.

Much of what we know about the brain today is the result of technological advances, such as machines for magnetic resonance imaging (MRI) and computed tomography (CT) scans. However, much of our early knowledge about the relationship between brain structure and function came from studying the behaviour of people who had brain injuries or operations on parts of their brains.

People with brain injuries

Phineas Gage is one of the earliest cases of people with brain injury to receive a lot of attention and, later, research. He provides us with a **case study** – an intensive study of an individual. His and other cases have enabled psychologists to look for changes in behaviour, personality and intelligence as a result of the damage in order to understand the relationship between brain structure and function. In 1848 Phineas was a 25-year-old railway worker. He was packing gunpowder into a rock with an iron rod when a spark ignited the gunpowder, shooting the rod through his left cheek and out the top of his skull, causing major damage to his frontal lobes. To everyone's surprise he recovered from the accident, was able to talk sensibly and soon regained full strength. However, people who knew him said that his personality

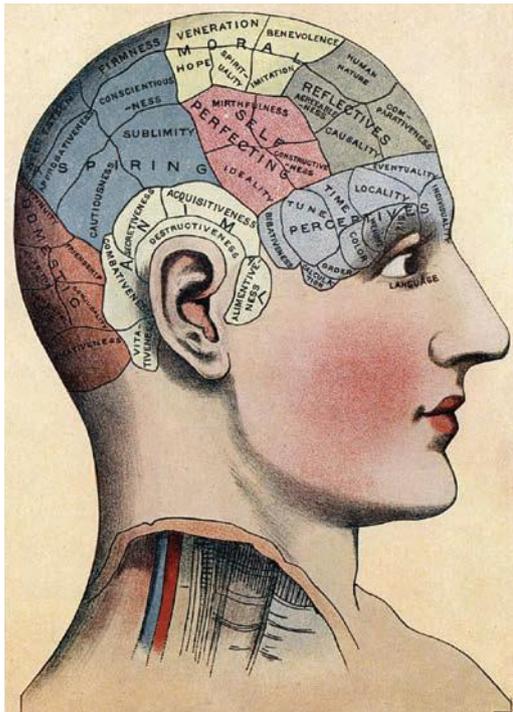
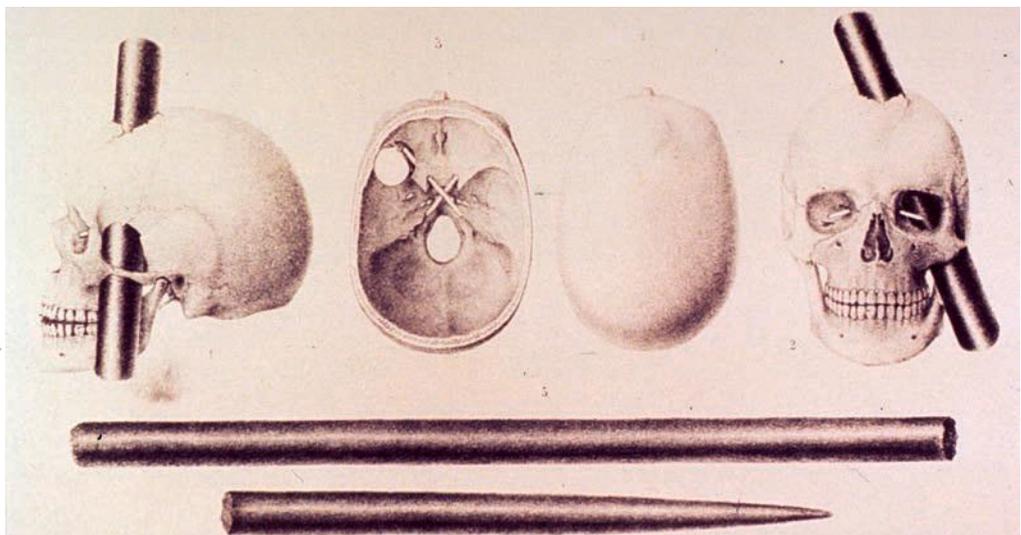


Figure 2.8 Do you have a bump for poetical talent? Phrenologists wrongly believed that bumps on the skull could tell us about underlying functions of the brain.

Figure 2.9 Phineas Gage's skull, showing the damage caused by the metal rod



United States National Library of Medicine

had completely changed. He had gone from being a polite, pleasant, hard-working man to one who was loud, impulsive, moody and dishonest. He also became less capable of organising himself. He eventually lost his job and ended up earning his living as a showground exhibit. We know now that the frontal lobes that were damaged in Phineas are important for planning, self-control and personality.

We also see the effect of brain injury in people who have had strokes. A stroke occurs when the blood supply to a part of the brain is cut off through a blockage or break in a cerebral artery. This causes some brain tissue to die. Different body functions are affected depending on where the stroke occurred. A stroke that causes damage to the right hemisphere can result in paralysis or loss of feeling in the left side of the body.

Broaden your understanding

Brain structure and function

Our understanding of the relationship between brain structure and function took a leap forward in the 1960s as a result of investigations of people who had undergone brain surgery. Much of what we know about how the brain works, especially about how the two hemispheres function, comes from studies of people with 'split brains'. These are people who have had surgery to reduce severe epileptic seizures. In this surgery, the corpus callosum is cut to stop the brain activity associated with seizures from spreading from one hemisphere to the other. Roger Sperry and Michael Gazzaniga obtained permission to carry out work with some 'split-brain' patients (Sperry, 1968). They observed them carefully and carried out some clever studies.

In an early study, Sperry sat a split-brain client at a table with a screen in front of her. Her hands could fit under the screen to reach objects on the other side but she could not see her hands or the objects. She was asked to look at a point in the centre of the screen. A projector then flashed pictures of ordinary objects, like a cup or a spoon, from behind the screen to either her right or left visual field. She was then asked, 'What did you see?'



Figure 2.10 Sperry's study with a split-brain patient. The patient cannot name the object or pick it out with her right hand, but her left hand can identify the spoon (adapted from Sperry, 1968).

If the picture was projected to the right visual field so that the information went to the left hemisphere (the language hemisphere), the patient would answer confidently and correctly. But if the picture was projected to her left visual field so that the information went to her right hemisphere (the non-verbal hemisphere), she could not say what she had seen. Yet if she was asked to pick out what she had seen from the bunch of hidden objects using her left hand, she could do so. Sperry concluded that with a cut corpus callosum, visual information could not be sent from the right to the left hemisphere or vice versa.

Obviously, most of us have both hemispheres working and we use both to perform any complex activity. Even when reading a book, we use both hemispheres: the left to read the words and find meaning and the right to respond emotionally to the story or to visualise scenes (Levy, 1985).



Figure 2.11 An EEG examination

External recording techniques

An **electroencephalograph** or EEG is used when we want to investigate the whole brain rather than its parts and it can provide this information without being invasive. An EEG detects, amplifies and records brain waves, that is, electrical activity in the brain. The brain waves are detected by multiple electrodes fastened to the scalp, often using an EEG cap (see Figure 2.11). Brain waves can vary in frequency – the number of brain waves per second – and in amplitude or intensity. The amplitude of a brain wave is judged by the size of peaks and troughs around a baseline of zero when there is no activity. These are recorded on a chart. Different patterns of brain waves can indicate problems with the brain such as epilepsy or tumours. A major limitation of an EEG is that it cannot provide information from deep within the brain or detail about the parts of the brain activated.

Scanning techniques – still pictures

Computerised scanning technology has advanced the study of the brain, brain injury and disease and their relationship with behaviour in startling ways. Scanning provides us with pictures of the brain and its activities. The **computed tomography (CT)** or **computed axial tomography (CAT)** scan is a type of X-ray that involves sending a series of narrow beams through the head. A CT scanner scans through 180 degrees and takes a measurement every one degree. When the information is fed through a computer and appropriate calculations are made, a cross-sectional picture of the brain is produced. The cross-sectional ‘slice’ can be at any level of the brain and angle desired. Images produced in this way are clear, unlike an X-ray, which produces a fairly poor image of the brain because of its density. CT scans aid in the detection of tumours, strokes and other injuries, which can help in finding out the reasons, in such things as changed behaviour and personality. They can also detect areas of the brain that may have shrunk (atrophied) due, for example, to Alzheimer’s disease.

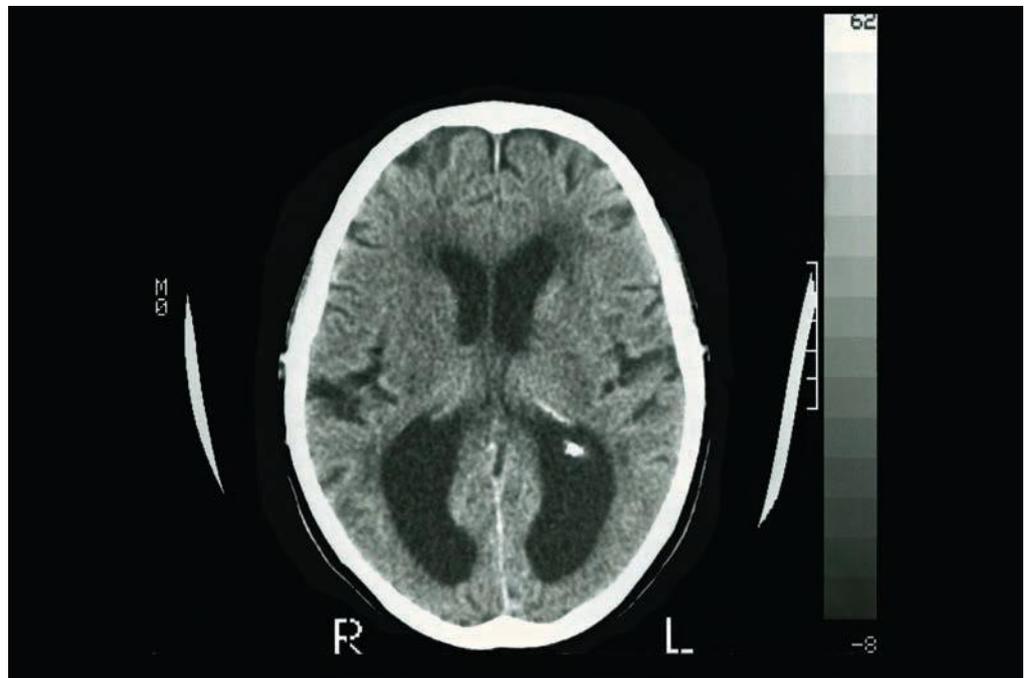


Figure 2.12 Cross-sectional picture produced by a CT scanner of the brain of a person with Alzheimer’s disease



Figure 2.13 An MRI scanner

Similar to a CT scanner, **magnetic resonance imaging (MRI)** produces static images. However, unlike the CT scanner, MRI uses a strong magnetic field, radiofrequency pulses and computers to produce its images. The patient is placed in a tunnel surrounded by a large magnet that produces a powerful magnetic field. When the part of the body that is being examined is placed in this magnetic field and exposed to a certain radiofrequency pulse, the body tissues emit a signal that can be measured. As with the CT scanner, hundreds of thousands of measurements can be combined by the computer. The resulting image is a computer-enhanced, three-dimensional picture of the brain (or the body), from which a two-dimensional 'slice' can be selected and displayed, rotated or enlarged. Images are usually superior to those produced by a CT scanner. This procedure enables the detection of tumours and other abnormalities.

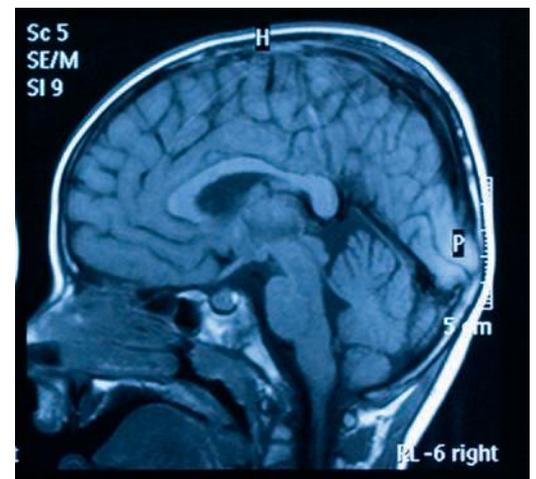


Figure 2.14 An MRI scan

WARNING! The dangers of MRI

Because the patient is placed in a magnetic field in the scanner, it is vitally important to make sure they have no magnetic objects on (or in) them. These include watches, glasses, pacemakers, bone plates and screws. Even staff working near these powerful machines must make sure they do not carry coins, use scissors, wear jewellery or wear a bra that has wire in it. Flying metal can be very dangerous!

Scanning techniques – dynamic pictures

The main limitation of EEGs, CT scans and MRIs is that they only produce static images. While useful in examining the structure of the brain, more recent techniques such as functional MRI and positron emission tomography (PET) make it possible to examine changes in brain activity associated with functions, such as planning and executing specific tasks.

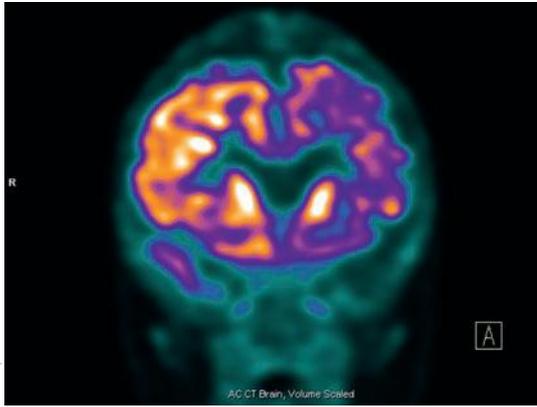


Figure 2.15 In this PET image, orange indicates areas of high activity while purple indicates areas of low activity.

Functional magnetic resonance imaging (fMRI) is the most recent form of MRI. In fMRI, MRI is used to measure activity in the brain when neurons are consuming oxygen. When a part of the brain is active, it contains more oxygen-rich blood, the levels of which can be measured through magnetic resonance. Higher levels of oxygen mean higher levels of oxyhaemoglobin, which indicates higher activity. Haemoglobin and oxyhaemoglobin contain iron in different forms that affect the MRI signal differently, enabling the relative amounts of each to be measured. Technically, this is termed the BOLD signal – the Blood Oxygenation Level Dependent signal. A higher BOLD signal means increased oxygen levels. Functional MRI is proving very useful in psychology because psychophysical studies can use precise brain measurements as correlates of different types of behaviour such as visual processing, reading and other cognitive activities.

Positron emission tomography (PET) scans are based on the glucose (a sugar) consumption of the brain. Glucose containing a harmless radioactive tracer, which decays by emitting a positron, is injected into the blood vessels or taken orally. When in the bloodstream, it travels to the brain. A PET scan can show which areas of the brain are using more energy or consuming more glucose. Higher glucose levels reflect higher brain activity. By placing positron detectors around the brain and picking up the activity, the computer generates pictures with distinct colours showing different amounts of neural activity. A variety of brain problems, such as epilepsy, brain tumours and blood clots, can be identified by comparing the brains of those thought to have neurological problems with those of healthy people. Psychologists are also using PET scans to provide specific information about areas of the brain that can be linked to particular activities such as reading or solving mathematical problems (Posner, 1997).

Table 2.3 Comparing methods for investigating brain structure and function

Technique	Measurement type	Method	Use & limitations
EEG	External Does not use imaging techniques	Uses electrodes fastened to scalp to detect and amplify electrical activity in the brain, which is recorded as a series of peaks and troughs on a chart	Investigates activity in the whole brain Has been used to study different states of consciousness e.g. awake, sleeping, dreaming Different patterns can also indicate epilepsy or tumours Does not produce images and cannot detect information from deep in the brain Not good at pinpointing area of brain that is the source of the brain-wave activity

continued →

Technique	Measurement type	Method	Use & limitations
CAT	Static imaging, i.e. produces still pictures	Type of X-ray, scans the brain at different angles Information is fed into computer leading to cross-sectional pictures of 'slices' through the brain	Aids in detecting tumours, strokes, etc, and atrophy of areas Used in research to look at possible abnormalities in brain structures associated with mental illnesses Images only show brain structure, and images are of inferior quality to those from MRI
MRI	Static imaging, i.e. produces still pictures	Uses a strong magnetic field, radio frequency pulses and computers to produce 3D images from which 2D 'slices' can be displayed	Used in detection of tumours and other abnormalities Does not require X-irradiation and images superior to CAT scan but MRI cannot be used if the patient's body contains any magnetic objects in them (e.g. pacemakers)
fMRI	Dynamic imaging Produces colour images of brain structure, activity and function	Most recent form of MRI. Measures activity in brain when neurons consume oxygen Higher levels of oxygen indicate higher level of activity Colour variations indicate level of activity	Enables observation and measurement of changes in the brain during activity Scans can be made rapidly, they have good spatial resolution, are non-invasive and do not expose patient to radioactive tracers Less expensive than PET scans
PET	Dynamic imaging Produces colour images of brain structure, activity and function	Scans provide images of brain in action by tracking a glucose solution that contains a short-lived radioactive tracer Records are based on glucose consumption in the brain Different colours indicate areas of high or low activity	Does not provide an image of the health level of the brain but problems (e.g. epilepsy, blood clots, can be identified by comparing patient brain with those of healthy people) Used in research to show specific brain areas activated during activities such as reading, speaking, thinking Images are not as detailed as those from fMRI and are more expensive



Getty Images/Tom Merton

Factors that affect behaviour, emotion and thought

Many factors can affect how we think, feel and behave. Here we explore the influence of physical activity and recreational drugs.

Physical activity

Numerous studies show that a moderate amount of exercise has benefits for our physical health, halving the risks of heart attacks and adding two years to life expectancy (Seligman, 1994, cited in Myers, 2007). But exercise is not only good for us, it also makes us feel better.

Statistics Canada (1999) reports that one in four Canadians who exercised regularly also reported feeling more energetic, less depressed and tired less often than those who exercised infrequently. While it might be argued that this correlation cannot show us that the exercise caused these positive effects – it might simply be that less tired, less depressed people exercised more – there is research that addresses this debate. In 1984 Lisa McCann and David Holmes carried out a study with mildly depressed female college students. They assigned a third of them to a relaxation group, another third to a program of aerobic exercise and the remaining third, the control group, received no treatment. Before treatment there was no significant difference between the three groups. Ten weeks later the researchers re-evaluated the levels of depression of the participants. As you can see from Figure 2.17, while the depression level for the control group did not change significantly, both treatment groups improved, with the exercise group making greater gains.

More recently, Cooney and colleagues (2013) conducted meta-analyses – analyses in which the data from studies that meet criteria for sound research are combined – to see how well the results of these early studies had held up. They concluded that exercise is moderately more effective than no intervention but comparable to psychological and pharmacological therapies in reducing depression.

Nevertheless, as exercise is often considered more acceptable to patients and is certainly cheaper, it is increasingly being recommended for the treatment of clients suffering from depression and its use is being extended to a range of other mental health disorders.

Researchers are also now asking why exercise might have positive effects. A number of plausible mechanisms have been suggested, including:

- exercise strengthens the heart, increasing blood flow and lowering blood pressure and the blood pressure reaction to stress (Barinaga, 1997, cited in Myers, 2007)
- exercise provides the mastery experiences that help promote perceived ability to cope with depression (Craft, 2005)
- exercise increases the production of mood-boosting neurotransmitters such as noradrenaline, serotonin and the endorphins (Salmon, 2001, cited in Myers, 2007).

Figure 2.16 Exercise has many benefits.

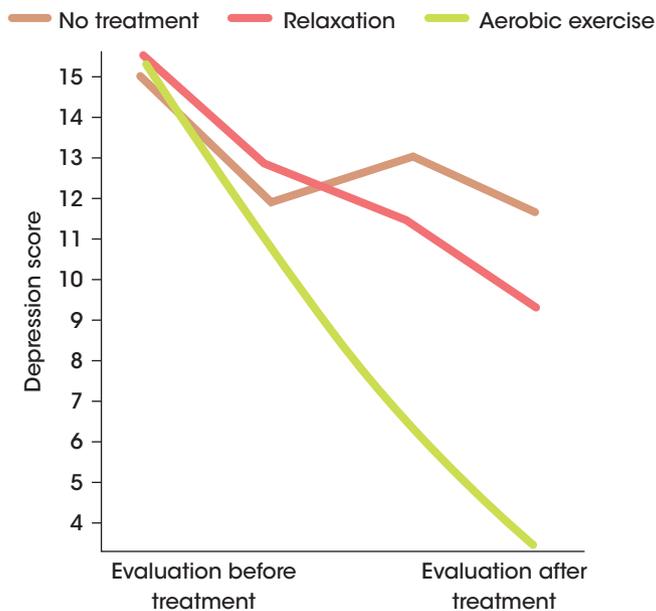


Figure 2.17 The findings of McCann & Holmes (1984)

Neurotransmitters are chemicals that affect the way messages are passed from one neuron to another. Neurotransmitters carry a message from a sending neuron across a synapse to receptor sites on a receiving neuron. The sending neuron usually reabsorbs any excess neurotransmitter molecules in a process called re-uptake. If an excess of neurotransmitters is produced then the individual experiences a mood boost. This is thought to explain the 'runner's high' that many people report after vigorous aerobic exercise.

Researchers have also found that exercise leads to higher levels of physical self-concept – we feel better about our bodies, sleep better and have a sense of accomplishment (Tanaka & Shirakawa, 2004). In this way exercise could indirectly contribute to us feeling and thinking better.

With this range of possible explanations for the link between exercise and mental health, it is likely that the relationship is complex and may vary depending on factors such as age, gender and lifestyle preferences. However, researchers agree on one point: well-designed research is needed to examine these alternatives (Brosse et al., 2002).

Drug effects

Drugs affect our body chemistry and how we think, feel and behave. For these reasons, some drugs are used therapeutically; for similar reasons, others are used recreationally. However, users of recreational drugs usually give far less thought to the effects of dosage and timing, unwanted side effects and possible long-term consequences.

There are three main types of drugs.

- **Depressants**, or 'downers', calm the activity of the nervous system and slow body functions.
- **Stimulants**, or 'uppers', excite the nervous system and arouse body functions.
- **Hallucinogens** change our perceptions and give us sensory images without input from the senses.

Here we look at depressants and stimulants and both our physiological and psychological responses to them, information summarised in Table 2.4.

Alcohol is the most commonly used recreational drug in Australia. While many people think of alcohol as an 'upper', it is actually a depressant. Its use lowers our inhibitions, reducing our ability to stop and think about what we are doing and the effect of our behaviour on other people. That is the reason most people enjoy drinking some form of alcohol at parties. It reduces feelings of self-consciousness and

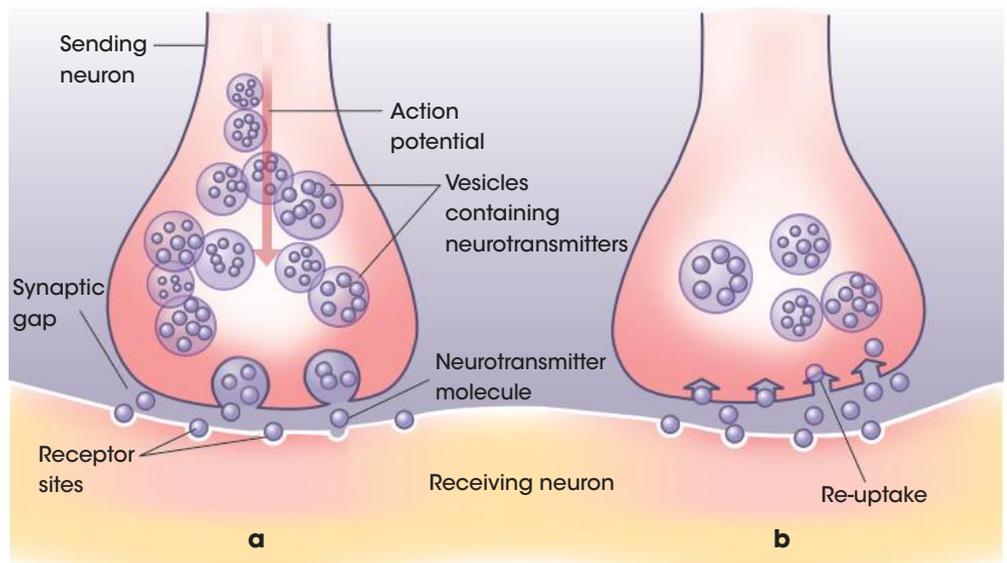


Figure 2.18 How neurotransmitters work. If there are too many neurotransmitter molecules to be taken in by the receiving neuron, or for re-uptake by a sending neuron, then the individual experiences a 'high'.

Figure 2.19 Alcohol can lead a quiet and gentle person to behave aggressively.



promotes relaxation. However, it can also lead us to behave in ways that we would not behave if we had not been drinking alcohol. This is known as **disinhibition**. Disinhibition leads to some normally placid people becoming aggressive, even when unprovoked.

Alcohol also affects our motor control, slowing our ability to respond quickly and to coordinate our movements, making us very dangerous drivers.

While young people usually engage in fewer episodes of drinking overall than older people, they are more likely to consume at riskier levels each time (Australian National Council on Drugs, 2013). In 2012–13 one in eight deaths of Australians under 25 years was directly attributable to alcohol consumption, through injury, drink driving, accidents, assaults and violence.

Cannabis, commonly known as marijuana, is made from the cannabis plant. Like alcohol, it is a depressant drug, slowing down the activity of the central nervous system and the rate at which messages pass from the brain to the body. As we noted earlier, depressants do not necessarily make a person feel depressed. The effects of cannabis vary from person to person depending on factors such as the person's size and health, and whether they have used the drug before. These effects may include loss of inhibition, spontaneous laughter, and altered perceptions of sound and colour, but also confusion, anxiety and altered memory.

While cannabis is most often used recreationally as a psychoactive drug, it is also used medicinally in some parts of the world. As of June 2014, 24 states in the United States of America had approved the medicinal use of marijuana. In February 2017 Australia followed suit, with approved companies being given permission to legally import, store and sell the drug until such time as local producers can meet the demand. Strict rules and regulations relating to who may prescribe it and who may use it remain in place. Clinical trials are underway to investigate its potential to treat some severe forms of epilepsy, and groups such as the Cancer Council of NSW have supported its use under the supervision of doctors to reduce pain and nausea in cancer patients undergoing chemotherapy, and to stimulate appetite.

The most commonly used stimulants in our society are caffeine and nicotine. Many people cannot start the day without their 'coffee fix'. Stimulants increase heart and breathing rates. Appetite decreases because blood sugar rises; energy and self-confidence get a boost. For these reasons, people use stimulants to stay awake, lose weight or boost athletic performance.

Amphetamines are more powerful stimulants than caffeine and nicotine. They work by increasing neurotransmitter activity, speeding up body functions such as heart rate and breathing rate, hence the name 'speed'. They come in a variety of forms: powder, tablets, capsules or crystals. Because they can improve performance on difficult and boring tasks, some students have even used them when studying for exams. Other people use them to raise their mood and make them feel more energetic. However, as with other drugs, their use also has a downside. After the effects wear off, the user is likely to experience headaches, tiredness and irritability. High dosages can also have a negative effect on working memory and cognitive control and, like depressants, stimulants can become addictive.

Crystal methamphetamine (commonly known as ice) is more potent than other forms of amphetamines and more dangerous. The immediate effects often include feelings of excitement, wellbeing, and increased confidence and energy, but also tremors, increased rate of breathing, increased temperature and blood pressure, and an irregular heartbeat. As the effects wear off, a person may experience big mood swings, tension, exhaustion and uncontrollable violence. Crystal methamphetamine is powerfully addictive and the prolonged use of this drug leads to rapid physical and mental decline.



Figure 2.20 Addiction to ice leads to a marked physical and mental deterioration.

However, amphetamines are also used medicinally for people diagnosed with attention deficit hyperactivity disorder (ADHD), whose symptoms include hyperactivity, impulsivity and poor attention. The most common treatment for people with this disorder involves the prescription of a stimulant: dexamphetamine and methylphenidate (sold in Australia as Ritalin) are commonly prescribed in Australia. While many people find it strange to administer a stimulant to someone who is hyperactive and impulsive, these stimulants have a noticeably calming and focusing effect on about 70 per cent of those with ADHD. Research using positron emission tomography (PET) indicates that these drugs increase the levels of the neurotransmitter dopamine, which is likely to improve attention and focus in individuals whose dopamine levels are weak, as is thought to be the case with ADHD.

While parents often worry about their children becoming dependent on their stimulant medication, research has shown that individuals with ADHD do not become addicted if their medication is taken in the dosage and form prescribed by doctors. In fact, Biederman's (2003) longitudinal study suggests children with ADHD who have been prescribed stimulant medications have a reduced risk of subsequent drug and alcohol abuse.

Drug	Physiological response	Possible psychological response
Alcohol	Depressant	Reduces inhibition and self-consciousness
	Slows activity of CNS and rate at which messages pass from brain to body	Can lead to reduction in clarity of thought, control of behaviour and aggression
Cannabis	Depressant	Reduces inhibition
	Slows activity of CNS and rate at which messages pass from brain to body	Can lead to spontaneous laughter, altered perception of sound and colour, altered memory, confusion and anxiety
Caffeine	Stimulant	Reduces appetite
	Heart and breathing rate increases	Increases energy and self-confidence
	Blood sugar rises	
Amphetamines	Stimulant	Raises mood and increases energy
	Increases neurotransmitter activity, speeding up heart rate and breathing	When effect wears off, headaches and irritability increase and cognitive control and working memory deteriorate

Table 2.4 Physiological and psychological effects of drugs

CHAPTER SUMMARY

Biological bases of behaviour

The nervous system

- Peripheral nervous system (PNS)
 - Autonomic
 - Somatic
- Central nervous system (CNS)
 - Brain
 - Spinal cord

Major parts of the brain and their functions

- Hindbrain (brain stem)
 - Cerebellum
 - Medulla
- Midbrain
 - Reticular formation
- Forebrain
 - Thalamus
 - Hypothalamus
 - Cerebral cortex
 - Left hemisphere
 - Right hemisphere
 - Corpus callosum
- Lobes of the cerebral cortex
 - Frontal
 - Temporal
 - Occipital
 - Parietal

Structure of the neuron

- Cell body
- Dendrites
- Axon
- Myelin sheath

Methods for investigating brain function

- People with brain injuries
 - Phineas Gage – a case study
- External recording techniques
 - Electrical stimulation
 - EEG
- Scanning techniques
 - Still pictures
 - CT
 - MRI
 - Dynamic pictures
 - fMRI
 - PET

Factors that affect behaviour, emotion and thought

- Physical activity
- Drug effects
 - depressants
 - stimulants

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

- 1 Neuron
- 2 Dendrite
- 3 Case study
- 4 Hallucinogens
- 5 Disinhibition

Multiple-choice questions

- 1 The hindbrain:
A is the most highly developed part of the brain.
B controls heart rate, breathing, sleeping and reflex actions.
C sits on top of the brainstem under the cerebral hemispheres.
D is divided into two halves or hemispheres.
- 2 A runner's high is due to:
A self-satisfaction at exercising.
B running with friends.
C an increase in the production of neurotransmitters.
D running while on drugs.
- 3 In most people, the left hemisphere is important in:
A spatial tasks.
B appreciation of music.
C verbal functions.
D face recognition.
- 4 An EEG is used when we want to investigate the:
A whole of the brain.
B cerebellum.
C right hemisphere.
D frontal lobes.
- 5 Cannabis (marijuana):
A is a depressant.
B affects different people differently.
C may reduce pain and nausea in people undergoing chemotherapy.
D all of the above.

Apply and relate psychological understandings

Short-answer questions

- 1 Describe how brain injuries and disease help us to understand how the brain works.
- 2 Indicate the main differences between an EEG and a CT scan in terms of how they work and what they are used for.
- 3 Outline three reasons psychologists have suggested for why people feel better after exercise.
- 4 Indicate what are likely to be the major consequences of severing the corpus callosum.

Complete the table

Copy and complete the table below by naming four scanning recording techniques used to provide information about the brain's structure and function. Indicate one use and one limitation of each technique.

Scanning technique	Use	Limitation
1		
2		
3		
4		

CHAPTER 3

Self: Cognition

Key knowledge and understanding

The role of sensation and perception in cognition

- Sensation, sensory organs and stimuli
- Perception
- Illusions and distortions of visual perception

Consciousness

- States of consciousness

Physiological responses indicating different states of consciousness

- Electrical activity of the brain
- Heart rate
- Body temperature
- Electrical conductivity of the skin

What is intelligence?

Theories of intelligence and intelligence testing

- General intelligence
- Measuring mental age
- Modern empirical approaches to intelligence
- Multiple intelligences
- Emotional intelligence (EQ)

Intelligence testing: Group compared with individual tests

Cognition

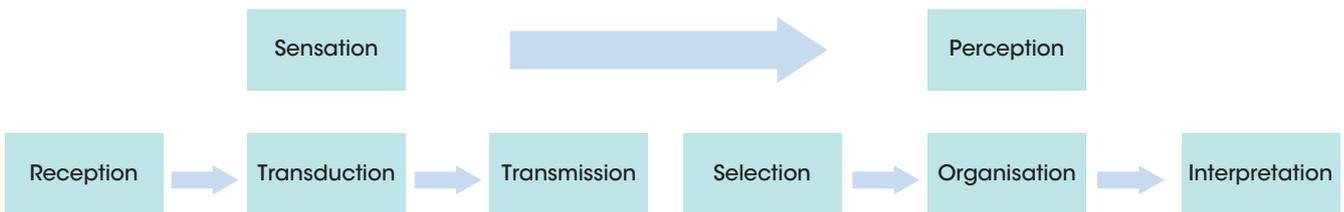
As we have noted, psychologists are interested in how people think, feel and behave. When they look at **cognition**, they are concentrating on the thinking part of what people do. They try to understand how we take in, use, understand and remember information so that we can solve problems and make decisions. When all these parts of cognition work together effectively, we consider this to be intelligent behaviour.

The role of sensation and perception in cognition

Sensation, sensory organs and stimuli

All the information that we get from the world comes to us through our senses of sight, hearing, smell, taste, touch, balance and kinaesthesia. **Sensation** refers to our initial detection and processing of stimuli. This involves three steps (see Figure 3.1).

Figure 3.1 Steps from sensation to perception

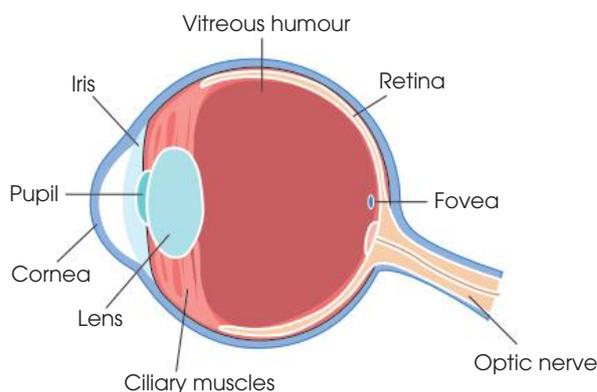


In the first step, **reception**, the presence of physical stimuli such as sound waves and light (see Table 3.1) is detected by sensory neurons in our sense organs: our eyes, ears and so on. Then, in the process of **transduction**, these different forms of stimuli are converted into electrochemical energy, the form of energy that the human nervous system and brain can process. Finally, in **transmission**, this energy is transferred to the brain for processing.

Sense	Type of stimulus	Sensory organ
Sight (vision)	Electromagnetic radiation (visible light)	Eye
Hearing (audition)	Sound waves	Ear
Smell (olfaction)	Chemical energy	Nose
Taste (gustation)	Chemical energy	Tongue
Balance	Mechanical energy	Inner ear
Touch and other skin sensations	Mechanical and thermal energy	Skin
Muscle sensations (kinaesthesia)	Mechanical energy	Receptors in joints, muscles and tendons

Table 3.1 The stimuli for different sensory organs

Figure 3.2 The eye of a human adult



Vision is the sense that has been studied most in humans and so we will look at it in some detail. Vision depends on our eyes receiving light that has been reflected or transmitted from objects. Light initially passes through the cornea, which is a transparent covering that protects the eye and helps focus the light rays onto the retina. Light then passes through the pupil, a small adjustable

opening that looks like a black circle in the middle of the eye. In dark conditions, the pupil expands to let in more light. In bright conditions, the pupil contracts to reduce the amount of light let in. This expansion and contraction is regulated by the iris, the surrounding coloured muscle. While this is similar to what a camera does, our visual system is much more complex than a camera.

Behind the pupil is a lens that focuses light onto the retina. It is held by a ring of ligaments that are attached to ciliary muscles and that change the shape of the lens, and hence focal length, allowing us to see objects clearly whether they are close up or at a distance. The retina is the sensitive surface at the back of the eye that contains photoreceptors, neurons that are specialised to detect and respond to different features of light. There are two types of photoreceptors: rods and cones. Rods respond to low levels of light and are important for night vision, black-and-white vision and also for peripheral vision (what we can see at the edges of our visual field). Cones respond to higher levels of light and enable us to see in bright light. They are important for day vision, colour vision and visual acuity (how clearly we see). In the very back of the eye there is an area called the fovea where cones are particularly plentiful. This is the area of clearest vision. Between the lens and the retina, the eyeball is filled with a jelly-like substance called the vitreous humour. This helps maintain the shape of the eyeball and also plays a role in focusing. Once the light rays reach the retina, the light energy is converted into signals that are carried by nerves to the visual cortex of the brain, where perception occurs.

Perception

Following the initial detection (sensation) the messages carried by nerves must be interpreted in the process known as perception. **Perception** takes place when the information the brain receives is organised and given meaning by the brain. Perception too, can be thought of as comprising three steps, as shown in Figure 3.1. Because the brain receives such a vast amount of information, it cannot all be processed. So in the first step, **selection**, the brain must filter the stimuli selecting important features for further processing while ignoring unimportant features that receive no further processing. This task of selection involves specialised neurons called feature detectors. The next step, **organisation**, involves grouping the selected features of stimuli to form a whole, sometimes referred to as a gestalt – the German word for whole.

Gestalt psychologists studied this phenomenon primarily as it relates to vision, and concluded that we rely on four main types of principles to organise separate stimuli into meaningful patterns. These Gestalt principles, illustrated in Figure 3.3, are:

- figure ground – the viewer uses an imaginary contour line to divide features of the stimulus into an object (figure) and background (ground)
- proximity – stimuli that are close together in space are perceived as belonging together
- similarity – stimuli that are similar in some way such as having the same shape or colour are perceived as grouped together
- closure – gaps in objects are closed so they are perceived as a recognisable whole shape.

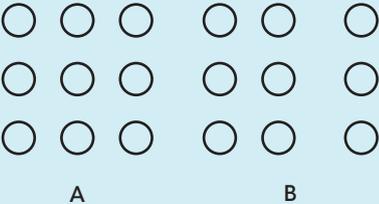
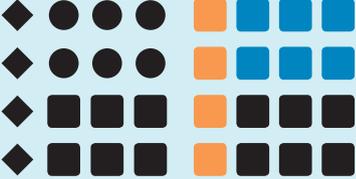
Gestalt principle	Example	Note
Figure ground		The white object is often seen as the figure with a dark background, but figure and ground can be reversed when we shift our attention.
Proximity		A is perceived as a group of nine balls while B is usually perceived as one group of six balls and another of three.
Similarity		We group objects that are similar in some way such as shape, size or colour as forming a group. In the same way, we tend to group people who are dressed similarly.
Closure		Even with poor photocopying we are usually able to close the gaps to read whole words.

Figure 3.3 Examples of Gestalt principles

Finally, in **interpretation**, the brain interprets these wholes, giving them meaning. Because past experiences and motivation can affect how our brain selects and organises information, we may perceive something quite differently from another person, even though we have been exposed to the same stimuli, as we can see from Figure 3.4.

Although our perceptions of the world are usually accurate and reliable, this is not always the case. In some instances we experience a **perceptual illusion** where there is a mismatch between physical reality and our perception of it. This can occur in all the senses but is most clearly demonstrated in visual illusions when length, position, direction or motion is misjudged consistently over time by everyone.



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Illusions and distortions of visual perception

Psychologists have identified many visual illusions and have studied these to try to better understand the factors that lead to our persistent misinterpretations. We will look at several factors that have been proposed to account for various visual illusions.

The Müller–Lyer illusion is the most common visual illusion and occurs when two lines of equal length with inward- or outward-pointing tips appear to be of different lengths (Figure 3.5).

Why is this so? Why does the lower line appear shorter? Two competing theories have suggested different factors to explain this illusion. Australian psychologist, Ross Day (1989), considered that the illusion is due to what he termed a perceptual compromise. This occurs when we have visual cues that contradict each other. In the Müller–Lyer illusion we have information provided by the central line and we have information provided by each figure as a whole – the length from the end of the tips. This can be seen in Figure 3.6. While the central black line is actually the same length in each illustration, the length between the tips (shown in red and not part of the actual illusion) is longer in (a) than in (b). Day considers that in trying to make sense of this conflicting information we reach an interpretation that is a compromise between the length of the horizontal line and the shorter length of the figure as a whole. In this way, we judge (b) to be shorter.

Other psychologists such as Richard Gregory (1990) explain the illusion in terms of **perceptual expectancy**. This is a readiness to respond in a certain way because

previous experience has prepared us to do so. In this instance, Gregory considered that our expectations are based on the interplay between perceived size and perceived distance. Our experience with rooms and buildings leads us to interpret a line with inward-pointing ends as nearer than one with outward-pointing ends. So, when the lines look the same length, the one with the outward-pointing ends is perceived as more distant and therefore larger (Figure 3.7).

Perceptual expectancy has also been proposed as an explanation for other visual illusions. For example, when we see a sign that says 'Cheap fuel ahead' and we read it as 'Cheap food ahead', it may be because we are hungry.

The context of a particular stimulus can also lead to incorrect visual judgements. A man of average height may be perceived to be tall if standing among a group of primary school children, but short if standing with a basketball team. The visual illusion shown in Figure 3.8 demonstrates how context affects perception since the centre dots in the two figures are perceived to be of different size, yet they are the same size.

Gestalt principles can also contribute to our understanding of some perceptual illusions. In Figure 3.3, when you looked at the example for the figure/ground principle, most of you will probably have perceived this as a pale vase on a dark background. However, it is not difficult to 'flip' the figure and ground and see two heads facing each other.

Figure 3.4 What do you see – a great work of art or some meaningless squiggles? You and your friend receive the same sensory information but you may perceive very different pictures.

Figure 3.5 Müller–Lyer illusion

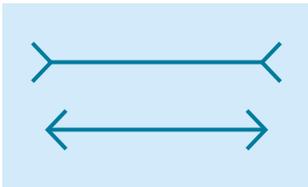
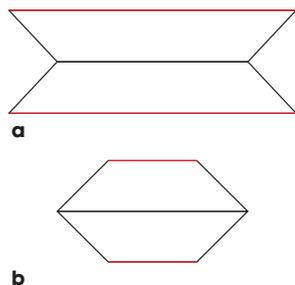


Figure 3.6 Day's explanation of the Müller–Lyer illusion



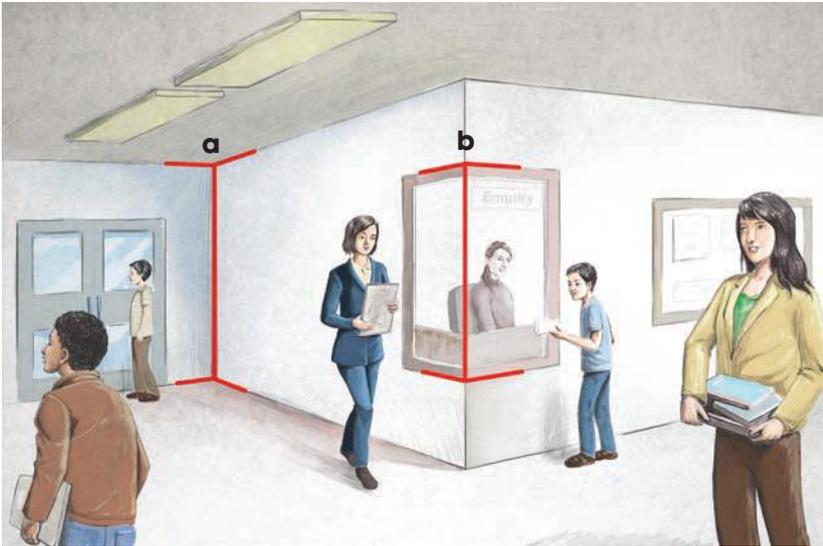


Figure 3.7 Gregory would expect us to see (a) as more distant and therefore larger.

There are many other visual illusions and they are studied by psychologists because they tell us about how humans perceive the world, and how environmental visual stimulations are made into meaningful patterns as the brain actively selects, organises and integrates the sensory information. Most of this is automatic, and it takes misperceptions, such as visual illusions, to call attention to the processes. This enables psychologists to describe the processes in perception and how we perceive and make sense of the sensory environment.

Consciousness

Consider what you are aware of at this very moment – perhaps the words on this page. You might also be aware of an uncomfortable chair, a rumbling stomach or a lawnmower outside the window. In the course of a day, there will be a continuously changing stream of internal states and external events of which you are aware that forms your **consciousness**. Consciousness is our awareness of internal events and external stimuli. The content of our consciousness can be extremely varied. It can include what we taste, hear, feel and smell. It can also include our memories, beliefs, hopes and plans. It is personal, because it is unique to each individual. Yet there are aspects of consciousness that are common to us all.

Consciousness is selective, continuous and changing. It is *selective* in that we choose to attend to certain things and not to others. You can choose to attend to what the teacher is saying or shift your attention to thinking about the movie you saw last Saturday. Our past experiences and current interests also mean that we attend to quite different aspects of our environment. A keen surfer at the beach may be aware of the shape of the waves or the presence of a rip, while a novice swimmer may look at the same scene and only notice the birds on the sand.

Consciousness is *continuous*. There is always something of which we are aware while we are conscious.

Figure 3.8 The impact of context on perception

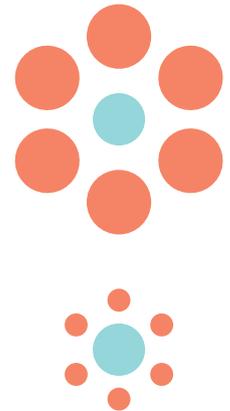


Figure 3.9 A person looking at a painting may be conscious of the techniques used by the artist or may be more aware of the emotions aroused by the work.

Broaden your understanding

Consciousness

Spend the next five minutes writing down everything of which you are aware right now: all the thoughts, feelings, sensations, images, plans that 'pop into your head'. Write without stopping. If you can't think of anything to write, then write 'I can't think of anything to write' because that is what you are aware of at that point in time. At the end of the five minutes, compare what you have written with that of a friend. Discuss possible reasons for the similarities and differences in your records.

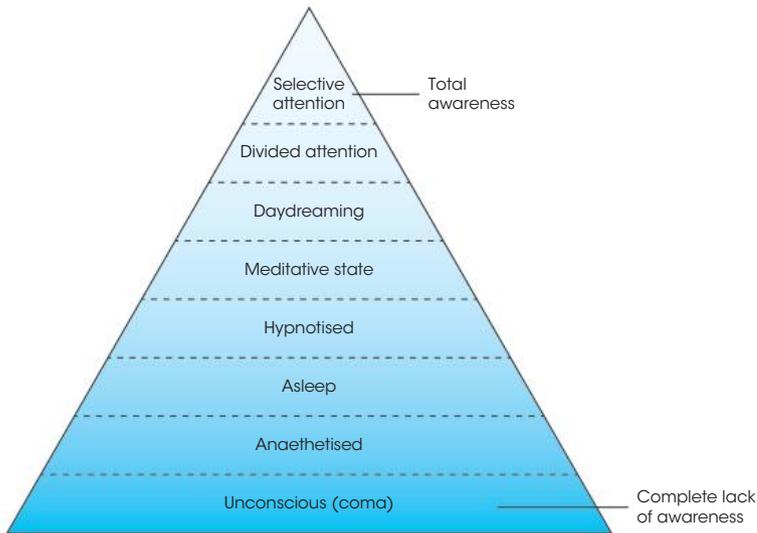


Figure 3.10 The range of states of consciousness

Consciousness is also always *changing*. Information is continuously coming to us through our senses, memories and imagination. Sometimes, we may be particularly aware of our external environment; at other times, our attention may be focused on thoughts and feelings.

States of consciousness

Although we are continuously being bombarded with information, how much we take in will depend on our **state of consciousness** or level of awareness. This can range from being totally aware, when we are focused and selectively attending to something, through to being totally unaware or unconscious. States of consciousness can be viewed as a continuum (Figure 3.10) ranging from complete lack of awareness to total awareness.

Selective attention

At the highest level of consciousness is **selective attention**, when we are totally aware and focused on what we have selected to pay attention to. This might be lining up to kick a goal, studying for an exam or changing the gears of a car during that first driving lesson. In this highly focused state, we are virtually oblivious to other things going on around us. Psychologists have studied selective attention by presenting people with information from two different sources and instructing them to only pay attention to one source. For example, in an early study on selective listening, known as dichotic listening, participants wore headphones through which a different message was sent to each ear. One group of participants was asked to listen to one of the messages; a second group was asked to listen to the other message. In each case they were instructed to ignore the message coming to the other ear. The results of the study showed that while the participants were able to repeat the message that they had been asked to pay attention to quite well, they remembered next to nothing of the other message. We experience selective attention at parties, where we are usually able to concentrate on what is being said by the people we are with and to ignore most of whatever else is going on.



Selective attention test

Broaden your understanding

Selective attention test

View the video linked here based on research conducted in 1999 by Daniel Simons and Christopher Chabris. It has become a classic example of selective attention.

Habituation and dishabituation: What makes us pay attention?

Habituation is a decrease in attention when a stimulus is repeated. You may have experienced this if you have lived next to a busy road. After a time, you simply stop paying attention to the traffic noise and become unaware of it. Yet, if there is a shriek of brakes outside your house, your attention returns and you pay renewed interest to the traffic noises. This renewal of attention when there is a change in the stimulus is known as **dishabituation**. Habituation is examined by researchers interested in vigilance; that is, how well a person pays attention to a stimulus, such as a display panel on machinery. It is thought that habituation is the reason for many accidents.

Habituation has also been used to examine infant perception. Researchers have found that infants pay less attention to an object, such as a toy or picture, if they are shown it several times in a row. They measure attention by the infant's heart rate, by the length of time the infant looks at the object, or by the infant's sucking behaviour, since it has been found that infants stop sucking when presented with a new object. Using this technique, researchers have found that very young infants can discriminate between different colours and shapes (Quinn, 2002).

Divided attention

As we move down the consciousness continuum, we find **divided attention**. Much of the time, our attention is not fully focused on one thing and we divide our attention between two or more sources of information. This lets us do two things at the same time. How successfully we do this depends on how much conscious effort is required for each of the tasks (Duncan, 1993). Experienced drivers usually have no difficulty holding a conversation while driving their car along a familiar route. However, the process of shifting attention takes time, so if our driver who is talking experiences an unexpected situation, such as failed traffic lights, he or she may be slow to respond, which may result in an accident. In addition, if one of the tasks is complex – trying to converse in a second language or driving in an unknown city in the pouring rain – one of the activities usually suffers (Rubenstein et al., 2001). Research using driving-simulation experiments in which attention is divided between talking on a mobile phone and driving a car has provided good support for the law that prohibits using a mobile phone while driving (Strayer et al., 2003).

Daydreaming

Further along the continuum between total awareness and unconsciousness are the experiences of daydreaming and meditative and hypnotic states. Clinical psychologist Jerome Singer (1975) found that almost everyone reports having fantasies and **daydreams** in which attention shifts from external stimuli to internal ones. Daydreams occur in all sorts of settings – on the bus, walking down the street, at school or at work. Sometimes our daydreams are simply escapist, but often they involve imagining alternative ways to do something we have to do. In this way, they can be a form of 'mental rehearsal' and can be quite useful. What we daydream or fantasise about will depend on our age and stage of development.



Figure 3.11 A baby will habituate to a toy if shown it several times.

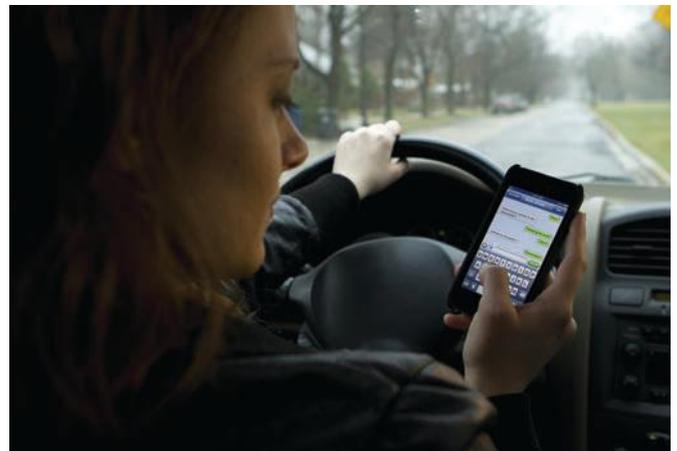
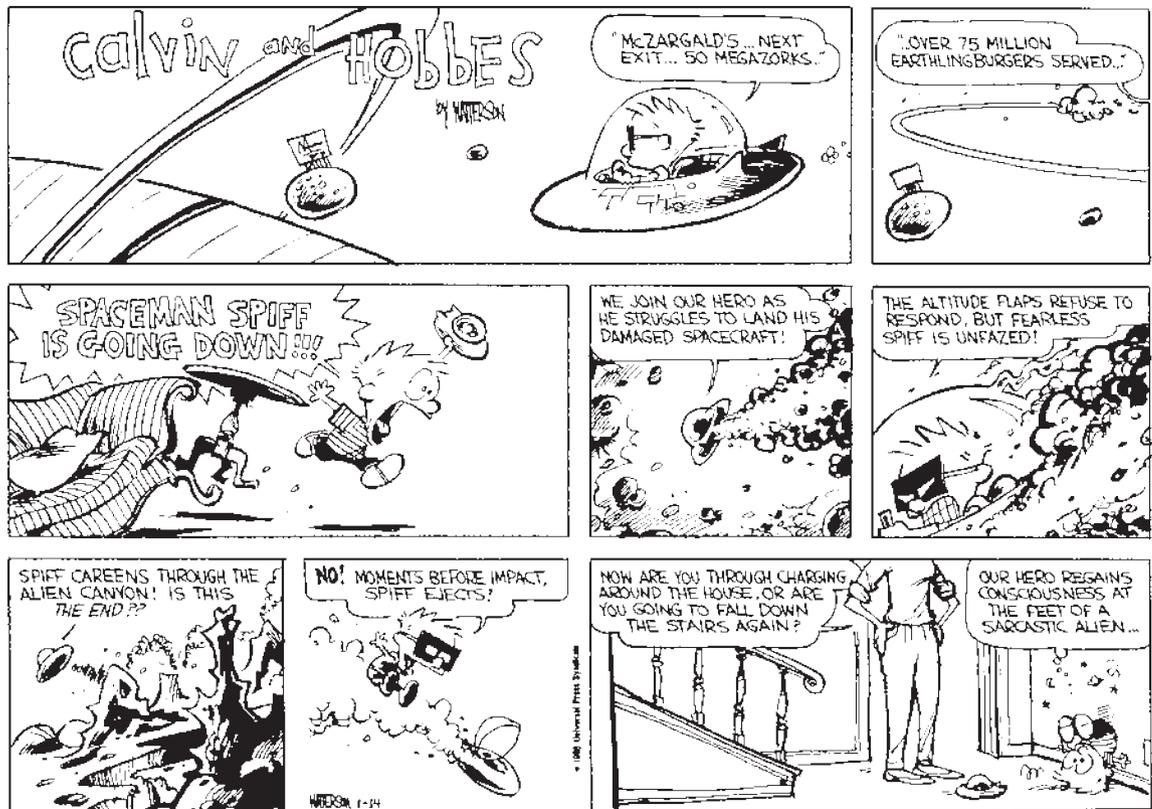


Figure 3.12 It is illegal in Australia to use a mobile phone to text or to speak without a hands-free device. Research into divided attention supports these laws.

Figure 3.13
The content of daydreams and fantasies changes over the lifespan.



Meditation

The term **meditation** refers to techniques used by people to help them relax physically and mentally and to achieve inner calm. There are many different approaches to meditation. Two of the better-known forms are yoga and transcendental meditation, which have their origins in Eastern religions. While meditating, the individual usually sits in a comfortable position with eyes closed to block out distractions. A key to meditation is focusing on one thing, such as one's breathing, and ignoring everything else. During meditation, breathing slows, and heart rate, muscle tension and blood pressure are reduced. This has therapeutic value for many people who suffer from anxiety. It has also been found that the experience of pain is greatly reduced while in a meditative state.

Broaden your understanding

Mindfulness

Mindfulness has been described as meditation for everyday life by Jon Kabat-Zinn, the man who is usually credited for introducing the practice to Western psychologists (Kabat-Zinn, 2001). However, unlike some other forms of meditation, it involves focused, non-judgmental attention on both our internal and external experiences at the present moment. By being focused on the present, the mindful person avoids the trap of dwelling on the past or thinking about the future, both of which are distractions and can be sources of anxiety.

While mindfulness is used clinically as a way of coping with anxiety and depression, it has also been found to be beneficial to a wide range of people. For example, research by Schonert-Reichl and Lawlor (2010) found that a mindfulness-based educational program had beneficial effects on the wellbeing and social and emotional competence of pre- and early adolescents.

Hypnosis

Hypnosis can result in a sleep-like state of deep relaxation. It is an artificially induced state of relaxation and is sometimes used in therapy to access deeper thoughts and memories. Typically, the process involves the patient fixing his or her eyes on something specific, such as a spot on the wall, while a psychologist or hypnotist quietly makes suggestions to induce complete relaxation: 'Your eyelids are growing heavy . . . you are getting very sleepy . . . your body feels heavy'. Once the patient is totally relaxed, the hypnotist makes other suggestions that will result in thoughts or behaviour different from what would be expected in a fully conscious person. The patient may react as though he or she is smelling a beautiful perfume, when in fact a bottle of ammonia is being held under the nose. Similarly, a patient will happily place his or her hand in water so cold that a normally conscious person would experience pain, if the hypnotist suggests that this can be done without discomfort.



Figure 3.14 A common way of inducing a hypnotic state

Sleep

The state of **sleep** is towards the 'lack of awareness' end of the consciousness continuum. However, we are not totally unconscious when we sleep, as any parent will tell you. An exhausted mother who can stay asleep while a noisy train passes nearby will wake to the sound of her baby crying.

Most adults, left to sleep for as long as they like, will sleep for about 8 to 9 hours; babies will sleep for about 16 hours. Because sleep is so important to our wellbeing, it has been extensively studied. Without enough sleep, we not only start to feel terrible and act irrationally, but we have slower reaction times, and have difficulty making decisions and solving problems. For this reason, staying up late to study for an exam the next day is not a good idea. However, lack of sleep can have more serious consequences such as falling asleep at the wheel of a car. Australian road safety research has shown that this is a major cause of death on our roads.

Physiological responses indicating different states of consciousness

Unlike other aspects of behaviour, such as actions or talking, consciousness cannot be measured directly. Much of what 'know' about a person's state of consciousness is inferred on the basis of what individuals tell us, from our observations of them and from physiological (bodily) changes we can measure. Different patterns of physiological responses are associated with different states of consciousness. The most important changes that we measure are those which occur in electrical activity of the brain (brain waves), heart rate, body temperature and electrical conductivity of the skin.

Electrical activity of the brain

Electrical activity of the brain is, as noted in Chapter 2, recorded on an electroencephalogram (EEG). This activity, shown as brain waves, is measured in terms of the number of waves per second (their frequency) and also in terms of the size of their peaks and troughs (their amplitude). High-frequency brain waves are faster than low-frequency waves.

High-amplitude brain waves have bigger peaks and troughs than low-amplitude waves. There are four brain-wave patterns that are associated with different states of consciousness. They are named after four letters in the Greek alphabet: alpha, beta, theta and delta. The alpha wave pattern is found when a person is awake but relaxed or in a meditative state. The beta wave EEG pattern is seen when the brain's activity is at its highest when a person is alert, awake and active. Theta waves are typically associated with early stages of sleep, and delta waves are associated with deep sleep. The differences in the frequency and amplitude of these four types of brain wave are shown in Figure 3.15.

Broaden your understanding

Physiological responses to sleeping

The stages of sleeping provide a good example of the different physiological changes in our bodies that accompany our states of consciousness.

Sleep follows a natural rhythm. Most people pass through a five-stage sleep cycle several times each night. Four of these stages involve non-rapid eye movement (NREM) sleep and the fifth involves rapid eye movement (REM) sleep. In adults, each cycle of NREM sleep lasts about 80 minutes and is characterised by different brain-wave patterns. In Stage 1 of NREM sleep, we gradually lose awareness and drift in and out of sleep. Our brain waves are a mix of alpha and beta waves, as seen in Figure 3.15.

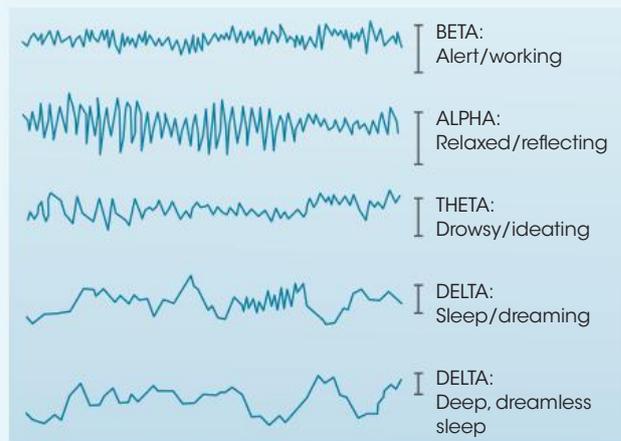


Figure 3.15 The EEG brain-wave patterns vary with different states of consciousness.

In Stage 2, we are truly asleep, but only lightly. Our blood pressure and temperature fall, breathing becomes more regular and heart rate slows. Our brain waves at this stage are mainly theta waves. Stage 3 brings the start of the period of deepest sleep. We become more relaxed and less responsive to the outside world. Our breathing continues to be slow and steady, and heart rate, blood pressure and temperature continue to drop. About 20 to 50 per cent of brain waves recorded during Stage 3 are delta waves. Stage 4 brings our deepest sleep, with physiological patterns similar to Stage 3, and our bodies barely move. During this stage, delta waves predominate. About 80 per cent of our sleep is spent in NREM sleep, during which time the brain is active but not as active as in REM sleep. It is thought that NREM sleep is when the body repairs tissue, rids itself of waste products and replenishes neurotransmitters.

REM sleep is when our most vivid dreams occur. It is characterised by rapid eye movements, even though our eyes are shut. During REM sleep we have beta brain-wave patterns, similar to those we exhibit when fully conscious, yet muscle movement is suppressed. The total proportion of time spent in REM sleep decreases as we get older. About 50 per cent of the sleep of newborns is REM. This compares with adults who have about 20 per cent REM sleep.

Heart rate

Changes in our heart rate accompany changes in our level of awareness. When we fall asleep, our heart rate slows. We can also consciously control our heart rate by controlling the rate of our breathing. Slow, deep breathing results in a lowered heart rate. This fact is used in meditation. Fast, shallow breathing has the opposite effect, as you will be aware if you have tried running up a few flights of steps. Heart rates can also be raised by the use of stimulants that lead to altered states of consciousness. They can also be raised by anxiety and irritation.

In some sports, controlling heart rate is vitally important. In the Winter Olympics sport of the biathlon, athletes must alternate racing on cross-country skis with rifle shooting, which requires steady hands and complete concentration. The most successful athletes are those who learn to pace themselves towards the end of each ski section so that their breathing and heart rate is at an optimal level when they reach the shooting areas.

You can measure your heart rate by taking your pulse and counting the number of beats per minute. Heart rate monitors are available from sports stores and pharmacies.



Figure 3.16 Breathing and heart-rate control are essential to compete successfully in the biathlon.

Body temperature

Our body temperature is not as variable as our heart rate. Nevertheless, it does shift with changes in consciousness. This is evident during sleep, as noted earlier, when our temperature drops consistently by more than one degree Celsius. It is usually at its lowest point around 3 to 4 a.m.

Broaden your understanding

Uses of physiological measures of arousal

Lie detectors

A lie detector, or a polygraph, is a device that measures changes in variables such as heart rate, blood pressure and skin conductivity. These changes are recorded when questions are being asked in an attempt to detect whether the person is lying. Anxiety is thought to accompany telling lies and anxiety is measured in changes in physiological responses of consciousness. These changes are not completely reliable at detecting lying because anxiety can occur for other reasons.

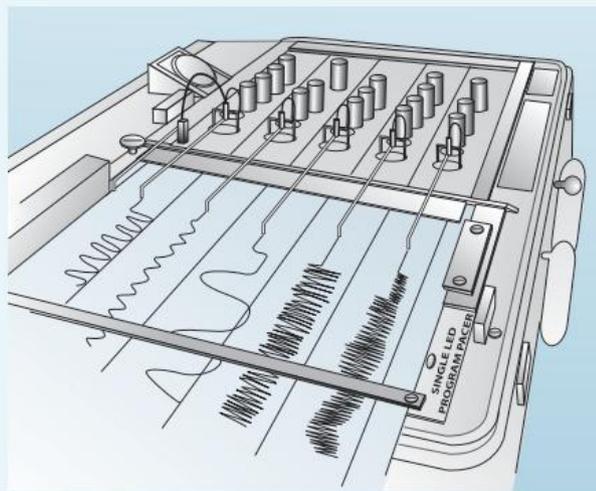


Figure 3.17 A lie detector or polygraph

Electrical conductivity of the skin

Changes in the electrical conductivity of the skin are known as the **galvanic skin response (GSR)**. The GSR is measured by attaching electrodes to hair-free parts of the body such as fingers or palms. If we sweat and our skin is wet, an electrical current passes more easily than if our skin is dry. As sweating occurs during times when we are aroused, such as when we are anxious, fearful or excited, the GSR indicates our level of arousal. However, it cannot indicate *which* emotion has resulted in our arousal, so it needs to be used with other measures to provide information about our state of consciousness. This is one reason why its use in lie detector tests has been so controversial.

What is intelligence?

Najeev is studying maths, chemistry, physics and French at school and is planning to study law at university. He plays footy and cricket for the school, he plays the violin in the school orchestra, and on weekends he spends some of his time drawing political cartoons. Do you think Najeev is intelligent? Why? We each have an understanding of intelligence. However, intelligence is not a *thing*; it is a **construct**, a hypothetical concept that is created to explain a phenomenon that is believed to exist but cannot be directly observed or measured.

People's understanding of intelligence varies somewhat from culture to culture and to a lesser extent within cultures. We generally think of intelligence as enabling us to learn, adapt to things around us, perform actions well and solve problems. However, what we need to learn and the type of problems we need to solve will be very different if we live in a tribal society in a harsh desert environment than if we live in a Western city. Because we cannot directly observe intelligence (we instead have to infer it from the way people behave), there has been much debate by psychologists as to exactly what intelligence is and how it should be measured. In Table 3.2, we can see that the people whose names have been associated with intelligence and intelligence testing have not always defined intelligence, and when they have, their definitions differ.

Broaden your understanding

Galton in Australia

Galton travelled to Australia as part of the Cambridge Anthropological Expedition in 1898. This trip was specifically undertaken to study Torres Strait Islanders, who were regarded at the time as the 'most primitive' species of human. There was a growing interest in the evolutionary origins of life, and the geographical isolation of Australia seemed to give it a scientific advantage as an environment and human habitat untouched by outside influences. His team measured vision, hearing, reaction times and so on, based on Galton's belief that such measures could be used to assess intellect.

Comparisons were made with English, 'educated' people, and, much to the researchers' surprise, few, if any, differences were recorded. There was no evidence to support the view that the Torres Strait Islander people were 'primitive'.

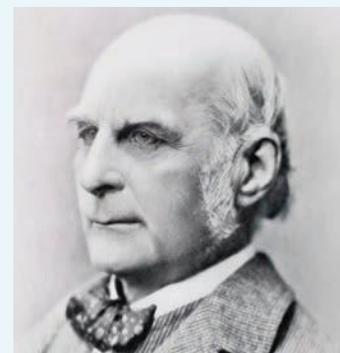


Figure 3.18 Sir Francis Galton

Adapted from Garton, 2006

Theories of intelligence and intelligence testing

General intelligence

Sir Francis Galton (1822–1911) was one of the first people to study intelligence. He was the cousin of Charles Darwin and his ideas about intelligence were influenced by Darwin’s theory of evolution.

Table 3.2 Major contributors to the study of intelligence

Theorist	Period	Ideas or definitions of intelligence and intelligence testing	Influences behind theory
Sir Francis Galton	1822–1911	Saw intelligence as an ability that showed itself in different ways depending on one’s environment Believed it could be measured by simple tests e.g. visual acuity, hearing, reactions times	Darwin’s theory of evolution
Charles Spearman	1863–1945	Developed a two-factor theory of intelligence Considered that there was a general factor that accounted for positive relationships between scores on different tasks, but also abilities that were specific to different tasks	Galton Own work as a statistician
Alfred Binet	1857–1911	Did not develop a theory of intelligence but developed tasks that required intelligent behaviour The scores of ‘normally developing’ children on these tasks provided a baseline against which other children could be compared	Practical need to develop tasks to identify children who were considered ‘intellectually retarded’
Lewis Terman	1877–1956	Considered that general intelligence was inherited and was the strongest predictor of success in life In 1916 he adapted Binet-Simon scale for use in the USA: the Stanford-Binet scale. He adopted Stern’s formula for converting mental age into an intelligence quotient (IQ). $IQ = \text{mental age} \div \text{chronological age} \times 100$. This formula was used in the first two versions of the Stanford-Binet.	Binet Practical need to produce a tool for selection of soldiers for different ranks in the military
David Wechsler	1896–1981	Defined intelligence as the aggregate or global capacity to act purposefully, think rationally and to deal effectively with one’s environment His measures of intelligence all produced a global IQ score and domain scores. These scores were obtained by comparing an individual’s scores with those of a large number of peers constituting a representative sample.	Empirical approach to theory development
Howard Gardner	1943–	Originally considered that there were seven, later nine, specific types of intelligence	Influenced by developmental theories and studies of people with brain injuries Not supported by factor analysis

Galton was the first person to talk about **general intelligence**, the notion that intelligence was a general ability that showed itself in different ways, depending on the environment. He was also the first person to talk about individual differences in intelligence. He believed that intelligence could be measured by simple tests in much the same way as height and weight can be measured and charted.

Galton's independent wealth enabled him to follow his interests, all of which were broadly scientific in nature. As well as being responsible for the foundation of the study of individual differences, he developed many statistical techniques such as regression and correlation to provide a scientific basis for his studies of heredity and hereditary traits. These techniques are still in widespread use today.

He stimulated much of the debate regarding the heritability of IQ as he was interested in eugenics – the study of how to produce children of high ability. He also studied meteorology and geography.

Charles Spearman (1863–1945), a British researcher and statistician, was strongly influenced by Galton. He supported the idea of intelligence testing. He found that there was a positive **correlation** between a person's scores on different intellectual tasks – if a person performed well on one task (such as memory), he or she would do well on another (such as language). (See Chapter 11 for a more detailed explanation of correlation.) This meant that the various measures were, to some extent, measuring the same factor or variable – a general mental ability, which Spearman termed *g*. This *g* is common to all tasks that could be said to be measuring intelligence. On this basis, he concluded, like Galton, that there was such a thing as general intelligence. However, Spearman noted that although the correlations were positive, they were modest rather than strong, suggesting that each measurement also included a factor that was specific to that test. This he called *s*, for specific ability or specific intelligence. Performance on any test measuring intelligence was thus a combination of *g* and *s*. For this reason, Spearman's theory is often called the **two-factor theory of intelligence**.

Measuring mental age

Frenchman Alfred Binet (1857–1911) is one of the people most frequently associated with intelligence testing. While he did not develop a theory of intelligence, he did indicate what intelligence entailed and showed how it could be measured.

In 1904, the French government gave Alfred Binet and his colleague Theodore Simon the task of finding a way to identify children who were experiencing learning difficulties and who could benefit from special educational programs. This commission required the development of a test to detect what were then called 'intellectually retarded' children. Binet and Simon developed a series of tasks that they thought were representative of so-called normal children's abilities at different ages. They administered their tasks to 50 children (10 in each of five different age groups) who had been identified by their teachers as being average for their age. This provided a measure of normal functioning against which other children could be compared. Test outcomes were described in terms of intellectual deficits, with the term 'idiot' used for those at the lowest level of intelligence. While the scoring and the classifications were 'rough and ready', the tests were the first objective measure of average levels of intellectual performance and correlated with other educational outcomes.

In 1908, Binet and Simon revised their scale and classified the tests by the scores obtained by the majority of normal (average) children at each age between 3 and 13 years. Thus, if a score of 12 on a test was average for children of 10 years and 3 months, a child who achieved this score was considered to have a level of mental functioning of 10 years and 3 months whether he or she was 8, 10 or 12 years old. The



Figure 3.19 Alfred Binet

level of mental functioning became known as the child's **mental age (MA)**. These tests were able to compare the general intelligence levels of all children. Binet considered that children whose MA was two years below their chronological age (CA) required separate instruction in different school classes to their average peers.

American psychologists were quick to pick up on the Binet-Simon test and in 1916 Lewis Terman and his colleagues at Stanford University adapted the scale for use in the United States, producing what became known as the Stanford-Binet Scale. On the basis of tests such as this, German psychologist William Stern derived the intelligence quotient (IQ score), which was calculated by dividing mental age by chronological age and multiplying by 100. In this way an adolescent of 15 years with a mental age of 15 years would have an IQ of 100 – the average IQ score.

Intelligence tests (including the fifth and most recent version of the Stanford-Binet Scale) no longer use this way of calculating IQ. This is because the formula, which works reasonably well for children, does not work for adults. A 50-year-old who performs at the same level on an intelligence test as a 25-year-old could not be considered to have an IQ of 50 – a score that is well below average! These days intelligence test scores are based on the test-taker's scores relative to the average score of other people of the same age in the sample obtained by the test developer. Current tests still define the average as 100 and approximately two-thirds of the population fall between the scores of 85 and 115 – that is, 100 plus or minus 15. See Figure 3.20 for an example of this.

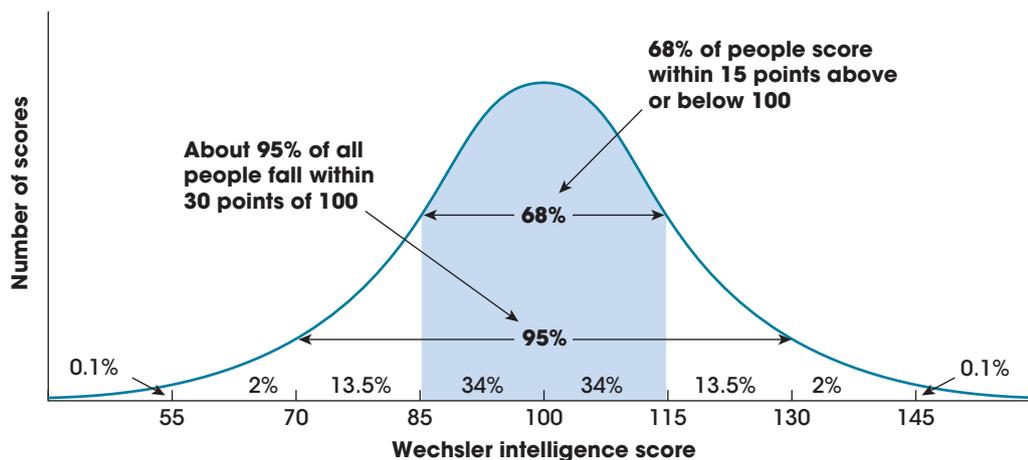


Figure 3.20 The scores on intelligence tests form a bell-shaped curve around the average score of 100.

Modern empirical approaches to intelligence

David Wechsler (1896–1981), an American psychologist, developed what he called an empirical model of intelligence. Empirical means 'based on observation or experiment, not on theory' (Australian Oxford Dictionary). Wechsler's experience with testing army recruits during World War I led him to question the reliance of many tests based on verbal tasks. He considered that definitions and tests of intelligence must be related to behaviour in real-life situations. He defined intelligence as 'the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment' (Wechsler, 1944). Intelligence was therefore a general capacity, with a number of different abilities, each of which could be measured.

Wechsler developed tests to measure intelligence in adults as well as in children. These tests were called the Wechsler Adult Intelligence Scale (WAIS), the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). All of these tests had a number of sub-tests measuring such things as vocabulary, arithmetic, object assembly (such as a jigsaw) and picture arrangement (arranging pictures to tell a story). Items in each sub-test were arranged

from easy to difficult. Some of these sub-tests measured verbal ability and others measured performance or non-verbal ability; together, they measured general intelligence.

Wechsler standardised the measurement of IQ for children and adults. This meant that the test was administered to a large number of people who comprised a representative sample of children and adults in the United States. The average scores for each age group on each test provided the standard or norm against which the scores of later test-takers could be compared.

Wechsler scales in Australia

Revised versions of the original Wechsler tests are widely used, including here in Australia. Current versions of the tests are the WAIS-IV, the WISC-V and the WPPSI-IV. These tests now have Australian norms.

Table 3.3 The WISC-V indices and sub-tests of the Full Scale IQ. The seven sub-tests in black are the only ones necessary to calculate a Full Scale IQ but the additional bold sub-tests are also administered if a thorough examination of the Index domains is required.

Index	Verbal comprehension	Visual spatial	Fluid reasoning	Working memory	Processing speed
Sub-test	Similarities	Block design	Matrix reasoning	Digit span	Coding
Sub-test	Vocabulary	Visual puzzles	Figure weights	Picture span	Symbol search

While all versions of the Wechsler scales have provided both a measure of global intelligence and measures of discrete domains of intelligent behaviour, the newest versions of the Wechsler scales have been influenced by recent research on cognitive development, neurodevelopment, cognitive neuroscience and processes important to learning and consequently have more index domains than earlier versions. The type of activity that is undertaken by a child being assessed is described in Table 3.4.

Table 3.4 Sub-tests of the WISC-V Full Scale

Sub-tests	Type of item
Similarities	The child is told two words or concepts and is asked to describe how they are alike.
Vocabulary	The child is asked to define words of increasing difficulty.
Block design	The child uses red and white blocks to copy a series of designs in a stimulus booklet.
Matrix reasoning	The child is asked to select the part needed to complete a matrix from five options.
Figure weights	The child applies the quantitative concept of equality to understand the relationship between objects and apply matching, addition and/or multiplication to identify the correct alternative from five provided.
Digit span	The child repeats a series of numbers of increasing length in a forward digit span. In a backward digit span, the child must repeat digits in the reverse order to that presented by the examiner.
Coding	The child uses a key that pairs symbols with geometric shapes or numbers to fill in a form in which the shapes are missing, within a time limit.

Multiple intelligences

In 1983 Howard Gardner (1943–) argued that being intelligent involved more than being able to solve problems. It also involved being able to produce things that are relevant for particular settings. He proposed that instead of one kind of intelligence (general intelligence), each of us has seven intelligences (Gardner, 1983), which are described in Table 3.5.

He claimed that we all have these intelligences, but in various, perhaps unique, combinations. The pattern of strengths and weaknesses in our intelligences is tied to our preferences for learning and our competence at different types of work. So a person with strong linguistic intelligence but weak spatial intelligence is likely to learn well when information is provided in written or spoken form rather than in diagrams and is likely to be good at giving an oral presentation but weak at drawing a map. Gardner's work on multiple intelligences drew on many different areas of psychology – not just intelligence testing. He also took into account developmental theories and studies of people with brain damage. In doing so, Gardner considered that each intelligence worked separately from the others and each existed in different parts of the brain.

The concept of multiple intelligences has proven very popular, especially in the school system. It accepts that children learn in different ways and gives teachers a framework for organising their classrooms and the way they teach. However, the concept of multiple intelligences has also been criticised, mainly by mainstream psychological theorists, and especially by those concerned with the measurement of intelligence. Critics point out that the different intelligences correlate with each other, so can be considered a single, general factor (Visser, Ashton & Vernon, 2006). Some also consider that there is no well-developed theory around the idea of multiple intelligences; instead, it is based more on intuition.

Intelligence	Description
Linguistic	Use of spoken and written language; ability to learn language and to use language to attain goals
Logical-mathematical	Ability to analyse problems, to solve problems and to think scientifically
Musical	Ability to perform and compose music, to appreciate rhythm, tone and pitch
Bodily-kinaesthetic	Use of body or its parts to solve problems; coordination
Spatial	Ability to use large and small spaces, and to form and use visual images of objects
Interpersonal	Ability to understand the intentions, desires and thoughts of others
Intrapersonal	Capacity to understand oneself, including one's own, fears, desires and abilities to effectively regulate one's own life
Naturalistic	Ability to relate information to one's natural surroundings; that is, to have an ecological awareness (e.g. to be able to classify plants, animals and rocks)
Existential	Ability to reflect on fundamental questions about human existence, such as the creation and meaning of life

Table 3.5 Gardner's multiple intelligences

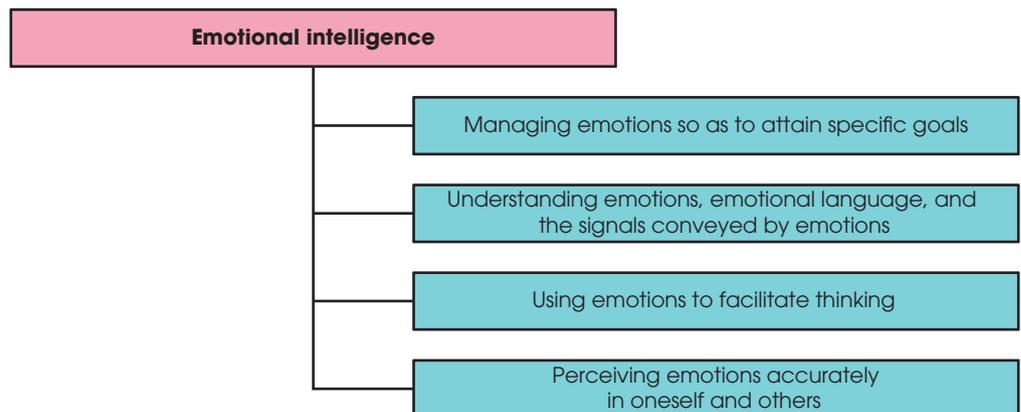
Note: Gardner proposed the first seven of these intelligences in his 1983 book, *Frames of Mind: The Theory of Multiple Intelligence*. He added the last two in his 1999 book, *Intelligence Reframed: Multiple Intelligence for the 21st Century*.

Emotional intelligence (EQ)

Because people with high intellectual ability are not markedly better at life achievements, and because academic achievement only modestly predicts success in the workplace, psychologists began to consider another kind of 'intelligence' related to social interaction. Salovey and Mayer (1990) coined the term **emotional intelligence (EQ)** and defined it as the 'ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions'. In a later paper, they indicated that EQ could be thought of as containing four hierarchically arranged skills, as shown in Figure 3.21 (Mayer & Salovey, 1997). At the lowest, most basic level is the ability to perceive emotions in oneself and others accurately. Next is the ability to use emotions to facilitate thinking. These skills are both needed to understand emotions, the language of emotions and the signals conveyed by emotions. The top-level skill involves managing emotions in order to reach specific goals.

The idea of EQ was made popular in the mid-1990s with the publication of the book *Emotional Intelligence: Why It Can Matter More Than IQ* by Daniel Goleman. Many people think that EQ makes intuitive sense and consider it to be more important than IQ in that it can help people have effective social interaction with others. While research in the area has proliferated, there is still disagreement about whether EQ is in fact an ability or simply a mix of positive traits.

Figure 3.21 Mayer & Salovey's four-branch model of EQ



Mayer, J.D., Salovey, P. and Caruso, D.R. (2008). Emotional Intelligence: New Ability or Eclectic Traits? *American Psychologist* 63(6): 503-517. American Psychological Association, adapted with permission.

Broaden your understanding

Emotional intelligence

Type 'emotional intelligence' into a search engine. What do your results tell you about the popularity of EQ? What do they tell you about the scientific basis of EQ?

Intelligence testing: Group compared with individual tests

Some intelligence tests are designed to be given to groups of people while others are intended to be administered to individuals. There are major differences between these two types of intelligence tests and the uses to which they can be put. Individual intelligence tests are used for clinical purposes and when major decisions hang on the outcome. Situations when an individual intelligence test may be used include: determining whether an individual's level of intelligence meets the criteria for a diagnosis that leads to the provision of specialised services, and determining the pattern of an individual's strengths and weaknesses as a basis for developing an appropriate intervention.

Group testing, on the other hand, may be undertaken for screening purposes and when it is important to gather information about a group of people in a relatively short time. You may have undertaken a group intelligence test towards the end of primary school if you were attempting to gain entrance to a specialist program at secondary school. Group testing often involves pencil-and-paper tests and usually has simple instructions so the test-takers can complete it on their own without interacting with the examiner. While this is an advantage in some instances, it also poses a major limitation. Because instructions are typically written and not delivered orally by the examiner, test-takers who have reading difficulties can be greatly disadvantaged and they may perform poorly simply because they are poor readers, not because they lack intelligence. Group tests also frequently have time limits so, again, a person who is slow in processing information or in writing answers may be judged, inappropriately, to be lacking intelligence.

Individual tests, such as the Wechsler scales, must be administered by people trained in their use and interpretation. The test examiner must be able to put the test-taker at ease (to establish rapport) because it is important that the examinee is sufficiently comfortable to perform at his or her best. However, it is also essential that the examiner follows the instructions for administering the test exactly as they are written in the manual. This is because the test is standardised. If the test-taker's scores are to be compared with the norms for others of the same age, it is important that tasks have been presented in exactly the same manner. Examiners thus need to be highly trained and comfortable with the materials and testing procedures.

In the 1990s, the Australian Psychological Society provided guidelines for conducting individual testing sessions. As you can see from the box below, there are many guidelines that the psychologist is required to understand and remember.



Figure 3.22 An individually administered test requires the test administrator to ensure the person taking the test is at ease.

Organising and conducting individual testing sessions

Test users should do the following.

- Practise the administration and scoring of the test prior to conducting the test.
- Understand the requirements for establishing basal and ceiling scores. These are the points at which the examiner starts and stops testing, and be familiar with scoring criteria on test items.
- Establish rapport with the client in order to decrease client anxiety.
- Administer the test according to guidelines in the test manual; ensure that any instructions to the client are given exactly as outlined in the manual.
- Use correct procedures for querying responses on test items.
- Monitor and record response times on test items where it is relevant to scoring.
- Prompt or encourage clients during the test without revealing correct or incorrect responses.
- Monitor clients for signs of anxiety, fatigue or distress during testing.
- Calculate the test scores accurately.

Adapted from Australian Psychological Society, Supplement to Guidelines for the Use of Psychological Tests, 1997b.

Group testing is more often used for aptitude or interest tests but is sometimes used for intelligence testing too. There is not the one-on-one interaction we see with individual testing and examiners do not have to be trained in the same way, since they are not usually responsible for scoring or interpreting the results. Nevertheless, the examiner must take care to follow test procedures when giving instructions, when monitoring time keeping, and when distributing and collecting the test material. Some features of good group testing are outlined in the box below.

Organising and conducting group testing sessions

Test users should do the following.

Prior to testing session:

- Prepare a venue for testing that is suitable and comfortable for clients, and that can accommodate the maximum number of clients undertaking the test.
- Ensure that clients are aware of the time and place of testing.
- Arrange seating in the venue to minimise the likelihood of cheating.
- Test or trial required equipment to check that it is in working order.
- Ensure that there are enough materials for the maximum number of clients undertaking the test.
- Check reusable test booklets to ensure that they are free of notes made by previous clients.
- Ensure that assistants or helpers understand their roles.

During testing session:

- On arrival, brief clients about the purpose of the testing. Establish rapport but remain professional.
- Ensure that clients understand what will be required of them during testing.
- Inform clients of the proper use of response sheets and procedures.
- Assure clients of their confidentiality during and after testing and inform them of their participant rights.
- Administer the test according to guidelines in the test manual; ensure that any instructions to the clients are given exactly as outlined in the manual.
- Ensure that clients have enough time to work through practice test items if applicable.
- Prompt or encourage clients during the test without revealing correct or incorrect responses.
- Monitor clients for signs of anxiety, fatigue or distress during testing.
- Deal appropriately with client concerns during the test without compromising results.
- Ensure accurate timing of the test using a stop watch or other timer. Make notes about timing in case the stop watch fails. Ensure that clients can see a clock.

Following testing session:

- When the test is completed, collect all materials and thank the clients. Ensure that all materials are safely stored.
- Outline to clients the next stage in the process.
- Maintain notes about problems that arose during testing or issues that may have affected client performance.
- Check responses on answer sheets to ensure there are no ambiguous markings that could be misconstrued when calculating the scores, especially if scoring is to be mechanised.
- Calculate the test scores accurately.

Adapted from Australian Psychological Society, Supplement to Guidelines for the Use of Psychological Tests, 1997b

CHAPTER SUMMARY

Cognition

The role of sensation and perception in cognition

- Sensation, sensory organs and stimuli
 - Stages of sensation
 - Reception
 - Transduction
 - Transmission
- Perception
 - Stages of perception
 - Selection
 - Organisation
 - Interpretation
- Illusions and distortions of visual perception

Consciousness

- States of consciousness
 - Selective attention
 - Habituation
 - Dishabituation
 - Divided attention
 - Daydreaming
 - Meditation
 - Hypnosis
 - Sleep

Physiological responses indicating different states of consciousness

- Electrical activity of the brain (brain waves)
- Heart rate
- Body temperature
- Electrical conductivity of the skin (galvanic skin response)

What is intelligence?

Theories of intelligence and intelligence testing

- General intelligence
 - Galton
 - Spearman
- Measuring mental age
 - Binet
 - Terman
- Modern empirical approaches to intelligence
 - Wechsler
- Multiple intelligences
 - Gardner
- Emotional intelligence (EQ)
 - Salovey & Mayer
 - Goleman

Intelligence testing: Group compared with individual tests

CHAPTER 4

Others: Relational influences

Key knowledge and understanding

Types of relationships

- Pro-social behaviour
 - What is pro-social behaviour?
 - Why do people help (act pro-socially)?
 - What stops pro-social responses?
- Anti-social behaviour
 - What is anti-social behaviour?
 - Why do people act anti-socially?

Determinants of liking

- Proximity
- Similarity
- Reciprocity

How groups develop in adolescence

- Changing structure of groups in adolescence
- Functions of adolescent groups

Adolescent relationship development

Relational influences

Types of relationships

When we interact with others, our experience of these relationships may be positive or negative. Our judgement of this is likely to be heavily influenced by whether the behaviour we have experienced has been pro-social or anti-social. We will look at what characterises these behaviour types and the theories that have been proposed to account for them.

Pro-social behaviour

What is pro-social behaviour?

Pro-social behaviour is voluntary, intentional helping behaviour or acts of kindness that are meant to benefit others. Broadly, pro-social behaviour has good social consequences. Acts that benefit others, such as helping search for a lost dog or picking up and returning a \$50 note that someone has dropped, are examples of pro-social behaviour. These actions are also sometimes called **altruistic behaviours** because they are motivated by the desire to help others rather than oneself. They are characterised

by being unselfish. Behaviours such as helping an elderly person cross a busy road, stopping after a car accident to attend to crash victims or donating money to charity are altruistic because there is no benefit to the person carrying out the act, only to the recipient.

Helping others is valued in Australian society and many activities that people engage in are pro-social. Pro-social behaviours include (but are not limited to):

- charity
- helping a stranger in need
- rescue
- sacrifice
- sharing
- expressing sympathy
- aiding/assisting.



Science Photo Library/Cordelia Molloy

Figure 4.1 Helping someone after a car accident is an example of pro-social behaviour.

Why do people help (act pro-socially)?

There are a variety of factors that have been proposed to explain pro-social behaviour. While there is some evidence for each of them, none alone can explain pro-social behaviour and it is likely that all contribute.

Biological basis of pro-social behaviour

Some consider that the human tendency to help others is because there is biological or evolutionary value to it – the survival of the species depends on humans assisting one another. So the tendency to help others is innate, instinctive and inborn in much the same way as the human tendencies to eat, drink and have babies.

Research has generally supported the position that humans are biologically programmed to help others. A stronger way of stating this position is that you would be more likely to help a family member than a stranger simply because you and your cousin, for example, are part of the same gene pool and, by helping a relative, you are assuring the future survival of your own family. This biological view has some support, but it is not generally accepted as a major cause of pro-social behaviour.

Broaden your understanding

Pro-social behaviour

Think of any pro-social activities that you or your friends do. Think about things like surf lifesaving and the SES (State Emergency Service). Why do people join groups like these?

Pro-social behaviour is learned

A more common view is that pro-social behaviour is learned, particularly during childhood. Positions derived from various learning theories have been used to explain the learning of helping behaviours. Some are listed below:

- Rewarding, praising and reinforcing pro-social activities (like sharing) lead to changes in behaviour.
- Instructing children in being helpful can lead to changes in their behaviour.
- Allowing children to watch a person engaging in a helpful task or sharing something can lead to changes in behaviour.
- Helping behaviour is the norm or expectation of our society.

More recently, psychologists have begun to examine how children learn to help others. Most current theories suggest that there are social influences on children's pro-social behaviours. As children develop, they come into greater contact with peers and, for example, at around the age of four years, will start sharing things with friends. Sharing and turn-taking are regarded as behaviours that encourage working together and doing things for one another – rudimentary pro-social behaviours.

Children are aware of the need to offer assistance from around the age of six years, and this becomes more sophisticated as children get older. Family and peer expectations about helping (such as doing the dishes at home) increase children's social awareness and their pro-social behaviours. It is not clear if pro-social behaviours continue to develop into adolescence or if adolescents become *less* pro-social as, despite having a deeper awareness, they also have an even greater understanding of all the situational and interpersonal reasons why you would – or would not – help.

Pro-social behaviour depends on empathy

One component of pro-social behaviour is **empathy**. This is the ability to identify with and understand another person's feelings, and accounts for humans' ability to take the perspective of another person. Even young infants have been shown to react empathically to the cries of other babies (Braten, 1996). This is claimed to show that babies can share the distress of others. By adopting the perspective of people in distress, we can feel their need for assistance and therefore offer help, sympathy, charity or kindness. As children develop, so does their ability to empathise – to take the perspective of another person, to share, and to understand how another person is thinking, feeling and acting. Until these abilities are developed, it is difficult for children to react to situations where others are in need of assistance.

This ability to understand another person's emotional state or distress is sometimes referred to as the cognitive component of empathy. The affective component is the emotional response. Described in this way, empathy with its two components – the affective and the cognitive – offers a two-fold explanation of how pro-social behaviour develops. The affective component can be regarded as the biological part because it appears early in infancy and is a biological predisposition to react emotionally to others. The cognitive component, on the other hand, is learned through our interactions with others. Empathy can thus account for the human motivation to help others (Garton & Gringart, 2005).

It is further claimed that, in empathy, there needs to be a state of arousal that provides the motivation to act. Adults and children do react to the distress of others. But in acting, we recognise or identify with that distress and the other person's feelings. Do we act because of a need to reduce the unpleasant feelings we are dealing with when a person is in distress, or because of a true need to help? Research suggests that the former is a strong motivation to help and that self-interest plays a part in pro-social behaviour. The other aspect, the identification with the victim, is perhaps why people are more likely to help in some situations than others.

What stops pro-social responses?

A great deal of pro-social research stemmed from the Kitty Genovese murder in New York in 1964. This young woman was brutally attacked by a man with a knife on her way home. Her cries for help initially stopped the man from attacking her, but when no-one came to her assistance, the man continued his attack. The murder took place over 30 minutes and not only was she knifed, she was also sexually assaulted. An anonymous man reported the attack to the police. When the police later interviewed the local residents, many of them had heard the calls for help but most of them had failed to act. Perhaps they were afraid that they too would be attacked, but then why did they fail to call the police?

Psychologists were interested in why no-one was prepared to help. The questions psychologists began to study were: why do people sometimes ignore pleas for help or assistance and, conversely, why do people go out of their way to help? What are the characteristics of those who help (or do not help)? And what are the characteristics of the situations where people will lend a hand or act selflessly to benefit others?

Personal variables

A lack of empathy has been proposed as a reason for failure to act pro-socially. It has been suggested that, in the Kitty Genovese case, the neighbours, although distressed by the cries for help, did not identify with the victim and thus did not react.

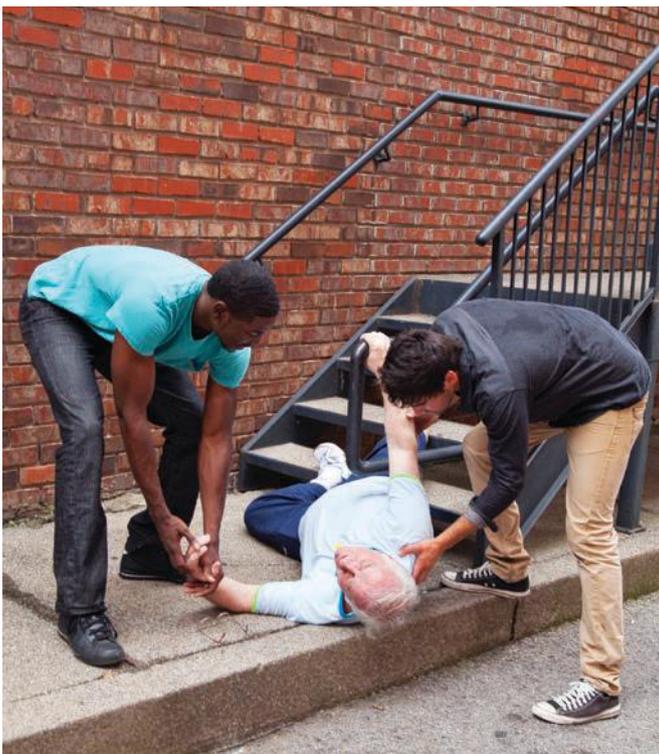
Our willingness to help is also affected by how competent we feel to deal with the situation. A poor swimmer is highly unlikely to attempt to rescue a person in difficulties in the surf, while a competent swimmer who has completed lifesaving courses is more likely to jump in (Baron & Byrne, 1991).

Situational variables

Location has been found to have a strong impact on whether you are prepared to help a person in distress. Research has shown that people in small towns are more likely than those in cities to receive help in situations ranging from a car breaking down to a major health problem. This has been attributed to people in small towns not only knowing each other but feeling they are part of a community (Baron & Byrne, 1991).

Noticing and interpreting the situation that requires a response also plays an important role in determining how we respond. Research supports the 'common sense' expectation that a lone person is more likely to notice an individual in possible need of help than that same individual in a group. However, noticing by itself is not enough to provoke a helpful response. How the situation is interpreted is important. Many situations are ambiguous and lead us to ask 'Does this person really

Figure 4.2 Would you be likely to help this person?



istock.com/brittak

need help?' A person lying on the footpath may be seen as having a health problem or as being drunk (Piliavin, Rodin & Piliavin, 1969). Passers-by are more likely to help in the former case.

Social variables

Failure to act in the Kitty Geneovese case can also be explained by research into the **bystander effect**, the term used to describe the fact that the presence of others reduces the likelihood of pro-social behaviour. In one of these studies by Darley and Latane (1968), individual students were placed in small rooms and told that they were to take part in a discussion using a microphone and headphones. Some of the students were led to believe that they were going to have the discussion with one other person; the others were told that they would be having a discussion with a small group of students. One 'student', who was actually an accomplice of the researchers, told the others that he was epileptic. Suddenly, he made noises that sounded as if he was having an epileptic fit. Darley and Latane wanted to see how many students would try to get help for him. Their findings showed that the percentage of participants who went for help depended on the number of students they thought were in the discussion group. All of the participants who thought that they and 'the epileptic' were the only members of the group went for help, with 85 per cent of them going in the first 80 seconds. By contrast, only 62 per cent of students who thought that there were six people in their discussion group went for help, with only 31 per cent going quickly. Their research showed that the more people who are present in an emergency, the less likely it is that each person will try to help. Darley and Latane thought that this bystander effect was due to **diffusion of responsibility**. If a person is alone, he or she accepts responsibility. If several people are present, each assumes that the other will do something so he or she does not need to take responsibility.

Anti-social behaviour

What is anti-social behaviour?

Anti-social behaviour is the opposite of pro-social behaviour. It is voluntary, intentional behaviour designed to hurt or cause distress to another person physically or psychologically. While the intention must be to harm the recipient, this is generally only inferred and not actually observed. Anti-social behaviour can range from relatively mild behaviour, such as deliberately ignoring someone, through to extreme aggression such as physical harm or even murder.

Types of anti-social behaviour

One of the most common forms of anti-social behaviour is bullying. Bullying is often seen in schools and in workplaces, and even online. Olweus (1993), a Norwegian expert on bullying, referred to **bullying** as 'negative behaviour', and saw it as including physical hitting, offensive gestures, intimidation and verbal insults. Bullying is intended to hurt the recipient.

While much of the early research on bullying focused on overt aggression, such as name-calling or hitting, there has been increasing research on relational aggression since the mid-1990s. Relational aggression uses relationships as a source of control and a means of inflicting harm on others. It can be indirect, such as gossiping, or direct, such as when one child tells another that they can no longer be in the 'group' unless they do something they do not want to do. Crick and Grotpeter (1995) considered that children show

Figure 4.3 Relational aggression is a form of bullying that is used more by girls than by boys.



aggression in the ways that are most likely to damage the goals of their same-gender peers. Boys, for example, often have goals of dominance or of getting some desired object and are more likely to use overt means of aggression. Girls, on the other hand, are more likely to want to develop or maintain relationships and are therefore more likely to use forms of aggression that can damage relationships.

Researchers in Western Australia looked at different types of bullying: physical, relational or both, and how this varied depending on age and gender (Hayward & Fletcher, 2003). They found that as children moved from primary to secondary school, they were less likely to use both forms of aggression and became more specialised in their forms of bullying, with boys using more overt aggression and girls more relational aggression.

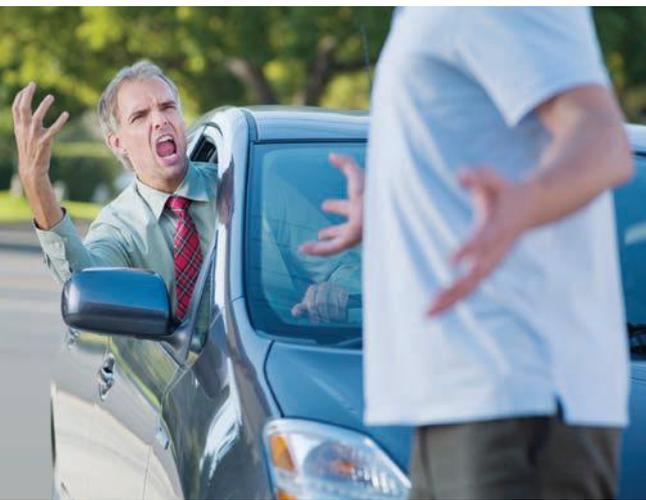
Dealing with bullying

Since bullying occurs in preschools, primary schools and secondary schools, it is a major issue for educators worldwide. You may be aware of programs that have been introduced into Western Australian schools to prevent bullying.

These programs take the view that preventing bullying should be the normal behaviour. Instead of singling out bullies and/or their victims, the whole school (including teachers) is involved in stamping out bullying through helping parents and school staff to cope effectively with, and respond to, their children's bullying experiences. This can:

- reduce the reported frequency of children's bullying
- decrease depression and anxiety symptoms in children
- increase parents' knowledge of, and influence their attitudes to, helping their children to cope adaptively to bullying
- increase a school's capacity to help parents cope positively with situations where their children are being bullied
- increase parents' and their children's knowledge of conflict resolution and coping techniques they can use if they are bullied or observe others being bullied.

Another form of anti-social behaviour that is becoming increasingly common in Western society is road rage. This can vary from milder common forms such as yelling, swearing or honking at another driver through to the forms of extreme aggression that we hear or read about in the media when there is a physical confrontation with a driver or where their car is damaged (Neighbors, Vietor & Knee, 2002).



iStock.com/Chris Ryan

Figure 4.4 Road rage is another form of anti-social behaviour.

Broaden your understanding

Restorative justice in schools: Positive ways to deal with negative behaviour

Restorative justice has been used in the justice system for some time. Since the early 1990s it has been introduced into many schools in Australia and elsewhere. The principle behind it is to take incidents that might otherwise result in punishment and turn them into opportunities for students to become aware of the impact of their behaviour, to understand that they should take responsibility for their actions and to take steps towards putting things right (Drewery, 2004). The practice involves a mediator bringing the parties affected by the behaviour – the offender and the victim – together, and having them work with each other to achieve a common understanding of what happened, why, what the effects were, and how the situation could be improved. Research indicates that this approach can reduce suspensions and teach students new skills in resolving conflicts (Zaslaw, 2010). Students reported feeling respected and having improved relationships with teachers and peers.

Broaden your understanding

Graffiti: Anti-social behaviour or art?

People from many different backgrounds have argued about whether graffiti should be viewed as vandalism – anti-social behaviour directed towards the destruction or damage of property belonging to another person or institution – or as art (Nordmaker, Hjarthag, Perrin-Wallquist & Archer, 2016).

Using our definition of anti-social behaviour, consider whether graffiti should be seen as being anti-social. Does your decision depend on whether the graffiti takes the form of tagging or a mural? Does it depend on the motivation of the person who has sprayed the graffiti?



Figure 4.5 Anti-social behaviour?

Why do people act anti-socially?

A typical response to all forms of anti-social behaviour is 'Why?' As with pro-social behaviour, there are many factors that contribute to anti-social, and particularly aggressive, behaviour.

Biological bases of anti-social behaviour

Much of the research attempting to link aggression to brain structures has been carried out with animals where it has been found that lesions to various brain structures result in different types of aggressive behaviour. Bear, Connors and Paradiso (2007) report early research with monkeys that suggested that the amygdala plays an important role in aggressive behaviour. The amygdala is an almond shape body of neurons deep within the temporal lobes. When bilateral amygdala lesions were made to the brain of the dominant monkey in a colony that included eight males, it became passive and fell to the bottom of the hierarchy since it no longer showed the aggression that had maintained its dominance. Subsequent studies with animals showed that electrical stimulation of the amygdala increases many types of aggressive behaviour. There is also evidence for a similar relationship between the amygdala and aggression in humans. An autopsy was conducted on Charles Whitman, who killed several people in a Texan university and who left a note asking for his brain to be examined for possible dysfunction. This autopsy showed that he had a tumour pressing onto his amygdala.



Figure 4.6 Aggressive behaviour can be learned.

Another biological factor that has been related to aggression is the neurotransmitter, serotonin. Pharmacological interventions to increase serotonergic efficiency has been shown to decrease aggressive outbursts in psychiatric patients, and people with a history of violent behaviour show low levels of serotonin in their spinal fluid. However, while this association is interesting it is only a correlation and the direction of the effect cannot be assumed: while low serotonin levels may induce aggressive behaviour, it is also possible that aggressive behaviour may lower serotonin levels.

Learned bases of anti-social behaviour

As with pro-social behaviour, much anti-social behaviour is considered to be learned. Anti-social behaviour can be learned through the following:

- Social norms – anti-social behaviour may be not only accepted but even encouraged by social groups to which the child belongs. For example, a member of a basketball team might be encouraged to target an injured opposition player.
- Direct teaching of aggression by parents – children who are brought up in homes where the parents punish undesired behaviour and where there is little affection displayed by the parents towards them tend to show higher than average levels of aggression.
- Observation of aggression in peers and parents – there is clear evidence that children who have witnessed aggression, such as domestic violence, have a higher than average chance of becoming perpetrators of such violence as adults.
- Direct reinforcement – there may be pay-off for the act, such as superior social standing in the classroom or playground for a student displaying anti-social behaviour; for example, rudeness to a teacher or bullying of a peer.

Attributions and personality as a basis for anti-social behaviour

We are probably all aware of reacting differently at different times to what has essentially been the same behaviour – bumping into or tripping over someone, for instance – and on reflection can realise that this was due to the fact that in one instance we attributed the behaviour as a deliberate attempt to hurt or be nasty, while in the other we considered that the behaviour was accidental. Psychologists Britt and Garrity (2006) have studied road rage and examined people's attributions for behaviour such as cutting in and tailgating on the likelihood that they will respond angrily and aggressively. They also asked whether people with a particular type of personality were more likely to attribute hostile intentions and blame to the driver who was considered to have driven dangerously. They found that hostile and blame attributions predicted anger and aggressive behaviour in different driving scenarios. They also found that various personality variables, such as dispositional aggressiveness and narcissism, were related to aspects of road rage response. However, it appeared that both attributions and personality made independent contributions to variation in responses to bad driving. They found little evidence that the link between personality and aggressive response was mediated by attributions.

Role of video games in anti-social behaviour

Violent video games have been examined as a possible cause of aggression (Anderson & Bushman, 2001) and research evidence has been slowly accumulating since the mid-1980s that shows that not only does exposure to violent video games increase aggressive thoughts, feelings and behaviours, but it can also lead to physiological desensitisation. Carnagey and colleagues (2006) found that college students who played violent video games showed less arousal, as measured by heart rate and GSR, when viewing filmed

real-life violence than students who had played non-violent video games. While this by itself does not show that playing these games results in aggressive behaviour, a meta-analysis of 33 independent studies into the relationship between video-game violence and aggression showed that playing these games increased aggressive behaviours such as hitting, kicking and pushing in both children and adults and in both males and females (Anderson & Bushman, 2001).

Determinants of liking

Proximity

To develop friendships you have to meet potential friends, so physical proximity (termed 'propinquity' by psychologists and sociologists) is essential. While you meet people at school, at the train station, at footy, or in a queue, the circle of people you are likely to meet is quite limited. Living close by is a major factor in the development of friendships and long-term relationships. Why? There are three factors believed to be linked to physical closeness: familiarity, availability and expectation of continued social interaction.

Familiarity results from repeatedly meeting someone and coming to know more about them. Familiarity means you are comfortable in their company, which is a good basis for the development of a friendship. Availability or accessibility results from living close by, and this also enhances friendship development. When friends leave Western Australia and go interstate, it can be very difficult to maintain the friendship (although it can be done) since contact is not as frequent. Finally, there is an expectation of continued social interaction when someone lives close by or you see that person every day. So two people are brought together by physical proximity and by attraction to one another, but how is the friendship or relationship established and maintained?

Broaden your understanding

New ways of 'liking'?

Social media is becoming a major part of our lives. Does this mean that we have to rethink determinants of liking? Online dating services would certainly like us to think so. In small groups discuss the following:

- Do we have to be physically close to people to like them?
- Can we judge how similar we are in attributes such as attitudes and values from Facebook and emails?
- What are the costs and benefits of online friendship?
- What is the nature of any online relationships you have with people you have not met face-to-face?

Similarity

Communication between potential friends must take place and this often occurs when mutual attraction has been signalled. Curiously, mutual attraction is sometimes based on the degree of similarities between people. Have you ever noticed how friends sometimes look similar? Or how married couples dress in similar ways? Contrary to the popular view that 'opposites attract', for many friends and couples there are similarities in their attitudes and values, their dress, their level of education and their views about politics and religion. This is perhaps not surprising given our tendency to make friends with those with whom we have frequent contact – at school, at work or in the neighbourhood.

When people start to talk, they discover what they have in common. Psychologists have known for a long time that, in conversations, if someone expresses a view or an attitude that we share, we are more likely to be attracted to, or like, that person. Conversely, if they express a view that we do not share, then we tend to dislike them.

This is true of young children forming friendships, as well as of adolescents and adults. For young children, this can be as simple as both children having an identical superhero figure or liking footy. Finding common ground is a feature of early interactions, and this is done through talking about likes and dislikes, such as movies, sporting teams, television shows and music. Young children share their toys as a gesture of friendship. Adolescents gossip about soapie stars and pop groups. Adults swap views about movies, work, politicians and so on.

Each person responds to the other as a function of the similarity of the views and attitudes expressed. The more similarities, then the more the person is liked and the friendship develops. If there is too much dissimilarity in views, then the person is unlikely to be regarded as a potential friend.

Broaden your understanding

Arranged marriages

In Australia, arranged marriages are rare, but in other countries, such as India, they are more common. An arranged marriage is usually defined as one where the parents of the partners make the choice of husband or wife. Arranged marriages can be forced on children, with no choice of either the mate selected or of whether to refuse. Nowadays, couples may be permitted to get to know one another even when they have been chosen by their parents. The parents have taken an active role in finding a suitable partner or mate but only recommend or introduce the couple and let them develop a relationship.

Arranged marriages are often remarkably successful and long-lasting. Consider why this might be the case in light of what you have read about liking. Now consider three reasons that have been suggested by others for the success of arranged marriages and whether they fit with your ideas.

The reasons that have been suggested are:

- The couple's expectations of the relationship are not as high as those who are romantically involved before marriage.
- The couple are often more compatible since partners are selected from a small sub-group of the population and would often share religious and political views and come from similar educational, socioeconomic, professional and age groups.
- The couple are marrying not because they are necessarily 'in love' and following their heart, but because they have made an important rational decision based on their rational thoughts.

Perhaps because of these reasons, couples in arranged marriages often develop a relationship over time and come to love and respect one another. Of course, in some cultures where arranged marriages are common, divorce is not an option.

Reciprocity

Reciprocity is based on the principle that we give what we receive or expect to receive. This principle underpins social exchange theory (Thibaut & Kelley, 1959), one of the most popular theories about attraction and liking. It considers both parties in the friendship or relationship and how they exchange rewards. It is an economic theory applied to social relationships. According to this theory, whether you like someone is determined by the **cost-benefit ratio**, which states 'What do I need to do, or what will it cost me, to get a positive reward from the other person?' But there are two parties, so the outcome has to be negotiated jointly between them. And this is generally how we go about our daily business. We try to maintain social relations, so we exchange pleasantries when we buy lunch at the canteen, we hug our family members and

we are polite to our teachers. These relationships, at whatever level, superficial or deeper, short or long lasting, are important and their maintenance depends on a pay-off between your behaviour and that of the other person. As in all theories of rational choice, we seek to minimise costs while maximising the rewards or benefits.



Figure 4.7 Couples maintain their relationship through give and take, and through experiencing joy together.

Thibaut and Kelley's 1959 book on *The Social Psychology of Groups* started by describing the way relationships are established and then how relationships are maintained through available rewards and punishments. The relationship was viewed as a series of trading interactions. This business is viewed in the same way as economic behaviour. Social exchange theory involves reinforcement and reward.

Stages in the development of social exchange relationships

Thibaut and Kelley suggest four stages in the development of a relationship:

- 1 sampling, or checking the potential costs and benefits of the relationship and comparing them with others
- 2 bargaining, or the giving and taking of rewards to test whether it is worth committing to a deeper relationship
- 3 commitment, where each person in the relationship focuses on the other person. The relationship is one of equality. Attraction will increase if the costs of interaction are lowered. The relationship becomes more predictable
- 4 institutionalisation, or the development of norms that recognise the legitimacy of the relationship and the specific nature of rewards and costs for each.

In general, there is give and take in social relationships. We make an effort to maintain balances while maximising reward and minimising costs. Our relationships with others require that we maintain a balance between what we put in and what we take out of that relationship. Knowing that either party can walk away from the friendship or relationship means that both have to make an effort and put in at least what they can get rewarded for if the relationship is to continue. Otherwise, there is a need to establish other, and different, relationships. Rewards in friendships include pleasure and 'feeling good'. Costs include embarrassment and wasted effort.

Another feature of social exchange theory is that in deciding what is fair exchange, we adopt a comparison level or standard against which we measure behaviour. This standard develops over time and lets us decide whether the friendship or relationship is going to be profitable or not. Our profit (and loss) standards are based on previous experience. That experience can be with the same people over time or can be similar

experiences with other people. The comparison level we choose is based on what we expect from the exchange or relationship. We would have different expectations from a relationship with a work colleague than from someone with whom we have an intimate relationship or from a family member.

According to social exchange theory, a positive or profitable relationship is satisfying and the other person is regarded as attractive. Conversely, a relationship where the effort exceeds the benefit will be seen as unsatisfactory and the other person regarded as unattractive. The most satisfying relationship for both parties is one where *both* make a profit, the relationship is satisfying and each sees the other as attractive. Social exchange theory involving rewards and costs can account for differences between various types of friendships and relationships, describe the development of relationships over time, and explain individual differences in comparison levels.

How groups develop in adolescence

During adolescence, young people move away from their strong relationship with their parents to form relationships of various kinds with their peers. Social and cultural differences between young people and older adults may become apparent due to different life experiences, such as the rapid changes in technology and use of social media. These differences are sometimes called the **generation gap**. This suggests that there is a divide between adolescents and their parents. Most current research finds that such a notion does not really exist and adolescents are not in constant conflict with their parents over the things that they want to do with their peers, what they are wearing and so on. Any conflicts may appear intense, and sometimes they are, but these reflect the adolescent's own increasing sense of autonomy and higher cognitive abilities, such as the ability to reason abstractly and argue logically. Conflicts between adolescents and their parents generally do not threaten the long-term nature and depth of the existing relationship. It can be argued that some form of conflict is psychologically healthy and it is better that it occurs in a familiar, and often loving, family environment where arguments and mistakes are tolerated and even forgiven.

Peers become more significant in adolescence: adolescents want to be engaged in more activities with peers than with family, and peer groups can exert a considerable influence over aspects of an adolescent's behaviour. While adolescents have many peers, they belong to a small number of **peer groups** with whom they identify and socialise. In other words, not all peers are members of your peer group or groups.



Dreamstime.com/Monkey Business Images

Figure 4.8 Conflict with parents can be a feature of growing up.

Changing structure of groups in adolescence

Peer groups in adolescence occur at three levels:

- 1 dyads – pairs of close friends or lovers
- 2 cliques – small groups who interact frequently
- 3 crowds – larger groups of adolescents (or others) with similar identities or affiliations.

These groups were identified through ground-breaking research conducted by a sociologist named Dexter Dunphy in Sydney in the 1960s (Dunphy, 1963). Dunphy engaged in **participant observation**, in which he followed up contacts with young people in their various social settings, such as at the beach, cafés or parties, and in their homes, over about a six-month period. He tried not to interrupt their normal activities and conversations. He dressed casually, in the same style as the young people, and made an effort to socialise with them. (Luckily, he looked youngish!) Dunphy's efforts paid off because he made some very important observations about the social lives of adolescents, including the structure and function of their peer groups. Not only was

the method of establishing how peer groups formed and how they changed over time new and innovative, the observations themselves remain undisputed some 50 years later, even with the advent of technologies such as the mobile phone, SMS and the Internet. The rules governing social activities remain more or less the same, although the ages at which these activities occur are likely to have decreased since Dunphy's time.

Dunphy found that in early adolescence, in Stage 1, young people formed cliques, usually small groups (4–10 adolescents) of the same sex. Each clique was relatively isolated from other cliques. These cliques met reasonably often to plan social activities, share secrets and gossip. Cliques had a tight structure and a dominant person as leader. Membership required deference to the leader and acceptance required conformity with dress, interests and attitudes. Continued clique membership also required the equivalent rate of progress in establishing and forming close personal relationships with members of the opposite sex.

Crowds formed in Stage 2 when these unisex cliques interacted with one another. You were only eligible for membership of a crowd if you already belonged to a clique. This can be seen in interactions between young teenage girls and teenage boys, where it is sometimes claimed safety in numbers enables social interaction and bantering between sexes. These crowd activities are largely seen at the weekends, in shopping malls, at beaches, or at more structured, organised activities and parties.

Stage 3 saw changes in the structure of the crowd with the higher ranking clique members forming heterosexual cliques. This reflects the start of the age-old practice of dating. Obviously the teenagers in Stage 3 are older than those in Stage 1, but the types of groups and their memberships change in systematic ways, so that by Stage 4 there is a 'fully developed crowd', composed of a number of couples in close association with one another. By Stage 5, couples had begun to go their separate ways.

Crowds and cliques provide opportunities to affiliate with others who hold similar attitudes and very often dress alike. Dress codes are important ways of signalling group membership. However, through the eyes of an outsider, some teenagers dressed all in black, or in T-shirts and board shorts, are almost indistinguishable from one another! This phenomenon is known as **social conformity** and is also seen in adults who typically adhere to a dress code (think of lawyers in their suits or the stereotypical academic in scruffy jeans) and affiliate with others who share the same values and behaviours. It can be argued that the characteristics of the group that are shared by adolescents are superficial, and their values and beliefs are more likely to be influenced by their parents. In this way, adolescents' relationships with their peers and parents serve different functions. Adolescents also socialise with adults like teachers, coaches, mentors and leaders, and people in shops, on the bus or train. They also learn about social relationships from watching shows on television, like *Home and Away* or *The Big Bang Theory*, which portray young adults dealing with relationship issues with different people. But the general principle is that peer groups do not displace parents during adolescence; rather, the two have different places in the social life of the young person.

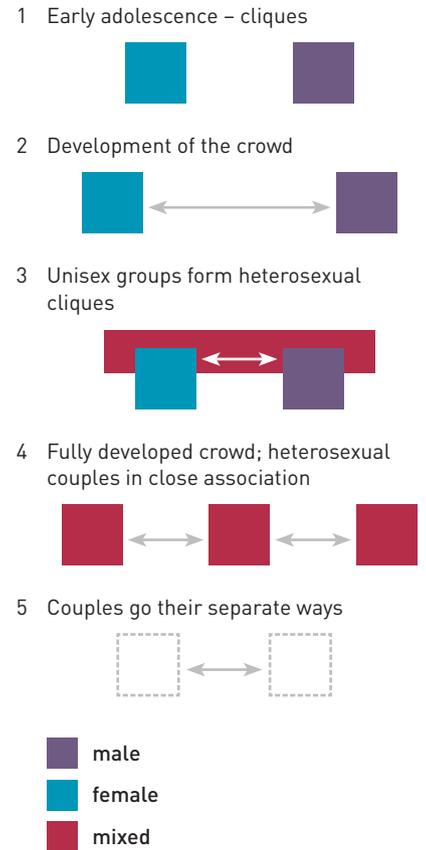


Figure 4.11 The changing structure of adolescent groups (Dunphy, 1963)



Figure 4.9 Unisex cliques interact to form a crowd.



Figure 4.10 Heterosexual cliques develop from crowds in later adolescence.

Functions of adolescent groups

In American teenage culture, the various peer groups have been labelled 'Jocks', 'Brains' and 'Princesses' after the main character identities in the 1985 cult film *The Breakfast Club*. Research by Bonnie Barber (now at Griffith University) and colleagues in the United States asked participants to self-identify as a Princess, a Jock, a Brain, a Basket Case or a Criminal based on how closely they believed they were to the type of person the character was (Barber, Eccles & Stone, 2001). Jocks were highly represented in team sports, Brains in pro-social activities, Princesses in school activities (such as school government, cheerleading) and the performing arts, Basket Cases in the performing arts, and Criminals in sports. (The students were in 10th grade when the film was released, so they were very familiar with the characters.)

The research first examined what activities they had participated in as 10th grade students and how this predicted later (after high school) substance use, psychological adjustment, and educational and occupational outcomes. In general, participation in pro-social activities like church attendance and/or participation in volunteer or community-based activities at 10th grade predicted lower substance abuse and greater self-esteem up to eight years later. Participation in these activities did not predict later educational or occupational outcomes. Participation in the performing arts (music, dance) at 10th grade predicted increasing use of alcohol between the ages of 18 and 21, and higher rates of suicide and use of psychological services at age 24. On the more positive side, such participation increased the likelihood of continuing with education and graduating from college. Participation in sports (in this case in team sports) at 10th grade predicted positive educational and occupational outcomes eight years later, but higher rates of drinking and marijuana use.

Patterns of activity participation in the final years of school that predict long-term social, educational and occupational outcomes can inform theory about how young people become involved in different crowds. Do they choose the peers and

the activities in which they participate? Or are they assigned to the groups based on their personalities and preferences? Do the groups with which they identify assist in moulding their preferred identity, which in turn affects future directions? In general, the research shows that participation in a range of different types of activities has an impact on social identity development and vice versa. Through norms that are developed and supported by the peer groups or the crowd, adolescents gain an identity that is socially validated. Identities developed as a result of crowd membership are carried through to adulthood and are reflected in social, educational and occupational outcomes. As in Dunphy's work, the crowd in adolescence not only serves a structural purpose, but it may also be functional for healthy (and even unhealthy) psychological development.



Figure 4.12 Kissing may be the start of a sexual relationship for adolescents.

Adolescent relationship development

In Dunphy's model, the clique enables the development of opposite-sex relationships from the safety of a larger grouping that offers opportunities for non-threatening casual acquaintances developing before intimacy takes place. The crowd then provides the means of making the transition from same-sex to opposite-sex relationships. Note that Dunphy's study did not consider same-sex attraction. Do you think that a modern-day study would include this?

Sexual relationships form from these various peer interactions. These early sexual encounters mark several new developments for adolescents, not least of which is their identity and role as an adolescent progressing towards adulthood. Furthermore, there is new opportunity for intimacy with another person, and for dealing with the social, physical and emotional side effects that emerge from fledgling sexual relations. There are also health risks associated with sexual relations, such as sexually transmitted diseases and unwanted pregnancies that may result from unprotected sex, and these need to be considered.

The social development of adolescents and their foray into sexual relationships is premised on their acceptance by, and affiliation with, peer groups either as crowds or cliques. The peer group is enormously important to the developmental life of a young person and to their socialisation outside the family and the parental home. Peer group influence has moved away from being viewed as negative on young people's behaviour (although undoubtedly there are anti-social elements to some aspects of some peer groups) to being regarded as part of the very necessary developmental processes of socialisation. Being part of a group, establishing an identity and taking tentative steps towards an adult sexual relationship (and all that that entails) is an essential part of growing up.

Broaden your understanding

Sexual behaviour and knowledge of Australian secondary students

In 2013, the Australian Research Centre in Sex, Health and Society at La Trobe University conducted a survey of over 2000 young people in Years 10, 11 and 12 from government, Catholic and independent schools across Australia. Some of their findings are listed below:

- There was a good level of knowledge about HIV transmission, but poor levels of knowledge about sexually transmitted infections (STIs).
- The majority of the young people were sexually active, with students reporting deep kissing (68%), genital touching (or being touched) (52%), giving or receiving oral sex (39%), and vaginal intercourse (23% for Year 10 and 50% for Year 12).

Among sexually active students:

- 48% of young men reported always using condoms and a further 35% sometimes did; 41% of young women reported always using condoms and a further 42% sometimes did.
- Approximately one quarter reported having had unwanted sex at some time. The reasons given were being drunk, high, pressured or frightened.
- 12% of young men and 5% of young women reported same-sex encounters in recent sexual encounters.
- 5% reported having had sex that resulted in a pregnancy.

Among students who were not sexually active:

- 70% of young men reported having had a girlfriend and 60% of young women reported having had a boyfriend.
- The reasons they gave for not having had sexual intercourse were:
 - » not ready (53%)
 - » partner unwilling (48%)
 - » can say no and mean it (54%)
 - » against beliefs (19%)
 - » feared parent disapproval (17%)
 - » feared pregnancy (37%)
 - » important to be in love first time (50%)
 - » not met right person (46%).

CHAPTER SUMMARY

Relational influences

Types of relationships

- Pro-social behaviour
 - What is pro-social behaviour?
 - Why do people help (act pro-socially)?
 - Biological basis
 - Learned behaviour
 - Based on empathy
 - What stops pro-social responses?
 - Personal variables
 - Situational variables
 - Social variables
- Anti-social behaviour
 - What is anti-social behaviour?
 - Types of anti-social behaviour
 - Bullying
 - Road rage
 - Graffiti
 - Why do people act anti-socially?
 - Biological bases
 - Learned bases
 - Attributions and personality
 - Violent video games

Determinants of liking

- Proximity
- Similarity
- Reciprocity
 - Social exchange theory

How groups develop in adolescence

- Changing structure of groups in adolescence
 - Cliques
 - Crowds
 - Heterosexual cliques
 - Fully developed crowd
 - Crowd disintegration
- Functions of adolescent groups

Adolescent relationship development

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

- 1 Social conformity
- 2 Cost-benefit ratio (according to Thibaut and Kelley)
- 3 Bullying
- 4 Bystander effect
- 5 Pro-social behaviour

Multiple-choice questions

- 1 An altruistic person is:
 - A willing to do something for another person without expectation of gain.
 - B likely to look after his or her own safety in an emergency.
 - C likely to be a competitive, individualistic person.
 - D willing to help if he or she receives some acknowledgement.
- 2 Pro-social behaviours include:
 - A helping others.
 - B sharing with others.
 - C making sacrifices.
 - D all of the above.
- 3 Bullying is seen when:
 - A boys play rough games.
 - B all the students are girls.
 - C there is aggressive behaviour designed to harm others.
 - D teachers are unhappy.
- 4 In the second stage of adolescent group formation as observed by Dunphy, adolescents:
 - A formed an intimate relationship with someone of the opposite sex.
 - B interacted in heterosexual couples.
 - C started dating.
 - D formed crowds where unisex cliques interacted.
- 5 Social exchange theory proposes that relationships are maintained by:
 - A compromise.
 - B available rewards and punishments.
 - C similarity between values of the couple.
 - D none of the above.

- 6 Bonnie Barber found that students who identified themselves in 10th grade as a Brain were more likely than their peers to:
 - A engage in substance abuse.
 - B commit suicide.
 - C have high self-esteem.
 - D consume alcohol.

Apply and relate psychological understandings

Short-answer questions

- 1 Outline the main characteristics of pro-social behaviour.
- 2 Describe three theories that have been put forward to explain pro-social behaviour.
- 3 Indicate what is meant by the generation gap and the extent of evidence for its existence.
- 4 Indicate how overt aggression differs from relational aggression.
- 5 Describe the role of reciprocity in relationships.

Extended-answer question

An elderly man is lying doubled up on the ground near a railway station. Indicate what variables relating to the man and to the passers-by are likely to affect whether anyone comes to his assistance. Support your suggestions by reference to research.

CHAPTER 5

Others: Communication

Key knowledge and understanding

What is communication?

Forms of non-verbal communication

- Body language

Communication through speech

- Effective communication

Impact of hearing impairment on communication

- Types of hearing loss
- Hearing aids and cochlear implants
- Learning to communicate

Impact of language delay or disorder on communication

- Specific language impairment (SLI)

Communication and relationships

- The role of relationships in communication
- The role of communication in initiating, maintaining and regulating relationships

Communication

What is communication?

In establishing and maintaining social relationships of all sorts, we rely on interacting and communicating with one another. **Communication** involves the sending and receiving of messages. As humans, we need to communicate with other people all through our waking hours. This communication may be small talk between partners, providing assistance to children, chatting to the bus driver or the deli owner, talking on the telephone or giving a lecture. There are many forms of communication, and these include reading and writing. We use our mobile phones to talk to or text our friends and families, anywhere, any time. We use email and instant messaging to communicate with colleagues, friends and family members across the world. Other forms of communication include translating languages, interpreting what others are saying to us and reading the newspaper.

In this chapter, we will focus on the use of **non-verbal communication**, and spoken and signed language to communicate rather than written language (reading and writing).

Who do you think of as a great communicator? What is it about this person that gets their message across? Is it what they say, or how they say it? Is it something they do – how they stand or move, their facial expressions or gestures?

Figure 5.1 We communicate in many different ways.



From the day we are born we communicate; that is, we convey messages to other people. At first these are non-verbal messages – words are not used. First-time parents soon recognise the cries and facial expressions that mean ‘I’m hungry’ or ‘I’m wet’ or ‘I have a pain’. Even after we learn to talk, we still use non-verbal means of communicating. Other animals also use many of the same non-verbal forms of communication. Non-verbal communication lets us express emotion and share meaning with others in our social community.

Forms of non-verbal communication

Body language

The impression we get of another person is often gained without speaking with them. Their facial expressions, how and where they stand, their gestures and other bodily movements convey information about them. Collectively, this type of behaviour is known as **body language**. Psychologists working clinically will always take note of such things as whether their client is fidgeting, slouching or sitting with arms tightly folded in order to get a better understanding of their mental state.

Broaden your understanding

Facial expressions

Which of these faces shows fear? Happiness? Disgust? Surprise? Anger? Sadness? Check your responses with the answers online at NelsonNet. Matsumoto and Ekman (1989) argued that the emotions conveyed by facial expressions are the same across cultures. Do you agree?



©David Matsumoto/Humintell

They will also note whether their client's body language is consistent with what they say or whether a claim that all is going well is being contradicted by body position and movement that signals anxiety.

Facial expression is a powerful form of non-verbal communication and one that is learned very early in life. By staring, looking away, frowning, glaring or smiling, we can express interest (or lack of it), annoyance, anger or warmth. Try watching an old silent movie to see how good you are at picking up emotions from actors' faces. You will probably find that you can pick people's emotions regardless of their age, gender or ethnic background. Basic emotions seem to be universal. Try the activity in the 'Broaden your understanding' box.

Unlike facial expressions, **gestures** – movements of the hand or body that we use to express ourselves – have different meanings in different countries and cultures. This was made very obvious when a visiting dignitary to Australia raised his second and middle fingers, with his palm towards himself, thinking he was making the V for Victory sign, and wondered why he got such a negative response. People usually use gestures when speaking – even when speaking on the phone. This is especially the case when we are talking about anything that contains spatial information: describing the route to the nearest movie theatre, talking about the layout of a house or the shape of a new car. Even people who have been blind from birth use gestures when talking.

Some people use gesture more than others. Look around your class. Do you have any classmates who could not hold a conversation if they had to sit on their hands?

Touch has various interpretations in different cultures. Touching someone on the head or tousling their hair may be considered a sign of warmth or affection in Australia but is a sign of disrespect in Thailand.

Research suggests that there are gender and cultural differences in how effectively we understand and send messages through our facial expressions and gestures.

Girls tend to be better than boys at sending non-verbal messages – both at expressing genuine emotion and at faking it. Girls are also better at interpreting others' signals.

From infancy, baby girls have been found to use gestures more than boys. Is this due to inherited genetic differences or to environmental differences in the way young boys and girls are raised? Research by Halberstadt (1991) suggests that a lot of the difference in expressiveness is due to how we are brought up. Parents tend to model and reward different behaviour in girls and boys. Girls are smiled at more often than boys and mothers show fewer signs of negative feelings, such as fear, to sons than to daughters.



istock.com/omgimages

Figure 5.2 Gesture and facial expression are part of communicating. You can guess the nature of the conversation.

We also communicate non-verbally in ways that may be less obvious. The **physical distance** that we put between ourselves and others conveys meaning. Have you ever felt uncomfortable because someone was standing too close to you? The distance we are comfortable with depends in part on how well we know the person. Back in 1966, Hall outlined four levels of interpersonal space or 'distance zones' (cited in Durkin, 1995):

- the intimate zone – typical of people in close relationships, such as family members or lovers
- the personal zone – typical of people who are friends
- the social distance zone – typical of people in functional relationships such as a shopkeeper and customer, or teacher and student
- the public distance zone – typical of strangers in public places.

Our actual 'comfort distance' is one aspect of our non-verbal behaviour that varies between cultures. People of southern-European origin usually are comfortable standing closer to people with whom they are talking than people of Anglo-Saxon origin. This distance may change depending on the social situation. If we are in a crowded place such as a busy store or packed train we are likely to be reasonably comfortable with strangers being close to us. On the other hand, we are less likely to be comfortable if we are in a movie theatre that has few patrons and a stranger comes and sits right next to us.

Having a table or other object between people provides a psychological as well as a physical barrier. People who carry out interviews professionally, such as a doctor, a personnel officer or a psychologist, are well-aware of this and may use space to set the tone of the interview. They may have two chairs placed reasonably close and without anything between them if they want to convey interest and warmth, but sit on the other side of a desk if they want to look business-like.



Figure 5.3 The distance between a psychologist and her client conveys a message.



Physical appearance refers to how you present yourself physically: the way you dress, do your hair, use make-up and so on. If you are the sort of person who spends long hours in the bathroom or in front of the mirror, you will already be aware that your appearance is an important form of communication. Controlling body odour is also part of the bathroom routine. The way you **smell** can be affected not only by hygiene but also by use of deodorants and perfume. Physical appearance and body odour are basic ways across the animal kingdom to signal desirability, attract a mate, indicate group membership or status and so on. Clothing designers, perfume and deodorant manufacturers and advertising agencies exploit this fact.

Figure 5.4 Non-verbal communication in other animals can take similar forms to those in humans: distance, posture, appearance, smell and touch.

While our sense of smell is not as well-developed as in many other animals and is not as essential for our wellbeing, smells do have the power to conjure up memories and emotions. The section of the brain that gets information from the nose is closely linked to the section that is involved with memory and emotion.

Communication through speech

Successful and effective communication between humans usually requires producing speech, transmitting words and meaning, receiving speech from others and decoding or interpreting words and their meaning. We also need to speak the same, or similar, language (be it German, Chinese, a dialect or slang) and share a common frame of reference. Communication involves conversation, 'meeting and greeting' others, expressing emotions, ideas, thoughts and feelings, sharing knowledge and teaching others.

Communication is usually regarded as an essential part of interpersonal effectiveness. We must be able to express ourselves – our thoughts, feelings, wishes, needs and opinions. As well as expression, we also need to be able to listen and understand what is being said. Communication requires both talking and listening. When you decide to communicate with another person, you do so to fulfil a need – you want something, or want to express feelings or thoughts about something. You then choose how you are going to deliver your message, the words you need and the way you are going to say them. The listener then has to decode this message in order to understand it. The listener has to get meaning from the expression.

Figure 5.5 Listening to a witness in court is an extremely important part of a trial.



Alamy Stock Photo/Art Directors & TRIP

Effective communication

Effective communication exists when the listener receives, interprets and understands the message as it was intended by the speaker.

While it is generally thought that speaking and listening come naturally to us, this is not always the case. Psychologists know a great deal about how language develops in children but we know less about becoming a listener. Without listening, there can be no communication. We can speak, but if no-one hears us there can be no communication. Listening requires learning and practice (it also requires you to pay attention when people are talking to you).

Listener and speaker attributes

When communication breaks down, the question arises as to whether this is due to poor speaking or poor listening. Speakers can make it hard for their listeners. They speak too quickly or the volume is too low to be heard. Speakers can use complicated words, speak in sentences that are too long, or include unnecessary details in their message. They can also 'get lost' or forget the point of their expression. All of these make it difficult for the listener to understand the message.

Listeners can also make communication difficult. They can be preoccupied with something else or distracted by their own thoughts, plans or dreams. Listeners can be seeking an opportunity to reply to the speaker, even to the extent of trying to think up their reply. Listeners also form impressions of speakers through the way they convey their messages. Lastly, listeners can fail to ask 'what do you mean?' when they do not understand the message.

Other barriers to listening are technological advances like television (as a background distracter) and electronic meetings (where the speakers and listeners are connected by audio and/or video). Meeting participants can engage in other (distracting) activities, like answering their email, while connected.

Communication failure experiment

When communication fails, is it the fault of the speaker or of the listener? Work by the Robinsons in the 1970s found that children under the age of six years tended to blame the listener or hearer when messages were ambiguous while older children and adults blamed the speaker.

In their studies, two children who could not see one another were each given the same sets of cards with drawings of happy or sad faces, some of which were wearing red hats and some green hats.

The aim of the experiment was for both the speaker and the listener to select the same cards from their sets. The speaker described a card ('it is a happy face') to the listener who had to choose the same picture. If participants chose different cards, then there was a communication failure, as would probably happen with the above message since there were three happy faces. A description like 'the happy face with the green hat' would result in the right selection being made. Young children reliably believed hearers to be at fault and believed that if they 'thought harder', they would select the correct card. They did not realise that the speaker and the message were the problem (Robinson & Robinson, 1977, 1978).

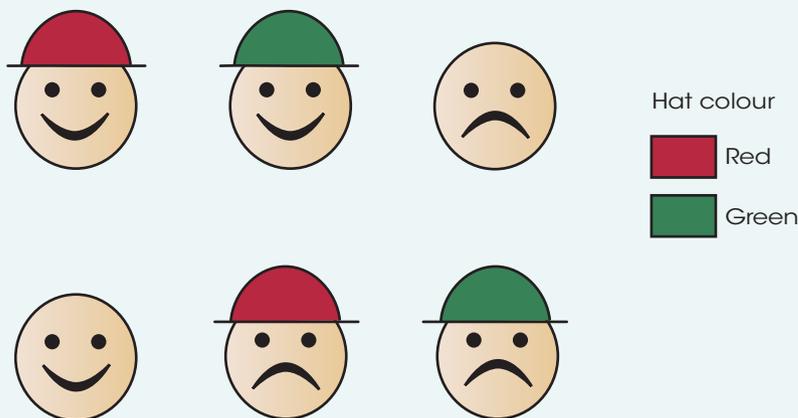


Figure 5.6 Faces used in communication failure experiments

Active listening

Effective listening requires paying attention and being able to receive, understand and respond to the messages. Listeners are not passive recipients of talk. Listeners need to let speakers know that they are listening – either through replying or through non-verbal communication like a head nod or a smile. In **active listening**, the listener is engaged in the conversation with the other person and is genuinely interested in what he or she is saying. This involves constantly trying to understand what the speaker is thinking, feeling or wanting before replying. The listener asks questions for clarification or restates the message received to check understanding. There is ongoing checking, feedback and replying between listener and speaker. In communication, speakers and listeners alternate their roles.

Twelve tips for effective listening

- 1 Face the speaker and maintain eye contact.
- 2 Pay attention and screen out distractions.
- 3 Listen to the words and work out the meaning of the message.
- 4 Don't interrupt.
- 5 Wait for a pause before asking a question.
- 6 Ask questions only to clarify meaning.
- 7 For long periods of listening, focus on key words and issues.
- 8 Give the speaker feedback.
- 9 Pay attention to what is *not* said (including non-verbal cues).
- 10 Don't be distracted by your biases and views.
- 11 When dealing with difficult people, spend more time listening than speaking.
- 12 When in doubt, keep listening!

Assertive communication

Because communication is so important in relationships, it is an area that is examined when a person comes to see a psychologist or counsellor about a problem with a relationship. This is true whether we are talking about a parent-child relationship, a friendship or a marital relationship. If this client is reporting that they are not being listened to, that they have trouble saying no when they really want to, or that they lose their temper and say things they do not really mean, the psychologist is likely to teach the client assertive communication.

Assertive communication involves honestly expressing opinions and feelings in a way that does not infringe on the rights of others. It involves three main steps:

- saying something that shows that you are trying to *understand* the other person's position and not trying to pick a fight
- *stating the problem* by describing your dissatisfaction and outlining what you want to change
- making a specific statement about *what you want to change*.

When being assertive, body language is also important to the communication. The speaker should face the other person, use a pleasant, calm voice, but a serious facial expression.

In assertive communication it is important to:

- use 'I' statements, such as 'I'd like to be able to tell you my side of the story without interruption' rather than 'For goodness sake, stop interrupting me!'
- keep to the facts rather than making value judgements, for example: 'Do you realise that there is a hole in your jeans?' instead of 'You don't really intend to go out looking like *that!*'
- express ownership of your thoughts and feelings, so for example: 'I get really upset when you break your promises to me' instead of 'You're p - - - ing me off the way you're always breaking promises'.

Broaden your understanding

Assertive communication

As a class activity, act out the following scenario with one person playing a parent and the other an adolescent. Try role-playing it under three different conditions:

- 1 as if no-one is giving any thought to communicating effectively
- 2 with only the parent using assertive communication
- 3 with both parent and adolescent using assertive communication techniques.

The remainder of the class should act as observers, noting what the actors did, whether they kept to their roles, and any effect that the different ways of communicating had on the relationship and outcome.



> Scenario

It is Saturday. The adolescent wants to go to the movies that evening with friends. He or she has a big assignment due on Monday morning and a hockey match to play on Sunday. The parent does not think that the adolescent can afford to take the time to go to the movies and still do a good job on the assignment.

As well as learning to speak assertively, people with communication difficulties may also be taught about effective listening. Common **barriers to effective listening** include the following:

- Being distracted and only listening with 'half an ear'. The listener may pretend to be listening, giving eye contact and saying 'uh-huh', 'really' and so on at appropriate times, but is really thinking about other things.
- 'Topping' the speaker with a better story. The listener follows the conversation until they hear something they can top with a better story. You might remember telling a friend about a great holiday you had or an accident that a family member had been involved in only to be told about a better holiday or a worse accident!
- Being judgemental: saying, or implying, 'you should know better' or 'I told you so'. In this situation, the speaker usually wants to confide in the listener and find support for something that is worrying them, but instead gets a reminder about what a stupid thing they have done, or how irresponsible they are.

Working collaboratively

Effective communication is fundamental for working with others, either cooperatively or competitively and communication within groups has been studied extensively (see Chapter 8). **Groups** are usually defined as collections of individuals who relate to one another in such a way that there is interdependence between them. In some groups, such as business organisations, schools and sporting teams, roles and responsibilities are predetermined, but in more informal groups, such as a class group that forms to produce a report or a community group that forms to work on a specific project, members must negotiate to establish roles for themselves and others so effective communication is required.

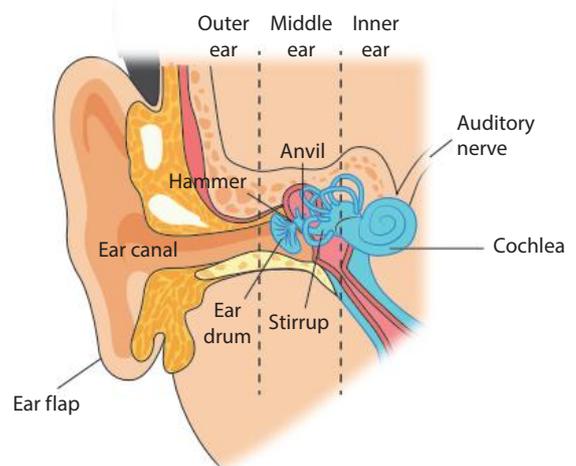
Another aspect of communication that has been studied with groups working collaboratively is the different lines of communication. For example, is there a 'line of command' in which information or instructions start with a leader and then gets passed along other members of the group depending on their level of authority or role? This is a decentralised chain network. At the opposite extreme there is a completely connected network in which all group members communicate with all other group members about matters relating to their role.

Impact of hearing impairment on communication

Not all children learn language easily. A major cause of communication delay or disorder is **hearing impairment**. Hearing impairment is sometimes called deafness or being 'hard of hearing'. It involves not being able to hear spoken and other sounds as well as a person with typically developed hearing.

Around five per cent of the WA child population has difficulty hearing in one or both ears (Zubrick et al., 1995).

Figure 5.7 Structure and function of the ear



Types of hearing loss

There are two types of hearing loss. **Conductive hearing loss** is caused by problems in the outer or middle ear that prevent sounds from being 'conducted' to the inner ear and hearing nerves (see Figure 5.7). The hearing may fluctuate and may affect one or both ears to varying degrees. Conductive problems generally affect the loudness of the sound that is heard. It is usually medically or surgically treatable. A common cause of conductive hearing loss in children is middle ear infection. **Sensorineural hearing loss** is due to a problem in the cochlea or the auditory nerve. The cochlea is a narrowing canal that spirals like a snail's shell. Pressure waves travelling in the fluid in the canal activate different regions and fine nerve fibres carry messages to the brain through the auditory nerve bundle. Sensorineural hearing loss can be acquired or be present at birth. There is usually a loss of both clarity and loudness, that is, the quality and the quantity of the sound is affected. It is possible to have both a conductive and a sensorineural hearing loss. This type of loss is called a **mixed hearing loss**.

Hearing loss varies in type and severity. In some cases, the loss is small and only whispers cannot be heard. In other cases, it is so profound that no sounds can be heard. The extent to which a child is handicapped by a hearing loss depends on the severity of the loss, what caused the loss, how early the loss is detected and at what age the loss has occurred, and the use of hearing aids and cochlear implants to restore hearing ability. Even minor disruptions in hearing, such as ear infections, can lead to problems with language. Hearing impairment is more common in boys than girls, and hearing loss due to ear infections is common in Australian Indigenous children.

Hearing loss that is present at birth or occurs before language has been learned is more disruptive to language development than any loss that occurs after language has developed. In other words, if children have at least some exposure to language, the effect on communication skills is not as noticeable as it is for children who have never heard spoken language. Hearing loss can also be associated with other disabilities that may affect communication skills and language.

Hearing aids and cochlear implants

Hearing aids can assist children with sounds and language that they would not otherwise hear. They cannot restore normal hearing, and this is particularly the case in profound hearing impairment. Traditional hearing aids amplify certain sounds and increase their loudness so they can be heard and differentiated. As individuals have loss of different sound frequencies, hearing aids are tailor-made to suit the type of difficulty experienced by each hearing-impaired person. Older-style hearing aids merely increased the volume and relied on one-tone control, but more recent technology has meant that the aids are more sophisticated, change volume more quickly and generally react to the ever-changing auditory environment. Hearing aids now have multiple-tone controls, tailored to the specific loss.

Cochlear implants (sometimes called a bionic ear) directly stimulate the auditory nerve and have been remarkably successful in assisting people to regain hearing. They were developed in Melbourne in 1978. They work by artificially stimulating nerves in the inner ear to produce the sensation of hearing. Implants are individually tailored since the electrical patterns are different for each person. These differences arise because the electrodes used are not always in the same position relative to the surviving nerves, and those nerves vary in sensitivity to electrical currents. The clinician must measure the lowest and greatest current for every electrode to determine the softest and loudest sounds that will be heard. The different electrodes produce sounds with different pitch. The speech processor combines sounds from the electrodes with different degrees of loudness so that the child 'hears' something as close to the original sound as possible.

Broaden your understanding

How cochlear implants work

Sounds around the child, including language, are picked up by a microphone that is part of an externally worn sound processor. This processor converts sounds into digital signals. The signals are in turn sent to a transmitting coil on the outside of the head. The transmitter coil carries the signal via radio waves through the skin to the implant inside the ear. The implant then decodes the signal, and determines how much electrical current is sent to the electrodes inside the cochlea. (There are 22 electrodes.) The appropriate amount of current is sent to each electrode. The position of the electrodes then determines the pitch or frequency of the sound while the amount of current determines the loudness. Once the nerve endings in the cochlea are stimulated, a message is sent to the brain, along the hearing nerve, and the brain interprets the stimulation as a sound. If they are implanted at a young age and an auditory learning program is begun then the child has the opportunity to develop spoken language alongside hearing peers (Cochlear Ltd, 2005).

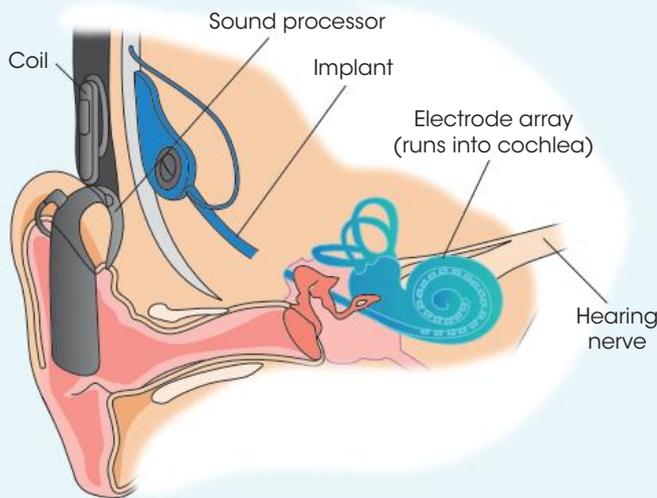


Figure 5.8 Internal components of a cochlear implant

Cochlear implants have been shown to be important in reducing the impairments in spoken language and and writing associated with hearing disabilities. The use of cochlear implants with young children has been accompanied by the measurement of children's educational progress and most research shows that their progress exceeds that of children with conventional hearing aids, and that they are being educated alongside their classmates with normal hearing. Early implantation is especially beneficial. This highlights the vital importance of early detection of hearing impairment so that remediation can begin and exposure to naturally occurring oral language can start as soon as possible and be effective. Early detection and intervention reduce the debilitating effects of hearing impairment and increase the educational opportunities available to these children.

Learning to communicate

The importance of hearing spoken language from birth cannot be overstated. It is well-known that exposure to the language in which a child is growing up is a critical part of learning language. And this occurs very early on in life. Hearing impairment is sometimes not detected until it is apparent that children are not developing language according to the normal milestones, often around nine months of age.

Hearing-impaired children may start to babble, but stop since they cannot hear their own sounds and are unable to modify them to resemble the sounds and words around them. In addition, having a hearing impairment reduces the access the child has to the spoken word and language. We do not always speak face-to-face with children (or adults), and deaf children miss conversations that take place outside their line of sight.

Lip reading

If hearing-impaired children can focus on the speaker's face and lips during conversation, they can attempt to **lip read**, that is, to understand what is being said by the position of the lips, teeth and tongue. But this is generally only successful if they have previously heard the spoken language because many sounds in English are made by similar lip positions (like /p/ and /b/, spoken as puh and buh). Still others are made at the back of the mouth (like /v/ and /s/) and cannot be distinguished on the basis of lip movements.

Early exposure to sign language

Around 95 per cent of hearing-impaired children are born to hearing parents. In such cases, not only may the problem not be recognised early, but there may not be a common means of communication. The hearing-impaired children of hearing-impaired parents are not only likely to be identified early, but they can use sign language as a means of communication. Parents with normal hearing have to learn sign language, a second, unfamiliar language, in order to communicate with their hearing-impaired child unless a cochlear implant is fitted.

Impact of hearing loss on speech and language

The articulation or pronunciation of hearing-impaired children is the biggest clue to their disability. Their speech is often described as unintelligible and is characterised by distinctive patterns of prosody (stress, tone and pitch of language) and the omission or mispronunciation of certain sounds. The extent of the unintelligibility is linked to the severity of the hearing loss. Some of these intelligibility problems disappear with the use of hearing aids. Hearing-impaired children also have difficulties with the grammar of language and with the meanings of words in sentences. This is noticed most in their later inability to achieve 'normal' levels of reading and writing abilities. Despite the use of hearing aids and the use of intensive speech therapy, reading levels of hearing-impaired children usually lag considerably behind those of similar-aged classmates. These deficiencies are directly related to the limited exposure of hearing-impaired children to language in their infant years.

Another way in which a hearing impairment limits reading and writing achievements is through a reduced vocabulary. Therapy and instruction are insufficient to ensure children are exposed to the estimated 3000 words a year a hearing child hears or reads, many of which are new words. Similarly, hearing-impaired children have difficulties with the formal grammatical structure of language. This then impedes their writing and is noted in ungrammatical sentences. In fact, the writing of hearing-impaired children typically shows a repetitive style and simple sentences. Cochlear implants are demonstrating success in enabling children to hear at a younger age, which leads to them reaching higher levels of reading achievement later on than previously noted.

With the speech and language difficulties we have noted, it is not surprising that the communication and social interaction of hearing-impaired children with their normally hearing peers is impacted. Most, Weisel and Tur-Kaspa (1999) found a direct relationship between the speech intelligibility of children with hearing impairments and their acceptance by normally hearing children. In a later study, Most (2007) found there was a relationship between the speech intelligibility of hearing-impaired children and their sense of loneliness, but this relationship only occurred when the hearing-impaired child was the only child with such an impairment in their class.

If children with hearing impairments were integrated into classrooms in groups, the hearing-impaired children were no more lonely than other class members since they could communicate effectively with each other.

Australian Sign Language (Auslan)

Decades ago it was believed that the best way to assist hearing-impaired children was to talk to them, instruct them to lip read, help them use residual hearing (through hearing aids) and help them improve their speech through therapy in articulation. When it became clear that many deaf children could not master spoken language through these means, support grew for the use of manual or sign language as a means of communication and to help the educational development of the hearing-impaired child. Manual or sign systems translate words or simple phrases of spoken language into easily visible hand gestures.

Auslan (like its American counterpart, American Sign Language, ASL or Amslan, and the British version, BSL) is the recognised sign language of the hearing-impaired community in Australia. It is derived from English but the gestures and signs do not have a direct one-to-one relationship with the spoken language. It can be accompanied by speech but the words and gestures are not usually equivalent. Finger spelling, using the alphabet, forms part of Auslan and is used for names, proper nouns and technical terms.



Getty/BRIAN MITCHELL

Figure 5.9 A therapist teaches sign language to a hearing-impaired child.

Broaden your understanding

Examples of Auslan gestures and finger spelling

Go to the Auslan website and look at the gestures used for different words in the dictionary or signbank. Look at the ways letters are formed using finger spelling. Try spelling your name. How easy or difficult do you think it is to communicate using signs and finger spelling?

As around 95 per cent of hearing-impaired children grow up in hearing families, the use of sign language by parents and brothers and sisters is encouraged. Sign language is used widely in schools and other educational settings, but both hearing parents and teachers do have difficulty with some of the subtle grammatical features of the language, with the result that the hearing-impaired children are never exposed to them. Effective early intervention relies on the child communicating with other hearing-impaired children and being exposed to all the grammatical features of the language. Furthermore, knowing Auslan fluently as a first language reduces later difficulties in language, reading and writing.

Total communication and bilingualism

There are two major forms of communication that combine manual and spoken language. **Total communication** involves the use of formal signs, gestures and finger spelling with spoken language. The goal is to optimise the possibility of communication for each hearing-impaired individual, and so the combination may be different for each person. In practice what we typically see is a person signing



Auslan

Figure 5.10 Sign language uses hand gestures for words.



Alamy Stock Photo/RubberBall



age fotostock/John Birdsell

Figure 5.11 Simultaneous signing of a spoken message

while speaking, or, as you may have seen on television, one person signing using Auslan while another person is speaking (Figure 5.11). This system is used in some schools. Other schools favour the system known as **bilingualism**. This involves the deaf child being taught Auslan and spoken English as two separate languages, the way a student in Canada may learn to speak both English and French.

Impact of language delay or disorder on communication

It is not only a hearing impairment that can result in delayed language. It is estimated that around seven per cent of school-aged children aged 4–7 years have

impairments in their language that are not the result of neurological, intellectual, emotional or sensory deficits such as hearing loss (Bishop & Baird, 2001). For this reason this type of impairment is often referred to as a **specific language impairment (SLI)**. Some children with SLI may have difficulties in being able to express themselves correctly and effectively, others may have difficulty in understanding what is being said to them and some may have trouble with both speaking and understanding.

While specialised educational settings, such as the Language Development Centres found in Perth, help children with SLI to make progress with their language, they often struggle with written as well as oral communication. For example, a group of British researchers found that when they compared a group of children with SLI with peers aged 8–10 years, the children with SLI made more spelling errors, used less diverse words and their overall writing was of a poorer quality, with poorer organisation and coherence (Williams, Larkin & Blaggin, 2013).

Not surprisingly, SLI affects children's ability to communicate effectively and as a consequence has an impact on their ability to develop good social relationships. Children with SLI try to talk with their peers much less than children with normally developing language skills. They are also spoken to less than their peers and have much more difficulty breaking into games and other social activities. As well as having reduced interaction with peers, children with SLI have been found to talk more frequently with adults than their peers, presumably because adults are more understanding of their difficulties and will work at trying to understand them.

Bonnie Brinton and her colleagues have suggested another possible reason for the lack of acceptance of children with language difficulties (Brinton et al., 1998). In their study with 8- to 12-year-old children, they found that when disagreements arose in play situations, children with normally developing language were able to negotiate with peers and come to some agreement through persuasion, explanation or compromise. Children with SLI had much more immature negotiation skills and were much more likely to resort to physical means of trying to resolve conflict.

Children with communication difficulties not only interact less with peers, but are also less popular and have fewer friends. This starts from an early age as Bethany Gertner and her colleagues showed (Gertner et al., 1994). Preschool children were asked to point to the photo of the three children in their class with whom they would most like to play, and the three with whom they would least like to play. Children with normally developing language were picked as play partners significantly more often than children with SLI or those with English as a second language.

Communication and relationships

The connection between communication and social relationships is bi-directional. Our communication affects the ways we can initiate and maintain social relationships as we saw with children with SLI, and the nature of our social relationships also affects the way we communicate. We will look at both aspects of the relationship in more detail.

The role of relationships in communication

When we think of communication, we invariably think of ourselves interacting with another person. Certainly there is no possibility of conveying a message if there is not both a sender and a receiver of the message. But is there more to communication than this? Consider the following situation. Tom asks his next door neighbour, 'How was last night's party?' The meaning that Tom's neighbour takes from this question will depend on a few things:

- It was a loud, noisy party that probably kept Tom awake.
- Tom was not invited when he might have expected to be.
- Tom knew it was a special occasion and was probably genuine in hoping that all went well.

It is clear from this that for the meaning of a message to be received, the *context* in which it is delivered must be taken into consideration. An important part of this context is the relationship between the sender and receiver of the communication – in this instance, the speaker and the listener. It is equally clear that there is plenty of room for misunderstanding, even when the speaker and listener agree about the words that were spoken!

As mature language users, we are aware of the importance of the knowledge of the listener when we speak. However, that is not a skill we have from the time we can talk. You only have to listen to a kindergarten child sharing their 'news' with their peers at mat-time to understand that listener awareness is something that develops over time.

'News' may go something like this:

'Me and Tammy were playing in the garden and we had lots of fun chasing each other, then Tammy climbed a tree and she went higher and higher and she couldn't get down. We had to wait for Daddy to come home to get Tammy down.'

In this case, the child has assumed that the listeners know that Tammy is the family cat. Often the teacher will help the other listeners by asking the child, 'Who is Tammy?' It is through these sorts of interactions with parents and teachers that young children learn that others are not mind-readers and that there are some pieces of information that must be provided by the speaker if they are not already shared.

Psychologists have studied the ability of young children to take the listener's knowledge or perspective into consideration by using a **referential communication task**. This type of task often involves two children sitting on either side of a screen with one child acting as the speaker and the other as the listener, as shown in Figure 5.12. Each child has an identical set of objects. The listener has to pick the object from the description given by the speaker.

In an early (1967) experiment by Glucksberg and Krauss that used this technique, the objects on either side of the barrier were blocks with abstract shapes on the upper surface. Speakers had to describe how they had selected and arranged the blocks on their side of the screen so that the listener could produce an identical arrangement on the other side. Many preschool children found this task difficult, even though they understood the purpose of

Figure 5.12 In this referential communication task, the listener must choose the right card from the speaker's description: 'the card with three yellow fish and two red fish'.





Figure 5.13 Good communication skills were needed to construct the dinosaurs' theatre and act out the roles.

the game. The problem seemed to be that the young participants generated names for the shapes based on what the shapes reminded them of, such as 'a coffee pot' or 'mother's dress'. These names did not take into account the listener's perspective. Later studies have shown that by seven or eight years of age, speakers tend to provide more helpful descriptions, pointing out the differences between objects. However, even by adulthood, we do not always get it right. How many of you have heard a conversation similar to this one:

Joe: I didn't ask for a wrench. I asked you to bring me the adjustable spanner.

Dave: But you told me it was the tool with the long handle and a U-shaped top and that's what I brought you.

The role of communication in initiating, maintaining and regulating relationships

Developmental changes in role of communication in relationships

The basis for friendship changes as we develop. For young children, friends are people to play with, and language skills are critical in play. Young children with normally developing language use their language skills to set up a game, establish roles, determine who can play and sort out conflicts.

By adolescence the basis for friendships has changed, but communication remains important, especially for girls. Male friendships are often based on shared interests, while female friendships are more likely to be based on intimacy and trust, and to involve self-disclosure. However, both male and female adolescents are more committed to their friends than younger children and will work at resolving conflicts so that the friendship will survive. While they may be free with criticism, they tend to use negotiation and persuasion rather than power assertion to achieve a win-win outcome (Kaplan, 2004).

Broaden your understanding

Expand your understanding of the role of communication in the relationships of young children

Read the interaction below that was recorded in a pre-primary class. Beside each statement or question indicate if you consider its role was to: (1) set up the game, (2) establish play roles, (3) determine who can play (4) sort out a conflict or (5) other.

Language	Action
L: I'm next. G: You had a turn last time. L: Well, give me a turn next time.	Both Louis and George are holding onto the steering wheel of a 'fire engine' made with large blocks.
I: Would you like to put out the fire?	Ian joins Louis and George.
L: I'll just go and get the fire hats.	Runs to shed. Teacher arrives.
T: You might like to use this for a hose boys.	Teacher offers a calico hose.

Table 5.1 The role of language in friendship and play



G: Is there another fire hat?
 T: I'll see if I can find another one.
 Oh, here you are. Louis got another one.

I: The fire hose is in?
 G: When you have one more play, I'll give you a turn.
 L: Okay ... Right. When there's one more fire. When you hear the fire bell, you have to get off and I have to get on. E-er E-er E-er E-er. That's the fire bell. Here. Stop. Okay you guys. I'll just go to the next fire, and we'll be there for both fires.

L: Lerdle lerdle lerdle lerdle. We're at the fire.
 I: Plug it in, plug it in.
 L: Plug it into this thing. I'll put that in. You put it into there. I'll turn on the water hose. Are we ready to turn on the water hose?
 I: We're ready.
 L: Right, right ... No, I'll turn it on. Psh, psh, psh.
 G: Will we let him in?
 L: All right. Hop on the seat. Hop on the seat, everybody.
 H: Okay. Click.
 G: Click clack.
 L: Then off we go. Lerdle lerdle lerdle.

Louis reappears with hat.

Ian pushes hose between two blocks.

George leaves seat behind steering wheel. Louis jumps on seat.

Louis makes fire bell noise.
 Ian points to fire hose.

Louis directs hose at pretend fire.

Harry comes up to the boys.

Harry joins play.

Source: Adapted from Fletcher, Edelman & Sampson (2000). *Learning through Play, Book 2: Teachers' Roles in Children's Play*. The University of WA and the WA Department of Education.

The role of communication in adult relationships – Robinson's social skills

Robinson (2003) drew attention to three ways we communicate to initiate, maintain and regulate our social relationships as adults. These are shaking hands, terms of address and being polite. Each of these is a form of social communication that requires certain conventions to be obeyed and they may co-occur – we may simultaneously shake hands and address someone – 'Pleased to meet you, Mr Smith'. Shaking hands is non-verbal; how we address someone is a verbal convention.

Shaking hands on meeting someone is a very human act, one not carried out by other animals. It requires two people, face-to-face, to stretch out their, usually right, forearm horizontally, and grasp hands, with the thumb pointing upwards or around the hand of the other. The resulting shaking up and down may be quite brief and weak, or longer and more vigorous. The handshake may be accompanied by the other arm patting the other person's shoulders and the shaker smiling broadly. Such a handshake is also often accompanied by something like 'Great to see you again, mate', signalling that these are people who are already acquaintances or friends. This is also sometimes noted in a two-handed handshake, where both hands grasp one or both of the hands of the other person.

But while we are all familiar with shaking hands when meeting or taking leave of someone, we are not always aware of the social rules or etiquette governing this convention. We need to know what different types of handshakes communicate in order

Figure 5.14 A handshake



Shutterstock/Vagengeim

to decide whether our handshake should be a brief and reasonably weak shake or whether it should be firmer and longer.

People have their own preferred style of shaking hands, with some engaging in such social address with more vigour than others. However, a long, firm handshake may be misconstrued by a new acquaintance. Too much pressure from a strong, large hand to a small, more delicate hand may cause pain to the recipient, so care is needed. A limp handshake may be interpreted as lack of interest or rudeness. There are three main aspects of handshaking to consider:

- 1 the way you extend the hand (palm up, palm down or palm vertical)
- 2 the way you apply the pressure
- 3 the length of time you shake the hand.

If you like someone, you increase the shaking. If you go to a job interview and the interview is over, count the shakes you get. More than four will indicate your interviewer liked you.

Handshakes suggest good will and friendship. In a formal setting, such as when a deal is done, it is a signal of trust and good faith. There are also other forms of greeting and leave-taking, such as hugging, kissing and 'high fives', and war dances like the New Zealand haka. Handshaking originated as a way of showing your opposition you were unarmed, since men typically carried daggers and swords. Offering your hand indicated you were harmless. Handshaking is also reserved for adults, not children. It probably started among the English aristocracy with its higher and lower status boundaries. A handshake would be proffered by someone of equal, usually high, status. A hand may have also been extended by someone of higher status to someone of lower status (but not vice versa), and only rarely. In the UK today, there is still a sense of status associated with the use of handshakes, but as generations become more egalitarian, the handshake may become obsolete in a few decades. Handshakes are more common between males than between females, although as women take on senior business and government roles, they adopt the social conventions associated with males. Finally, handshakes are used more in formal settings than in informal ones.

To reject an outstretched hand is regarded as rude. Western cultures recognise the handshake as a social gesture of greeting (or leaving), a way of communicating some form of mutual respect and even friendship. It is not common to misunderstand the gesture to shake hands but, if in doubt, do not be first to proffer your hand.

Forms of address are the terms by which you initiate contact with another person. Terms of address are sometimes codified in books on good manners and etiquette, which tell you how to address and refer to people of lower and higher social status, people in various familiar and unfamiliar social situations, and people from different cultures.

There are all sorts of forms of address ranging from the very formal 'Good morning, sir', to the casual, polite 'G'day, Fred', and to the informal 'Hi, Blue'. There are forms of address that we use to greet an individual ('How's it going, Davo?') or to a group ('Hey guys!'). We can be gushing ('Hello daaahling'), sarcastic ('Lovely to see you again', when it is the umpteenth time you have seen the person that week and you never really liked the person anyway) and verging on the rude ('Didn't expect to see you today'). At the bottom of all forms of address is the distinction seen in many languages between the informal, familiar form of *you* (*tu* in French) and the formal form (*vous* in French). From the French, this is sometimes called the T/V distinction. While we no longer have this distinction linguistically in English, as *thou* and *thee* are no longer in use, it is useful in working out what form of address is suitable for the person you are talking to.

Psychologists have studied three patterns of communication – mutual T, mutual V, and a T/V relationship, where one party sends V and receives T and vice versa. In ancient

times, the nobility exchanged V while common people exchanged T. Higher ranking people received V and addressed lower ranking people with T. For example, in earlier times an exchange between a nobleman and his servant may have gone like this:

Servant (using V form): Excuse me, my lord, Sir Garwain is at the door and wishes an audience with you.

Nobleman (using T form): Thank you, Smith. You may show him in.

As societies became more mobile and social relationships less hierarchical, the distinction became difficult to maintain. Explanations for the three patterns rest on power for the asymmetrical T/V relationships and interdependence for the mutual T relationship. Mutual V is the default and formal form of address. For example, a parent seeking a parent-teacher interview might say: 'Excuse me, Mr Thompson, but would it be possible for us to have a meeting to discuss Ashley's progress?' To which the teacher might reply: 'Of course, Mrs Jeffries. Let me check my diary.' (It is likely that once the teacher and parent have spent some time conversing they will have a mutual T relationship and be using first names.)

In Western societies these days social relationships are communicated through the use of Title and Last Name (TLN) or use of First Name (FN). But these verbal differentials are fast disappearing. In developing acquaintances or relationships, we move to first name very quickly, and then in Australia, we often move to an abbreviation or nickname! In the case of universities, not very long ago, students addressed their lecturers as Doctor or Professor, plus last name. Nowadays, students quickly use the first name in their face-to-face interactions or emails, although some older students are more deferential and ask what an academic would prefer to be called.

Language is a powerful marker of social relationships and social interaction. Marking mutual interdependence or status differences is a skill we have to learn. We need to recognise asymmetrical social relationships and how to manage them with our language in order not to cause offence and to communicate effectively. There is a tendency to start with informal forms of address in situations of asymmetrical status and this can be inappropriate or unwelcome. It is still recommended that, if you are unsure about status differentials, you should use a more formal form of address until the addressee signals otherwise or the relationship develops.

Politeness is behaviour that is considered courteous and considerate. Robinson considered that it involves rational reasoning as two components must be taken into account: the chances of the behaviour causing loss of face (humiliation or loss of social standing) to either the speaker or the listener, and the likelihood of achieving a desired outcome. Consider the following ways of asking someone to shut the door: 'John, would you be so kind as to shut the door?' 'For goodness sake, do you live in a tent?' The former question does not involve loss of face to the listener unless spoken in a sarcastic tone of voice, and probably would not cause loss of face to the speaker. It is also likely to be acted upon if perceived as a polite request. The second question is more likely to cause loss of face and embarrassment to the listener and is less likely to be acted upon.

Robinson cites Brown and Levinson (1987) as proposing three determinants of the choice of behaviour:

- perceived social distance between the speaker and listener (i.e. their relative standing in society)
- perceived power differential between the speaker and listener (i.e. their relative levels of control and influence)
- perceived ranking of the kind of imposition involved (i.e. the relative amount of time, resources and so on required by the particular request compared with other possible requests).

Broaden your understanding

Brown and Levinson's determinants of polite behaviour

Imagine you are talking with each of the people listed below. You are wanting to pull out of doing a job that you had previously agreed to do. Indicate in the boxes whether you think they are of higher, lower or equal social status to you, whether you think they have higher, lower or equal power to you and how much of an imposition on them you think your request will be: large, moderate, small. Then on a piece of paper, write how you would phrase your request to each of them. Indicate whether your request is polite: will it cause either your listener or yourself to lose face? Are you likely to receive a positive response to your request?

Listener	Social distance	Power differential	Imposition of request
School principal			
Coach of your sporting team			
A younger sibling			
Your best friend			

CHAPTER SUMMARY

Communication

What is communication?

Forms of non-verbal communication

- Body language
 - Facial expressions
 - Gestures
 - Touch
 - Physical distance
 - Physical appearance
 - Smell

Communication through speech

- Effective communication
 - Listener and speaker attributes
 - Active listening
 - Assertive communication
 - Working collaboratively

Impact of hearing impairment on communication

- Types of hearing loss
 - Conductive
 - Sensorineural
 - Mixed
- Hearing aids and cochlear implants
- Learning to communicate
 - Lip reading
 - Early exposure to sign language
 - Impact of hearing loss on speech and language
 - Australian sign language (Auslan)
 - Total communication and bilingualism

Impact of language delay and disorder on communication

- Specific language impairment (SLI)

Communication and relationships

- The role of relationships in communication
- The role of communication in initiating, maintaining and regulating relationships
 - Developmental changes in the role of communication in relationships
 - Roles of communication in adult relationships
 - Robinson's social skills
 - Shaking hands
 - Forms of address
 - Politeness

Check your psychological understanding

Terminology

Define the following terms:

- 1 Assertive communication
- 2 Effective communication
- 3 Active listening
- 4 Conductive hearing loss
- 5 Specific language impairment

Multiple-choice questions

- 1 In communication failure, who or what do adults think is at fault?
 - A The speaker
 - B The listener
 - C The language being used
 - D The experimental materials
- 2 Children with hearing impairment learn language better if:
 - A their parent or parents talk to them.
 - B they are diagnosed early.
 - C they are given hearing aids.
 - D all of the above.
- 3 Hall (1966) described the social distance zone as being the distance we typically keep with:
 - A close friends.
 - B a lover.
 - C the shopkeeper.
 - D grandparents.
- 4 Cochlear implants function by:
 - A stimulating the auditory nerve.
 - B amplifying specific frequencies.
 - C allowing the wearer to hear normally.
 - D recording a speaker's words.
- 5 Auslan is based on:
 - A finger spelling.
 - B American Sign Language.
 - C gestures and signs.
 - D separate signs for every word in English.

- 6 A mutual V address pattern indicates that:
 - A both the speaker and the person being addressed are friends.
 - B the speaker has higher social status.
 - C the speaker wants to flatter the person being addressed.
 - D the speakers are 'playing safe' and using an inoffensive form of address.

Apply and relate psychological understandings

Short-answer questions

- 1 Indicate why it is important to learn about how gestures are used when you are planning a trip to a foreign country.
- 2 Describe the non-verbal behaviour that would be important to consider if you were carrying out an interview in which you wanted to present yourself as an approachable person.
- 3 Indicate how you act and talk when having a conversation with your school principal and provide the reasons for this way of behaving.
- 4 Describe two types of hearing loss.
- 5 Indicate how hearing-impaired children can be helped to communicate.
- 6 List the factors that affect our 'comfort distance' when we are with other people, giving examples of each.

Extended-answer question

Tom has applied for a position as a technician with an IT firm. He has the technological skills for the position but is unsure how he should behave in the interview. Based on your knowledge of verbal and non-verbal communication and on Robinson's social skills, provide him with tips as to how to behave to optimise his chances of gaining the position.

UNIT 2

UNIT 2

CHAPTER 6

Self: Developmental psychology

Key knowledge and understanding

Theories of human development

Aspects of human development across the lifespan

- Cognitive development
- Physical development
- Social development
- Emotional development
- Research in action - Measuring developmental changes with age

Nature/nurture debate

- Twin studies
- Adoption studies
- Intelligence as measured by intelligence quotient (IQ)

Role of play in physical, cognitive, emotional and social readiness and skill development

Developmental psychology

Theories of human development

Think back to your earliest clear memories of yourself. No doubt, you've changed since then. You can probably list ways you have changed physically: growing taller, changing body shape, getting better coordinated and so on. You will also have changed intellectually and socially. Think also of the things you do every day such as getting up out of bed and having a shower, eating breakfast, thinking about the school day, talking to friends, texting a family member, planning the weekend and daydreaming. All of these involve psychological or mental processes.

These processes have also developed as you got older – you could not do any of these on the day you were born. Some of these processes are innate or biological and some are influenced by the environment, the family in which you live and the friends and acquaintances you have.

This chapter will explore why some processes are alike across all people and why some are unique to us as individuals. It will look at the processes that help us think, to interact with others and how we experience different feelings. It will also consider why some changes in psychological processes are permanent and some are only temporary.

The field of **human development** is concerned with changes in people that begin at conception and continue throughout the lifespan. Most of the studies conducted by developmental psychologists start with birth but it is important to remember that changes also occur *in utero*, before birth. For example, it is well-known that mothers who drink alcohol during pregnancy can cause harm to the unborn child, most notably foetal alcohol spectrum disorder (FASD), a condition that is characterised by stunted growth and brain damage in children.

Broaden your understanding

Telethon Kids Institute

The Telethon Kids Institute in Perth has a large world-class research program on FASD in the Kimberley and Pilbara – find out more about it at their website and how FASD can affect children and their physical and brain development.



Psychologists have, for many years, produced theories of human development. A **theory** aims to:

- describe what we know
- explain what we observe
- provide testable predictions (hypotheses).

Psychologists who study human development therefore describe, explain, predict and understand the ways in which our thinking, feeling and behaviour change with age. Human development involves relatively permanent changes, so it does not include temporary and reversible changes such as changes in attentiveness following lack of sleep or changes in appearance following hair dyeing! Not all changes are growth. While some aspects of our lives, such as our vocabularies, continue to grow throughout most of our lives, other aspects, such as physical strength, perceptual speed and memory, show growth followed by declining ability (see Figure 6.1). So, human development should be seen as the balance of positive and negative changes in our lives as we get older.

In general, human development looks at relatively permanent changes that take place in most individuals as well as those that differ between individuals.

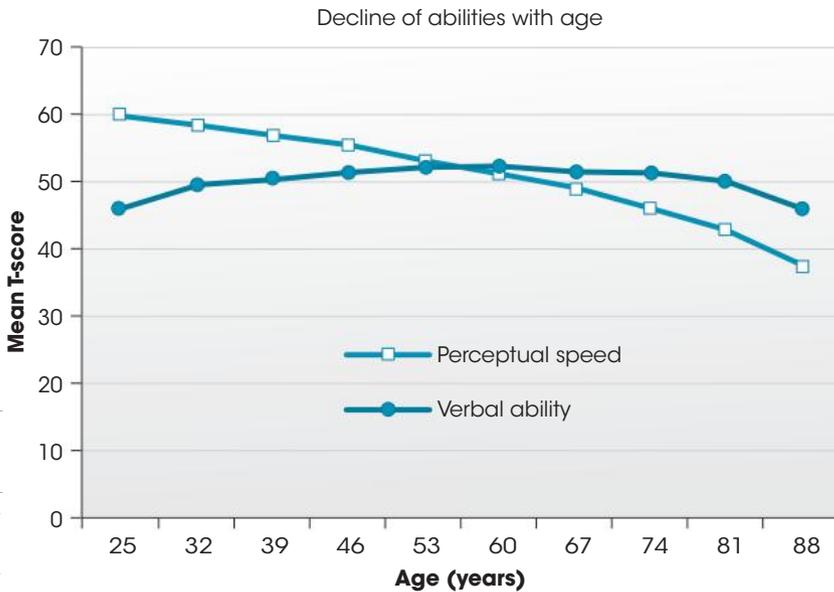


Figure 6.1 Our vocabularies grow for most of our lives, but our perceptual speed declines from our early 20s.

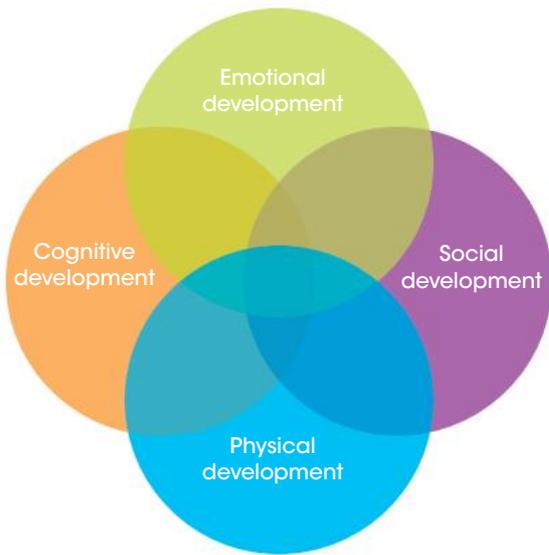


Figure 6.2 Physical, emotional, cognitive and social development occur both separately and together.

Developmental psychologists study ‘normal’ or typical development in contrast to ‘abnormal’ or atypical development, although the study of abnormal development can provide clues about what is considered normal and also what kind of help can be given to children who are not developing normally. They may be delayed, or slow, in their development of, say, language and require the services of a speech pathologist or they may have a permanent disability such as FASD, which requires more specialised long-term treatment. Research studies provide answers about how to maximise normal development, how to recognise abnormal development and how to support and treat, and possibly change for the better, such development.

Aspects of human development across the lifespan

Because people change in so many ways, development is often studied within four broad but interlinked areas: physical, cognitive, social and emotional.

Physical development covers changes in size, proportion, appearance, motor skills and coordination. **Cognitive development** involves changes in abilities such as thinking and reasoning, memory, attention, imagination and language. **Social development** refers to changes in relationships and interaction with other people and **emotional development** refers to changes in the way we feel and how feelings are expressed. While these four areas are often divided for convenience, you need to remember that they are not always distinct and may overlap and interact. Think, for example, of how language skills and a sense of humour (cognitive abilities) affect your ability to form friendships (social ability).

Physical development should not be separated from psychological development and your physical state can influence how you behave, think or feel. When you are tired or stressed, for example, you may behave or act in a way that you would not normally do, such as losing your temper with your friend or a parent. The areas of psychological make-up are usually kept separate so that the study of them becomes easier. But it is important to remember that they are interconnected.

What is intriguing to most people, and is the area of study for developmental psychologists, is how people develop and what causes their development. The focus is mainly on childhood because this is the time in the lifespan when the greatest changes occur and set individuals on their path through adolescence and adulthood to old age. This chapter describes in detail early development rather than changes that occur in the later years of life.

Psychologists usually divide the lifespan into 'stages' based on age, mainly for convenience when describing psychological changes (see Table 6.1).

Lifespan stage	Ages
Infancy	Birth to 2 years
Childhood	2 to 10 years
Adolescence	10 to 20 years
Early adulthood	20 to 40 years
Middle adulthood	40 to 65 years
Older adulthood	65 years and beyond Note that given the differences between people aged 65 and those aged 90 years, some researchers such as Mary Luszcz at Flinders University (e.g. 1992) now divide older adulthood into three spans, namely, young-old, 65–74 years; middle-old, 75–84 years; and old-old, over 85 years.

Table 6.1 Lifespan stages and ages

The ages are only approximate and should not be seen as definite starting and end points as we know people vary in when they achieve psychological changes. For this reason, some developmental psychologists are reluctant to use these labels and ages. Not all cultures have all stages and, for example, in some Indigenous cultures, adolescence is not regarded as a separate stage and children move from childhood to adulthood at puberty and this is recognised by an initiation ritual. Because we concentrate on human development, the aspects to be considered first are those that develop in childhood.

Cognitive development

Cognitive development refers to the development of perception, language, memory, problem solving, reasoning, learning, information processing, and other aspects of brain development compared to an adult's capacities. In other words, cognitive development is the emergence of the ability to think and understand. It has led to the creation of theories that describe, explain and predict these behaviours as children grow up.

Siegler (1998) pointed out that there are many approaches that describe and explain children's cognitive development. Cognitive development can be regarded as occurring simply as the child gets older and is more or less automatically capable of more complex language and mental abilities. On the other hand, some theorists believe that children learn through interaction and collaboration with others. Still other theorists describe cognitive development as occurring through the operation of biological constraints and biases that limit what is learned and how it is learned. In this latter view, the child is regarded as an incomplete, inadequate or incompetent version of an adult (Garton, 2004). This may underestimate what young children are capable of learning and how they go about thinking.

All the various theories of cognitive development describe the development of knowledge and thus how children broadly learn under various conditions. Psychologists study cognitive development through experiments that aim to show how children learn something – a concept or a word, for example – either with increasing age, by testing children of different ages, or within the experiment itself.

Figure 6.3 Three generations of a family having fun together



Shutterstock/Monkey Business Images



Figure 6.4 Jean Piaget

It can be argued, however, that such experiments do not demonstrate cognitive development; rather, they demonstrate cognitive change. Thus, studies of cognitive development look for age-related changes in thinking and hence try to predict development and its course, speed and direction. The mind is considered in isolation regardless of what children need to know and of the experiences that might change the nature and use of the knowledge that is being acquired. Cognitive development is, in summary, an individual progressive acquisition of knowledge that is predictable and able to be described accurately (Garton, 2004).

It is impossible to discuss cognitive development without mentioning Jean Piaget (1896–1980), a world-famous Swiss biologist and psychologist. Piaget created a theory of cognitive development that described the basic stages that children go through as they mature mentally. He believed that children are like ‘little scientists’, actively trying to make sense of the world rather than simply soaking up information passively. Piaget turned to the study of children after his early fascination with molluscs where he was curious to understand how the structure of the mollusc, its shell, helped it adapt to its environment. Piaget then turned his attention to the study of mental ‘structures’ – knowledge about things in the environment and knowledge of how to do things. He knew that anatomical structures are inherited and wondered if mental ones were too. Where

do notions of honesty come from? How can we do mental arithmetic?

Piaget’s initial studies of children involved questioning them in early IQ tests and he became intrigued with the wrong answers that children gave. From his analysis, he concluded that children’s minds were organised differently to adults’, not that young children have less knowledge than older ones or adults, but rather their knowledge was of a different kind. Thus began Piaget’s lifelong fascination with the development of children’s minds.

Piaget proposed four stages of cognitive development (see Table 6.2). Many of these stages came from Piaget first observing his own children and then by conducting many experiments on other children. The ages are approximate only but the sequence describes a series of qualitatively different, and more advanced, ways of thinking, moving from the concrete and immediate to more abstract ways of thinking using language and numbers to represent people and objects mentally.

Piaget (1951, 1952) began studying children to discover the mental structures that help them adapt to the complicated world in which they are growing up. Adaptation requires that young children take in new information and experiences to enable them to adjust to the world. One of the key concepts in Piaget’s theory is the use of **schemas**. According to Piaget, schemas are mental structures or concepts that help people organise and interpret information. As experiences happen, this new information is used to modify, add to, or completely change previously existing schemas.

Stages of cognitive development	Age	Description
Sensori-motor stage	Up to 2 years	An infant's knowledge of the world is limited to his or her sensory perceptions and motor activities. Behaviours are limited to simple motor responses caused by sensory stimuli.
Pre-operational stage	2–6 years	A child learns to use language. During this stage, children do not yet understand concrete logic, cannot mentally manipulate information, and are unable to take the point of view of other people – they are egocentric .
Concrete operational stage	7–11 years	Children gain a better understanding of mental operations. Children begin thinking logically about concrete events but have difficulty understanding abstract or hypothetical concepts.
Formal operational stage	12 years–adulthood	People develop the ability to think about abstract concepts. Skills such as logical thought, deductive reasoning and systematic planning also emerge during this stage.

Table 6.2 Piaget's stages of cognitive development

Piaget found such schemas even from birth and as the baby acts on his or her environment, each schema incorporates objects and events. This Piaget called **assimilation** – the schema takes in a new experience and thus the baby builds up his or her knowledge. The existing schema is used in a new situation. For example, a child uses a stick to hit wooden bricks and later uses the stick to stir up water in a bucket. Furthermore, schemas also show **accommodation** whereby they change to incorporate new experiences. Schemas become more complex. For example, a young girl may have a schema about a type of animal, such as a cat. According to her schema, cats are furry and have four legs. When she first encounters a dog, she might initially believe that the animal is a cat. Once she learns that this is actually a dog, she will revise her schema for cats and create a new category for dogs.

Physical development

Children's physical development is well-documented and we have all seen charts that show the developmental milestones that babies and young children achieve as they learn to crawl, sit, stand and walk. The basic sequence of physical development is the same for everyone, although the average ages at which these take place vary. Do you know what age you were when you learned to walk?

Children not only develop more skills, but these skills are executed more fluidly and flexibly and, at the same time, children have the opportunity to become specialised in certain skills, as seen in participation in physical activities or sports. We can distinguish between gross motor skills, which are the bigger movements – such as crawling and sitting – that use the large muscles in the arms, legs, torso and feet, and fine motor skills that are smaller movements – such as picking up small objects or holding a crayon – that use the small muscles of the fingers, toes or wrists. We will look at the role of motor skills in participation in play and sport later in the chapter.

Other physical changes that occur across the lifespan include **puberty** and **menopause**. The physical signs of puberty include the development of breasts and the onset of menstruation in girls and the development of body hair and the enlargement of the penis and testes in boys.



Figure 6.5 Success – early sitting!



Figure 6.6 Even more success – standing!

Table 6.3 Motor skill development from infancy to adolescence

Age (years)	Skills
Up to 2 years	Sitting, crawling, standing, walking
2–6	Running, skipping, throwing, catching, hitting (such as in tennis), swimming, balancing
7–10	Combining movements and skills and higher level performance in ball games, dance, aerobics
11–12	Development of specialised skills for particular sports, such as for gymnastics, athletics, football (goal kicker), netball (goal defence)

Puberty is sometimes referred to as the growth spurt as adolescents gain weight and grow taller. Girls have typically achieved puberty by age 15 and boys by 17 years, although there is a great variation. Children in the 21st century enter puberty earlier than in previous generations and these generational changes are known as **secular growth trends**. Such changes have been reported in countries like Australia where there are higher standards of living and better healthcare. (e.g. Loesch, Stokes, & Huggins, 2000).

Menopause is a major biological change for women, as it represents the cessation of periods and, hence, the loss of ability to have children, at least naturally. These reproductive changes occur over a number of years and at different ages, although usually between the late 40s and late 50s in the majority of women. There is a decline in oestrogen, the primary female hormone, and with that an associated increased risk of osteoporosis, cardiovascular diseases and dryness of the skin. In men, the reproductive changes are less dramatic and while sperm production declines, there is still potential for fathering a child. The prostate gland that produces semen does change – it enlarges and stiffens, making urination difficult.

Social development

Social interaction is fundamental to human behaviour and development. As children develop and think more about others, such as parents, friends and teachers, they try to interpret their behaviours, feelings and thoughts and how these influence their own behaviours, actions and thoughts. In this way, they inevitably make judgements about these people. We rely on others' behaviour and actions, their talk and communication styles to find out more about them – their personalities, their goals, their feelings and their thoughts. We also rely on the reactions of others to our behaviour, from the way we interact and the way we talk to others, in order to make judgements about ourselves.

We make judgements about others based on the way they present themselves; for example, in a shop, in a job interview, or at school. Social interaction comprises assessing and evaluating others using the information available, such as the way they talk, the way they use hand gestures, the way they react to funny situations or to disasters. All of these judgements are gained, changed and refined with experience. We predict behaviours based on the current situation as well as previous experience. This requires noticing, noting, remembering and recalling information about the social environment. This is social cognition: namely, understanding the world around us through watching, interpreting and remembering social information and then using it to assess ourselves and others. As we develop and our social experiences widen, these processes become more automatic. So, social cognition refers to something that occurs as a result of interaction with others, taking advantage of their different perspectives and experiences.

How social cognition develops has been the subject of much debate, especially among theorists. Some eminent ones, like Jean Piaget and Lev Vygotsky (1896–1934), argued for quite different processes. Piaget argued that children generally find out about the world alone. He did not argue for a role for social interaction in children's development. However, he did point out that when similar-aged children disagreed between themselves about the solution to a set of moral problems, one of which was accidental and one of which was deliberate, they were able to see different views put forward and argued by the other children. Such an ability to take others' views into account enabled children to understand different perspectives and led to them adopting a different, and perhaps more sophisticated, type of reasoning. How this was studied is illustrated in the dilemma example below.

Broaden your understanding

Social cognition in children

This is one of Piaget's moral conflicts and it examines social cognition in children. The scenario relates to clumsiness. Can you work out which girl is naughtier and deserves to be punished?

'There was once a little girl called Marie. She wanted to give her mother a nice surprise and cut out a piece of sewing for her. But she didn't know how to use the scissors properly and cut a big hole in her dress.

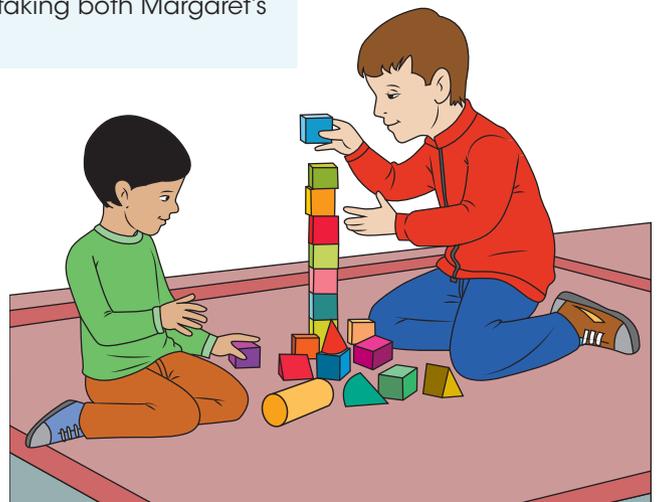
A little girl called Margaret went and took her mother's scissors without permission one day when her mother was out. She played with them for a bit. Then, since she didn't how to use them properly, she made a hole in her dress.'

The answer is Margaret, since she deliberately disobeyed her mother. Young children will often answer Marie, as she made a big hole. They, thus, focus on the consequences of the cutting. The correct answer requires taking both Margaret's and others' perspectives into account.

Vygotsky, on the other hand, argued that children learn from others who have greater knowledge than themselves. His theory is about how children take this learning and make it into something that they can use themselves (Garton, 1992, 2004). The emphasis is on collaboration, particularly between children and adults (often parents or teachers), other children and more competent peers. Instruction and learning are two key concepts in Vygotsky's theory.

Vygotsky's theory assumes that cognitive development co-occurs with other forms of development and all these take place in a social and cultural context.

Figure 6.7 An example of learning in social interaction



The central mechanism for learning is the transfer of responsibility for the successful achievement of a goal or solution to a problem from a more expert participant to a novice participant.

Both Piaget's and Vygotsky's theories emphasise the importance of talk between participants as a critical way by which information about the task and its solution and the respective roles of the participants is conveyed (Garton, 1992). During collaborative problem solving, if both participants share a common conception of the problem and how to solve it, then they can work successfully on the task. Similarly, any sort of conflict between participants can be resolved through communication including argument and disagreement, negotiation and discussion. Social regulation – as seen with discussion about role division and allocation (who does what in solving the problem), as well as planning and talking about how the solution might be achieved – may also facilitate problem solving.

It can be seen that very different theories can be used to explain similar social behaviours and phenomena when children are developing, but there is a general recognition that children's social development and their cognitive development (that is, their learning) are interrelated and improvements in one area can lead to changes in the other.

Emotional development

Emotions can be defined as strong feelings. Emotional development is a complex task that begins in infancy and continues into adulthood. In Chapter 5, we noted that facial expressions are a very powerful form of non-verbal communication. The first emotions that can be recognised in babies, often in facial expressions, include joy, anger, sadness and fear.

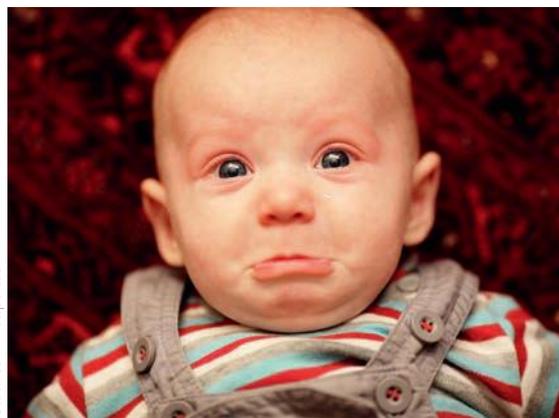


Figure 6.8 Different emotional facial expressions

Later, as children begin to develop a sense of self, more complex emotions like shyness, surprise, elation, embarrassment, shame, guilt, pride and empathy emerge. Primary school children are still learning to identify emotions, to understand why they happen and how to manage them appropriately. As children develop, the things that provoke their emotional responses change, as do the strategies they use to manage them.

Very young children's emotions are mainly made up of physical reactions (such as heart racing) and behaviours. Children then develop the ability to recognise feelings. Their emotions are also increasingly influenced by their thinking. They become more aware of their own feelings and better able to recognise and understand those of other people. An emotional reaction of a 10-year-old is likely to be far more complex than that of a 3-year-old. The experience of emotion includes several components:

- physical responses (heart rate, breathing)
- feelings that children recognise and learn to name
- thoughts and judgements associated with feelings
- action signals (a desire to approach, escape or fight).

Emotional development builds on social development through recognising and expressing feelings. By building relationships with others around them, children are building expectations about their world and the people in it.

Children develop their social and emotional skills through a wide network of social relationships including with other adults and children. Supported by their increased language, thinking and planning capabilities, young children are more able to wait for things they want, to negotiate solutions to everyday problems, and make decisions for themselves and with others. Social and emotional wellbeing is also linked to enhanced academic achievement in school (Dix et al., 2011).

In general, during children’s early development, physically, cognitively, emotionally and socially, most parents keep watch to make sure that their child is developing normally: that he or she sits independently and starts to walk and talk at a similar age to their friends’ children. If they are worried, they can have their child’s development checked by a professional such as a child health nurse, who can compare his or her development with age norms provided in a developmental scale. Look at Table 6.4 to see the changes in language development that can be expected to occur between the ages of 18 months and 3 years. You will note that there is a range in age at which different developments are expected to occur.

Language development 18 months to 3 years	
18 months to 2 years	<ul style="list-style-type: none"> Says about 50 words, but can understand many more Learns that words have meaning Echoes single words that are spoken by someone else Says names of toys and familiar objects Uses two- to three-word sentences, such as ‘Daddy bye-bye’ and ‘All gone’ Hums or tries to sing simple songs Listens to short rhymes or finger-plays Points to eyes, ears or nose when asked Uses the words ‘Bye’, ‘Hi’, ‘Please’, and ‘Thank you’, if prompted Understands simple requests, such as ‘Give Mummy the ball’
2 to 3 years	<ul style="list-style-type: none"> Identifies up to 10 objects in a book when objects are named Uses simple phrases and sentences Responds when called by name Responds to simple directions Starts to say plural and past-tense words Enjoys simple stories, rhymes and songs Uses two- to three-word sentences Enjoys looking at books Knows the name of at least seven body parts Repeats words spoken by someone else Vocabulary expands up to 500 words

Table 6.4 Changes in language skills in the early years

This range in normalcy can be seen in all aspects of development. Taking the example of puberty, discussed earlier, you may be aware of boys in your class who developed facial hair while still at primary school. There will be others who may not develop a sign of it until after they leave secondary school.

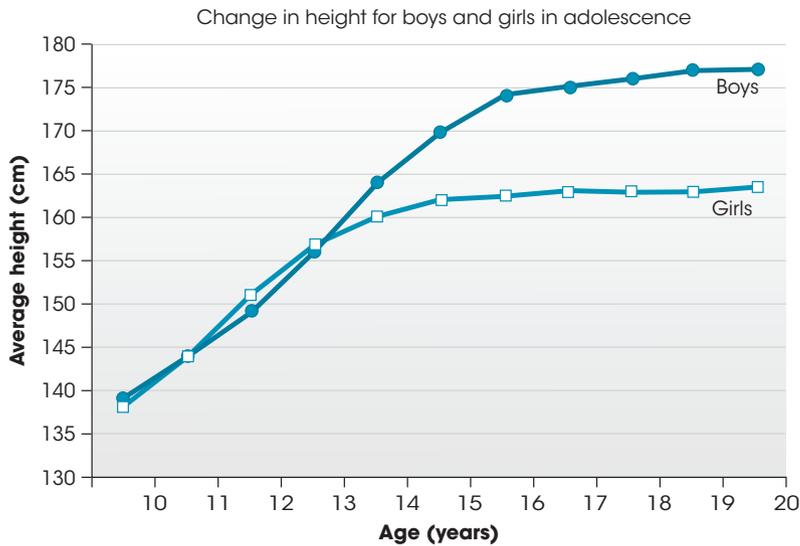


Figure 6.9 Are you of average height for your age and gender?

in your year group in classes across Australia, we would probably find that most of your class would be considered of **average** height and weight. In this way, you can see that there is range of height and weight that is considered normal when we consider a large number of people.

Studies of normal development can provide evidence of how change and development occur. You will probably also have noticed that there are differences between the males and females in your class in height and weight, and that if you worked out the average for males and females separately, the average boy would be heavier and taller than the average girl. For that reason, when psychologists produce developmental scales or checklists that give the level of development expected for each age, they may provide **norms** (that is, lists of what is average) for males and females separately.

We have talked about normal development and changes with age, but we need to find ways to measure these. One way is to follow the development of a group of individuals across their lifespan, testing them at regular intervals. This is known as **longitudinal research**. For example, we could follow a group of children who are five-years-old in 2017 and test them every five years on whatever aspect of development interests us – their memory, their maths ability or their general knowledge. This would enable us to see what is normal for people of different ages and also to look at differences between individuals.

However, as you can probably imagine, there are several major problems with this research design. First, we would have to wait many years to have the answer to our question about changes with age – in fact, we may not survive long enough to find out the answer! Another problem is that people tend to move around a lot, so it is very difficult to follow any group of people over a long period of time. Therefore, over time, there would be many drop-outs from our study. A third major difficulty is that if we have the same group of people taking the same test every five years, they may become ‘test-wise’ and changes that we observe with age may be due to increased familiarity with the test. Yet another difficulty is that this type of research is very expensive to conduct.

Because of these types of problems, researchers have tried to answer the question of changes with age in a different way. They have looked at groups of people of different ages at the same point in time, that is, they have used a **cross-sectional design** rather than longitudinal design to look at changes with age. These groups of people are chosen to resemble each other in aspects of their lives, other than age, so that differences between them on whatever we are measuring are assumed to be due to age differences. However, making sure that these different age groups or **cohorts** are the same apart from age can be difficult, and this is the major weakness with the cross-sectional design.

Research in action – measuring developmental changes with age

We can work out what is average or **normal development** by tracking change in large numbers of individuals and applying research methods.

By ‘normal’ we mean what is most common. Look around your classroom. Your classmates will vary in many ways, such as in height and weight, and if you were all measured you could work out what was the most common height and weight for your class. Some members of your class would be above or below average. However, if we looked at students in your class and compared them with students your age or

The problem can be seen by looking at Figure 6.10. This graph shows the height of different cohorts aged from 20 to 70 years. You will notice that people appear to be shrinking as they get older. Do you think that this is really the case, or can you think of some other reasons why the 20-year-olds look taller than 70-year-olds?

While individuals may ‘shrink’ a little in their later years, many of these age-group differences can probably be explained by better nutrition early in life for people in the younger age groups. Sometimes we can get a very different idea about development in a particular area when we compare the information we get from cross-sectional and longitudinal studies.

This was pointed out by Schaie (1994), who looked at age differences in various abilities using both longitudinal and cross-sectional designs. Figure 6.11 shows that the cross-sectional research would lead us to believe that people’s verbal ability (ability to understand ideas expressed in words) drops off quite quickly from about 35 to 40 years of age. Yet the longitudinal research suggests that verbal ability continues to improve into the mid-50s and only slowly drops off after that.

The cross-sectional results are likely to be due to cohort effects. People in the younger age groups are likely to have had longer and better educational opportunities than those in the older cohorts. These comparisons make us aware that we have to be careful to take research design into account when interpreting studies of human development, particularly those involving different age groups.

Nature/nurture debate

You may have thought that you are like your mother in looks, skills or temperament, or perhaps you think you are more like your father. Over the years people have tried to determine the relative importance of nature and nurture to our development. That is, they have tried to determine the extent to which our development is caused by what we inherit genetically from our parents (nature) and what is the result of environmental influences, both physical and social, in our world (nurture). This is called the **nature/nurture debate**.

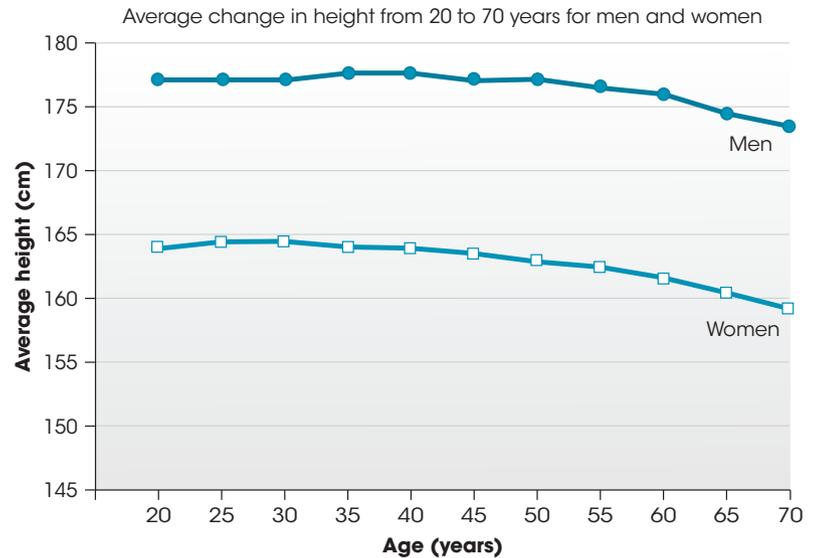


Figure 6.10 Are people shrinking as they age, or is there some other reason why today’s 20-year-olds are taller than today’s 70-year-olds?

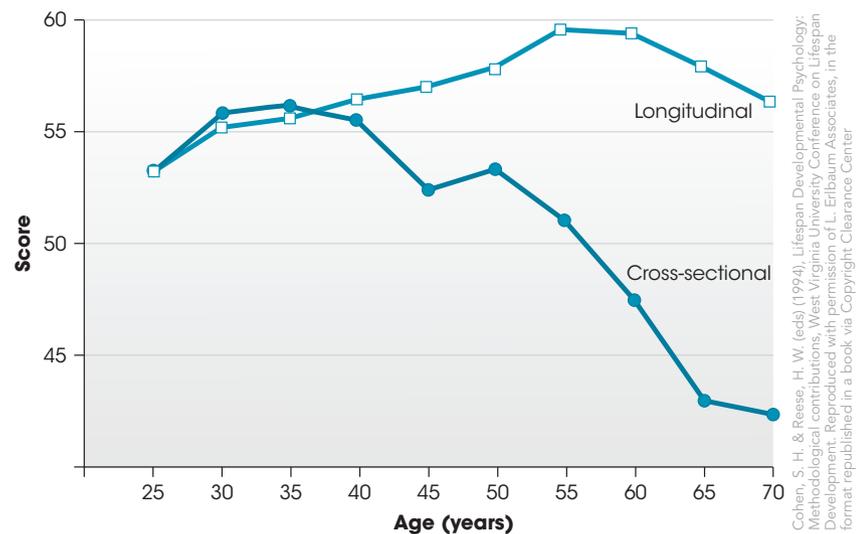


Figure 6.11 Cross-sectional and longitudinal trends in verbal ability (from Schaie, 1994)

Cohen, S. H. & Reese, H. W. (eds) (1994), Lifespan Developmental Psychology: Methodological contributions, West Virginia University Conference on Lifespan Development. Reproduced with permission of L. Erlbaum Associates, in the format republished in a book via Copyright Clearance Center

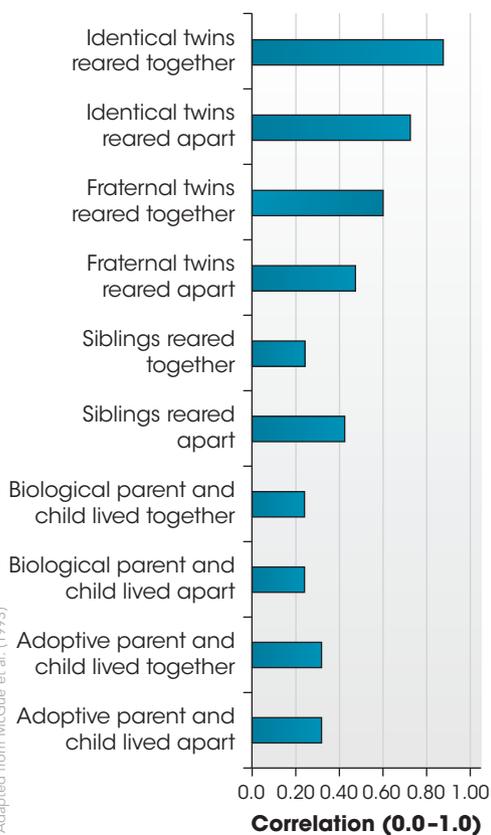


Figure 6.12 The extent to which IQ scores of family members correlate with one another (adapted from McGue et al., 1993)

Twin studies

Twins can be either identical or fraternal. If they are identical, they have developed from the same fertilised egg that has split. They have identical genes, that is, the same inherited material. Fraternal twins develop from two separate fertilised eggs that develop in the womb at the same time. They are no more genetically alike than ordinary brothers and sisters, sharing approximately 50 per cent of their genes.

Psychologists have looked at whether identical twins are more alike in characteristics such as intelligence and personality than are fraternal twins. If identical twins are found to be more alike on some trait than fraternal twins, then heredity is considered to play an important role in the development of that characteristic, since both fraternal and identical twins are thought to share similar environments.

A theoretical article by Sandra Scarr (1992), drawing on many previous studies, found that while heredity played a role in determining the degree of extraversion/introversion (outgoingness compared with shyness) displayed by people, it played an even bigger role in determining their level of intelligence, and that genetically unrelated siblings, reared from infancy to adulthood in the same family, do not resemble each other at all in IQ.

One problem with naturalistic studies of this type is that there is no way to ensure similarities in environment. It is possible that identical twins are treated more alike than fraternal twins by their parents, and therefore share more similar environments than fraternal twins, in addition to having identical genes. It is obviously not ethically nor practically possible to split up pairs of twins to be raised in different environments in order to separate the effects of heredity and environment! Yet real life does provide us with some examples of separated twins.

Thomas Bouchard and his colleagues (1990) found sets of twins from around the world who had been separated in infancy and reared apart. They were brought to

While all human development theories acknowledge a role for both nature and nurture, they vary in the emphasis they place on each. Psychologists have used a variety of ways to try to examine the roles of nature and nurture in various aspects of development, and intelligence is the example we shall consider below.

Given there is no single definition or theory of intelligence, it is hardly surprising that there is a debate over its origin. The debate has polarised psychologists, particularly in the United States, but the general answer should be that both nature and nurture have a part to play in the development of intelligence. Psychologists generally believe that heredity (nature) plays a role in intelligence but that the environment (nurture), especially schooling, affects it. The genetic component is fixed at birth while the environment supports, encourages and teaches children to reach their potential. Improving the educational and social conditions for children is one of the best ways intelligence can be increased. Most of the supporting evidence for this compromise position comes from twin studies, and adoption studies, where the genetic overlap can be specified and the correlation of IQ scores between twins, biological and adopted siblings can be mapped (McGue et al., 1993). That is, we can explore the extent to which variations in one characteristic (say, sibling status) are related to variations in another characteristic, in this case, IQ scores.

Figure 6.12 shows that identical twins reared together revealed a high, positive correlation relationship with one another, contrasted with siblings reared apart and adoptive parent and child living together.



Figure 6.13 Fraternal twins can look quite different because they share only half their genes.



Figure 6.14 Identical twins have identical genes and are formed when a single fertilised egg splits in two.

Bouchard's laboratory where he compared them on ability, personality, leisure and vocational interests, and social attitudes. Identical twins who had been reared apart still showed similarities to each other. When Bouchard compared their intelligence he found that, while their intelligence quotients (IQs) were not as similar as those of identical twins reared together, they were still more similar than those of fraternal twins reared together. This suggests that heredity makes a relatively strong contribution to differences in IQ scores.

Adoption studies

Adoption provides another real-life study of the roles of heredity and environment in development. We can see whether adopted children are more like their adopting parents, who provide their living environment, or more like their biological parents, who provided their genes.

In Colorado, as part of a large, longitudinal adoption study, Denise Daniels and Robert Plomin (1985) tested the sociability versus shyness of children adopted at 12 and 24 months to see whether they were more like their biological or adoptive mothers. Heredity was found to play a role in shyness, as extreme shyness in the biological mother predicted that her biological child would be shy at age two years, even though she had had no contact with the child since birth. On the other hand, the family environment was also found to be important in the development of shyness. Toddlers whose adoptive mothers were unusually shy also showed above-average shyness at two years of age. Studies such as these show that both heredity and environment have a role to play in development.

Intelligence as measured by intelligence quotient (IQ)

Many of the twin studies describe similarities and differences in intelligence between siblings reared together or apart. Intelligence is often referred to as IQ, which stands for **intelligence quotient**. A person's IQ is a numerical score on a test of intelligence, in comparison with other people the same age. IQ is generally measured on a scale with a mean (or average) of 100. Describing the shape of a distribution is important for statistical descriptions and analyses. The standard distribution is called the **bell curve**, or the **normal distribution**, so if we have a sample of 70 people, you would expect the number (frequency) of them who receive particular scores to be as shown in Table 6.5. When we graph these scores, you find the bell-shaped normal curve in Figure 6.15, which shows the number of people obtaining different IQ levels based on an IQ test.

Table 6.5 Frequency table for scores on an IQ test

Score	Frequency
75	1
80	3
85	6
90	8
95	10
100	12
105	10
110	8
115	6
120	3
125	1
TOTAL	70

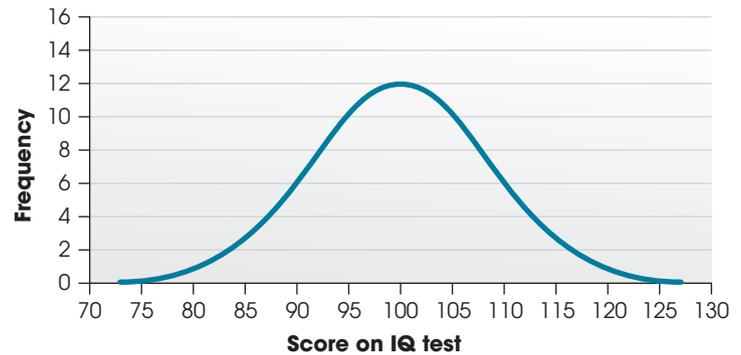


Figure 6.15 Normal distribution or bell curve

In this case, the ages form a curve that has the same slope upwards and downwards, with the largest number of scores being 100 and the smallest number at 75 and 125.

We introduced intelligence testing in Chapter 3. IQ used to be defined as a person's mental age divided by his or her chronological age and multiplied by 100. Nowadays, IQ scores are based on a standard deviation of 15 from a mean of 100 and are calculated separately for specific age groups. Scores are standardised to ensure this normal distribution and this is explained below. Before intelligence tests are released for general use by psychologists, they are widely tested on the population of interest, the items are carefully selected and screened, and the scores are standardised using mathematical formulae.

The central tendency refers to the top or summit of the distribution with respect to the scoring scale that has been used. In this case, it is the middle score, since it is the most frequent. Psychologists usually use the mean or average to assess the central tendency. School maths will have already taught you that the mean is calculated by adding up all the scores and dividing by the number of scores.

Measures of dispersion and variability

There are several ways to measure dispersion or spread of scores in a distribution. First, we can estimate the range, which is simply the difference between the highest and the lowest numbers. All the other scores lie between these extremes. This measure of dispersion is not very useful since it depends on only two scores, in this case, 125 and 75. The range is 50. If scores are distributed unevenly, unlike our example, the range can be a poor indicator of **reliability**, that is, the extent to which an experiment or test gives us the same results on repeated trials. It also does not tell us anything about how the other scores are spread – are they evenly distributed (such as in Table 6.5), are the other scores bunched up around the middle of the distribution or are they unevenly distributed?

Another measure is the **mean deviation**. If the mean or average score represents the central tendency, we can calculate how far away the other scores are from the mean: in other words, how far any score deviates or differs from the mean. The deviation score is calculated by subtracting the mean from the raw scores. If the raw score is above the mean, the deviation score will be positive (+)





and if the raw score is below the mean, the deviation score will be negative (-). If the deviation score is used (and not very often), it is assumed that all deviation scores are positive and an average is then calculated to give the mean deviation, which is a good measure of the distribution.

Measures of variability in scores provide researchers with information about the reliability of the scores. Another way to measure dispersion is the **standard deviation (SD)**. To determine the standard deviation, it is necessary to calculate the difference between the higher and lower scores and the mean. Because some differences would be positive and some negative (as noted above in calculating the mean deviation and thus cancel each other out!), they are then squared to obtain the variance. The standard deviation takes into account all the scores in the distribution and summarises how far, on average, each score differs or deviates from the mean.

The standard deviation is a very useful measure of the spread of scores around the mean: a low standard deviation indicates the scores are clustered around the mean, while a large standard deviation indicates greater variability among the scores. The standard deviation is the most commonly used measure of dispersion in psychology experiments.

Representative tasks from an IQ test

IQ tests typically include a number of tasks designed to measure various areas such as logical thinking, working with numbers, and memorisation, as you saw in Chapter 3. IQ tests include various measures designed to tap these skills and abilities. An IQ test does not measure your social or emotional intelligence.

An IQ test is supposed to measure your intellectual potential, not your performance under stress. However, for some items there is a time limit, because the ability to work at a reasonable pace is a feature of intelligent thinking. An experienced psychologist will work his or her way through the various sub-tests in an IQ test to make sure your interest and motivation are maintained while getting an accurate assessment of your IQ.



age fotostock/Laurent/Aubourg

Broaden your understanding

The IQ debate: Nature or nurture?

A debate on IQ was sparked in 1994 with the publication of the book *The Bell Curve* written by Richard Herrnstein and Charles Murray. This book noted that African-American children in the US scored on average 15 IQ points lower than European-American children, and Japanese-American children outscored both groups. From this, it was claimed that the differences were genetic. Do you think this is the case? Why might it be genetic (nature)? Why might it be related to the environment in which the children were growing up (nurture)?

Figure 6.16 IQ testing of a child

Role of play in physical, cognitive, emotional and social readiness and skill development

We often assume children use their developing motor skills in physical activities. These can include play as well as organised activities. Play permits the expression of developing motor skills, uninhibited by rules and other constraints characteristic of organised activities. Play allows children to run, jump, to throw their arms about, to climb trees, swing, or ride a bike. These physical activities enable the practice of skills. The environment provides natural resources for play, as do public open spaces and the play equipment, such as swings and slides, within them. Play also enhances children's social and cognitive development through their interaction with others and with different materials, including toys, crayons, stickers and water.

Organised sport offers the opportunity for children to receive instruction and coaching to develop their skills. However, it should be remembered that children in early to mid-childhood (around six to eight years of age) are also developing cognitively and socially. Juggling all of these rapidly developing abilities, as well as refining skills, can be encouraged through participation in, for example, organised junior team sports like tee-ball and Auskick.

There are other factors that influence the development and general improvement in motor skills. These include your natural ability or talent inherited from parents, a 'readiness to learn', the opportunity to practise, encouragement and support from others (particularly from your family), positive feedback, motivation (which can come from within the self or from others), enjoyment and a sense of competence.

Furthermore, correct training and coaching are really important factors in acquiring, refining and maintaining the relevant skills in sports.

The importance of trainers and coaches (be they well-meaning and enthusiastic amateurs, such as parents or friends, or fully accredited and recognised coaches) must be emphasised as well as their use of correct techniques and approaches for correct skill training. Teachers and coaches must be capable of recognising the difficulty of the task (such as learning to serve in tennis) and the skills of the learner, and organise the instruction accordingly (Tremayne & Tremayne, 2004). This is no easy task, and the coach has to be able to break the skill down into its component parts and instruct the children by building up these sub-skills. The learner has to become accomplished at each skill, then integrate them into a fluid movement with a successful outcome (such as a successful netball shoot or hockey goal).

Organised play, like that provided at preschool, also facilitates the development of perceptual and motor skills, such as using scissors for cutting out, crayons or textas for drawing and colouring in, making models with clay, using paint brushes for painting, and learning musical instruments. Variety in opportunities, activities and resources means that young children are exposed to many shapes, textures and instruments with which they can explore their world and refine their hand-eye coordination and expand their knowledge of the world. Structured activities such as these in preschool that are challenging for children are important for their cognitive development (Sylva, Roy & Painter, 1980).



Figure 6.17 A coach can help guide skill acquisition.

Many activities for children in preschool, such as with sand, water and playdough, lack structure and do not provide children with goals to reach or outcomes to achieve. Play is also regarded as a source of novelty and creativity, allowing children to display complex behaviours, reasoning and flexibility in thinking. Obviously, a balance between structured and unstructured activities maximises opportunities for cognitive, language and social development in young children.

Piaget also studied the role of play in the development of children’s intelligence (Piaget, 1951). For Piaget, play offered the opportunity for children to master and practise skills at different stages of development. His theory was derived from watching his, and other, children play. The three stages of play described by Piaget mirror the first three stages of cognitive development that were described at the start of this chapter. They are shown in Table 6.6.

Type of play	Age	Description
Mastery play	Up to two years	Play that involves enjoyment of movements for their own sake. The child learns to master and coordinate motor skills. The play is mainly repetitive and exploratory.
Symbolic or make-believe play	Two to six years	Children begin to make use of symbols in play, to learn language and to engage in pretend play whereby they transform themselves into something or someone else.
Play with rules	From seven years	As children’s thinking becomes more logical, games start to incorporate rules. To start with, these are made-up rules, but later children incorporate standard rules into their play that are laid down for all players.

Table 6.6 Piaget’s three stages of play

Piaget’s theory has had implications for preschool education and the importance of play for cognitive development.

As well as cognitive and physical development, play is important for social development. Peers are considered to be major agents of socialisation. But what is it about the influence of peers that is unique? What do we learn from those who are of equal status to us that we cannot or do not learn from our parents and teachers? Because they are of equal status, peers are much less likely to be directive or controlling. This gives us the opportunity to try out new ideas, behaviour and roles, and develop new skills. Yet peers also let us know what is acceptable: ‘nobody likes a tattle-tale’; ‘if you don’t take turns, nobody will play with you’; ‘you stick up for friends’.

Much of children’s early social learning from peers occurs in the context of play. As children become more peer-oriented during their preschool years, the social complexity of their play increases.

Figure 6.18 Children learning in preschool





Figure 6.19 In the preschool years, children learn to play cooperatively in games with roles and a loose script.

Mildred Parten carried out a classic study of peer interactions in 1932 and identified five different categories of play among 40 nursery school children. The spontaneous play groups occurring during the free-play hour were observed and the social behaviour of each child was recorded (see Table 6.7).

Parten found that in the preschool years there was an increase in associative and cooperative play and a decrease in solitary and parallel play. However, all the play types were found among children of all ages. Parten also found that there was a small relationship (+0.26) between intelligence quotients and the degree of social participation of individuals, although it was not clear how the former was measured in the children studied. While this does not show how play is linked to social development, it does demonstrate that, as they grow older, young children show greater awareness of other children and talk to

other children as they develop their roles in the play activities. The awareness of, and communication with, others is a very important dimension of socialisation that lays the basis for later social skills through to adulthood.

Table 6.7 Parten's five categories of play

Play category	Description
Solitary play	The child plays alone and seems uninterested in the activities of other children who may be playing nearby.
Onlooker play	The child watches other children's play with apparent interest but does not join in.
Parallel play	The child plays alongside other children with similar toys and in similar ways and may mimic other children, but does not interact.
Associative play	This involves social interaction that has little organisation. The children seem interested in each other, but there is little planning in the activities they undertake together.
Cooperative play	This involves children interacting in a group that has a sense of identity and purpose. Roles may be identified: 'I'll be the doctor and you can be the nurse', and rules may be set.



Figure 6.20 During primary school years, games become more rule-based.

During the primary school years, play becomes more complex and sophisticated, and games with formal rules such as basketball and card and board games become more common. Children form peer groups that not only provide social identity but also the structure in which they learn about how social groups work to achieve shared goals.

CHAPTER SUMMARY

Developmental psychology

Theories of human development

Aspects of human development across the lifespan

- Cognitive development
 - Cognitive development and cognitive change
 - Piaget's stages of cognitive development
 - Schemas
- Physical development
 - Motor skill development
- Social development
 - Social cognition
 - Vygotsky's theory
 - Moral conflicts
 - Piaget/Vygotsky comparison
- Emotional development
 - Emotional facial expressions
 - Experience of emotion
- Research in action – measuring developmental changes with age
 - Longitudinal research design
 - Cross-sectional research design

Nature/nurture debate

- Twin studies
- Adoption studies
- Intelligence as measured by intelligence quotient (IQ)
 - Normal distribution
 - Calculation of IQ
 - Measures of dispersion and variability
 - Representative tasks from an IQ test
 - The IQ debate – nature or nurture?

Role of play in physical, cognitive, emotional and social readiness and skill development

- Piaget's stages of play
- Parten's play categories
- Organised sport
- Structured versus unstructured play

Check your psychological understanding

Terminology

Define the following terms:

- 1 Infancy
- 2 Pre-operational stage
- 3 Cross-sectional research design
- 4 Unstructured play

Multiple-choice questions

- 1 Cognitive development refers to changes in:
 - A thinking and reasoning.
 - B self-knowledge and understanding of other people.
 - C appearance, motor skills and coordination.
 - D all of the above.
- 2 During motor development, children:
 - A walk before they crawl.
 - B sit before they stand.
 - C crawl before they sit.
 - D crawl, sit, stand and walk at the same age.
- 3 The first emotion(s) recognised by infants is:
 - A joy.
 - B sadness.
 - C fear.
 - D all of the above.
- 4 Identical twins:
 - A develop from two separate fertilised eggs.
 - B develop from the same fertilised egg that has split.
 - C share approximately 50% of their genes.
 - D may be a boy and a girl.
- 5 The mean of a series of scores is:
 - A the most frequently occurring score.
 - B a measure of the range of the scores.
 - C the middlemost score if all scores are listed from highest to lowest.
 - D the average score.
- 6 Coaches of organised children's sport must be able to instruct children by:
 - A explaining the necessary skills in great detail.
 - B acting like a child.
 - C identifying a child's natural abilities and focusing on them.
 - D recognising the difficulty of some tasks and breaking skills down into parts.
- 7 As part of a psychology experiment looking at developmental trends in children, you find that the average weight for 10-year-old children is 40 kg. You have collected data from 96 boys and girls who have each weighed themselves. The weight range goes from 31 kg to 52 kg.
 - i The average weight was calculated by:
 - A finding the most common weight.
 - B drawing a graph.
 - C adding up the weights and dividing by 96.
 - D estimating the standard deviation.
 - ii We cannot calculate the standard deviation in weight because we do not know:
 - A the median.
 - B the frequency distribution.
 - C how many of the children are boys.
 - D whether the scores are a normal distribution.
 - iii After interpreting the collected data, we can say that it tells us something about:
 - A 10-year-old children's weights in general.
 - B what the children will weigh in five years' time.
 - C what the children ate for breakfast.
 - D the weight of their mothers.

Apply and relate psychological understandings

Short-answer questions

- 1 Describe social cognition.
- 2 Describe two ways to measure developmental change in children.
- 3 Outline two techniques that psychologists use to examine the roles of nature and nurture.
- 4 Describe Piaget's three stages of play.
- 5 Describe how physical development can affect social and emotional development.

Complete the table

Copy and complete the table below by listing up to four strengths and four weaknesses of cross-sectional and longitudinal designs for the study of human development.

Design	Strengths	Weaknesses
Cross-sectional	1	1
	2	2
	3	3
	4	4
Longitudinal	1	1
	2	2
	3	3
	4	4

UNIT 2

CHAPTER 7

Self: Personality

Key knowledge and understanding

Definition of personality

Historical perspectives

- Psychodynamic
- Traits
- Humanistic

Approaches to measuring personality

- Projective tests
- Self-report and other ways of measuring personality

Personality

Definition of personality

We often hear people talk of a celebrity as having ‘loads of personality’ and we think we know what is meant by that. Often people use the word personality as if it means charisma, style or charm. Yet, psychologists mean something different by this term. For them, the term **personality** means the characteristic ways of thinking, feeling and acting that make a person an individual. In other words, personality is made up of the characteristic patterns of thoughts, feelings, and behaviours that make a person unique. It arises from within the individual and remains fairly consistent and stable throughout life and across situations. Personality can be said to define an individual, now, in the past when younger and into the future when older. Psychologists study how personality develops, how it influences our behaviour and how we can measure it.

Historical perspectives

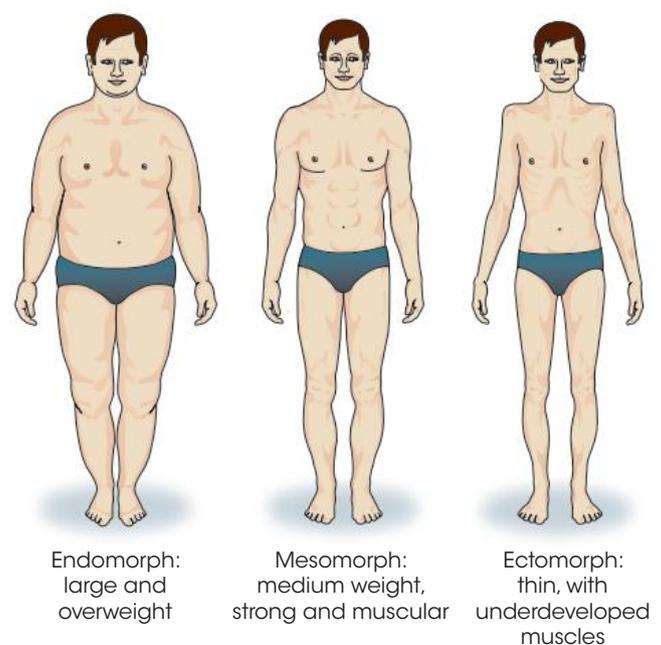
Over the years, many theories have been put forward to explain how personality develops and what factors influence it most. When looking at these theories, as noted in Chapter 6, we need to ask ourselves: Which does the evidence support? Which provides the best explanation of what we already know about behaviour? Which allows us to predict future behaviour?

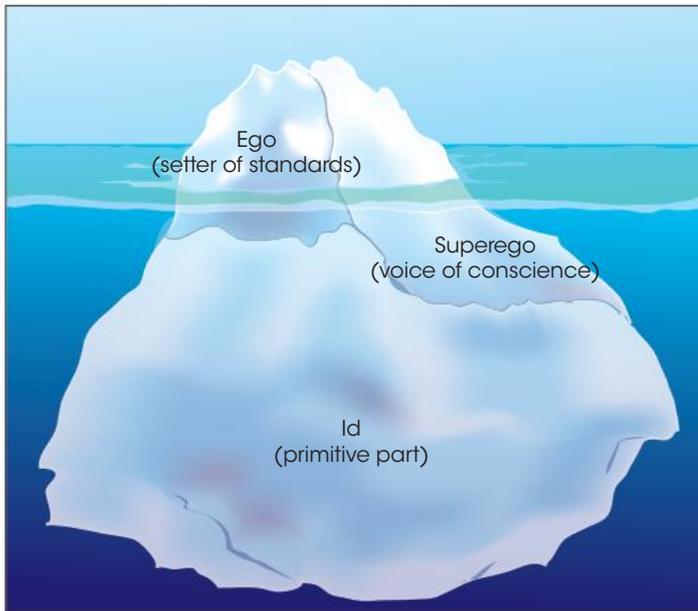
Since the time of the ancient Greeks, people have been trying to understand personality. In the 5th century BC, Hippocrates, a physician, believed that an individual’s body contained four basic fluids and that personality was determined by which of these fluids was dominant. So he classified people as being:

- melancholic – depressed, sad and brooding if they had too much black bile
- choleric – irritable, short-tempered and excitable if they had too much yellow bile
- phlegmatic – slow and lethargic if they had too much phlegm
- sanguine – cheerful, active and hopeful if they had lots of blood!

In more recent times, there have been others who have tried to explain personality in terms of physical attributes. William Sheldon in the 1940s attempted to examine the relationship between body build and personality. He identified three body types (see Figure 7.1) and linked these to personality. He characterised the large, overweight type (endomorph) as being cheerful, relaxed and sociable. The athletic mesomorph was seen as being assertive, vigorous and courageous. And the thin, scrawny ectomorph was described as being introverted, intense and artistic. While research has not supported these ‘types’, you will recognise that they form the basis for stereotypes that we find in books, movies and in everyday conversation. Think of Vin Diesel, Woody Allen and Shane Jacobson. What ‘type’ does each fit?

Figure 7.1 Sheldon related body types to personality





Conscious mind

Preconscious
(outside awareness
but accessible)

Unconscious mind

Figure 7.2 Freud considered that our behaviour involves the activity of the id, ego and superego.

Psychodynamic

One of the most influential theories about personality was developed by Freud. Sigmund Freud (1856–1939) was a Viennese doctor who was intrigued that many of his patients had problems that appeared to be more emotional than physical in nature. Freud considered that personality develops from our efforts to resolve the conflict between our primitive, pleasure-seeking, biological urges and our internalised, socialised reactions to these. He saw this conflict as involving the interactions of three systems: the **id**, **ego** and **superego**.

While these systems have no objective reality, they are important

abstract constructs in Freud's theory. The id is the primitive part of our make-up and works on the basis of maximising pleasure. It is made up of the biological urges for food, shelter and sexual gratification. It is irrational, impulsive and unconscious.

The ego develops as the young child learns to cope with the real world. It is the regulator and sets the standards for behaviour. It directs the energies of the id, taking reality into account and making sure that behaviour is practical and appropriate. The ego is in conscious control of behaviour. According to Freud, the ego is the part of you that stops you from punching someone when they irritate you, or from leaving class to go to the canteen whenever you feel hungry.

The third force in our make-up, the superego, comes into play at about four or five years of age. The superego is the voice of conscience that focuses on how we ought to behave. The superego is the perfectionist part of us, leading to positive feelings of pride or negative feelings of guilt. The superego's demands are often directly opposed to those of the id, and the ego must resolve these competing demands. For instance, Craig might be sexually attracted to Tara (the id at work) but his superego demands restraint. Craig's ego might lead to him developing a plan of action that involves joining the same social club as Tara so that he can get to know her better.

In theoretical terms, Freud regarded the id as requiring its needs to be met and the superego as trying to punish the id. The ego plays the role of mediator and its role is to protect or defend itself from anxiety arising from the psychological conflicts. It does this through what are termed **defence mechanisms**, which are unconscious psychological mechanisms that deny, distort or falsify reality.

In other words, the ego interprets events or actions in such a way as to deny or re-represent reality to reduce or remove the feeling of anxiety. These processes are unconscious but act to protect ourselves. They are regarded as normal ways of dealing with psychological conflict to maintain stability. Overuse, however, of any of the defence mechanisms is regarded as abnormal.

Defence mechanism	Description	Example
Repression	Preventing unacceptable thoughts from becoming conscious in order to prevent anxiety	Forgetting the name of someone who bullied you in primary school
Reaction formation	Thinking, acting or feeling in an opposite way to how you really think, act or feel	You help out a student you dislike with a maths assignment
Displacement	Directing emotion away from the person or thing who caused it to another person or thing that is less anxiety-provoking	Going home and taking out your negative feelings towards a classmate on the family dog
Compensation	Trying to cover up a real or imagined weakness by emphasising something you are good at	Athletes with a disability who excel in their sport are said to compensate for their physical deficiencies
Sublimation	Directing unacceptable thoughts or feelings in a socially acceptable way	Directing thoughts about punching a schoolmate into something such as boxing
Denial	Refusal to believe whatever it is that is causing anxiety	Dockers fans refuse to believe their team is not the best in the AFL

Table 7.1 Some common defence mechanisms

Freud considered that personality develops in the early years of life. Children pass through a series of **psychosexual stages** during which the id's energies are focused on distinct pleasure-sensitive areas of the body called **erogenous zones**. Each psychosexual stage is associated with a particular conflict that must be resolved in order to progress to the next stage. These are outlined in Table 7.2, which also highlights the resolution of some of these conflicts.

Stage	Erogenous zones	Behaviour	Resolution
Oral (birth–18 months)	Stimulation of the mouth	Centred on the mouth – sucking, chewing and biting	Seeking oral satisfaction through eating
Anal (18–36 months)	Process of elimination of bowel and bladder	Start of toilet training where children are rewarded for eliminating at the right time and place and punished when they soil themselves	Resolution of this first conflict with authority determining the child's future relationship with all forms of authority
Phallic (3–6 years)	Genital organs	Seen in emotions directed towards the parent of the opposite sex (the Oedipus complex)	In resolving this, children assume the values of the same-sex parent and the superego starts to develop
Latency (6 years–puberty)		A quiet time during which psychosexual development is on hold	
Genital (puberty)	Maturation and focus on genital organs of sexual interest	The development of sexual interest in people outside the family	The time of adolescent sexual experimentation, the successful resolution of which is settling down in a loving one-to-one relationship with another person in our 20s

Table 7.2 Freud's psychosexual stages



Figure 7.3 A conflict between the id and the superego

Freud thought that many adult personality traits are due to **fixation** in a stage. A fixation is an emotional 'hang-up' caused by the person being frustrated or over-indulged and the behaviour at that particular stage not being resolved satisfactorily. Freud thought that adults that fixated at the oral stage could become passively dependent, needing to be 'mothered', or else, in a denial of this dependence, could become orally aggressive, using biting sarcasm. He also thought that they might continue to seek oral stimulation by eating excessively or smoking.

Similarly, Freud considered that the adult personality could be shaped by conflict at the anal stage when parents attempt toilet training. At this stage the child can gain approval by 'letting go' or express opposition by 'holding on'. Conflicts over toilet training can result in the anal-retentive (holding-on) adult who is stingy, orderly or obstinate, or the anal-expulsive (letting-go) adult who is messy or destructive.

Freud developed a technique known as **psychoanalysis**, which was aimed at investigating the unconscious motives of humans and was often characterised as the physician who tried to show that apparently harmless thoughts and emotions had an underlying sexual motive. His patients would lay on a couch and let their minds wander from one topic to another, prompted by Freud. The 'repressed' thoughts were then interpreted by Freud and psychoanalysis became a new method for studying the workings of the mind, and hence the personality of the patient.

Psychoanalysis has never entered the mainstream of psychological therapies for working with clients with personality disorders, although some clinicians may use a variation of it as part of a battery of techniques they employ. It finds its greatest use in forensic psychology work (see the 'Forensic personality measurement in action' case study at the end of the chapter) as psychoanalysis can find clues to underlying personality disorders. Freud has not had any great influence over other fields of applied psychology such as educational and developmental or organisational psychology or in academic and scientific psychology.

Traits

Personality **traits** describe the stable forms of behaviour that people display in any and every situation. Traits are inferred from behaviour, and you expect people to behave in similar ways in different circumstances. Traits can be used to predict future behaviour. But how did psychologists discover these traits and their links to behaviour?

When Allport and Odbert (1936) started studying personality in the 1930s they went through a dictionary looking for all the words that they could find that described characteristic ways of behaving – personality traits – and came up with 18 000 different words! They then reduced this list to about 4500 words by cutting out words that had similar meanings or that were very unusual. They then organised this list into psychologically meaningful groups. It was not a very scientific way to study personality, but from this study, researchers grouped together similar characteristics, or traits, to describe personality.

Broaden your understanding

Personality traits

How would you describe your best friends? List the characteristics that make your friends special.

You may have listed some physical characteristics such as very tall or big ears. More likely, you will have listed personality traits, such as fun-loving, thoughtful, active or even-tempered. Compare your list with other class members. There will be many different characteristics that your class came up with. Now, after reading the next section, try and see which theory they best fit into and put these in the table below, copied into your workbook.

Best friends	Special characteristic	Theory best explaining the characteristic

There are three major theorists that we can consider. In historical order, they are Gordon Allport (1897–1967), Raymond Cattell (1905–1998) and Hans Eysenck (1916–1997), who also worked with his wife, Sybil Eysenck. Cattell is included as he provides links to the earlier theory of Allport as well as to the later theory of Eysenck.

Gordon Allport is regarded as one of the major psychologists to work in the area of social psychology and personality, which he defined as ‘the dynamic organisation within the individual of those psychosocial systems that determine his unique adjustment to his environment’. He wanted personality to be subject to research, so for this to happen he had to define it. He also believed that personality was an individual difference.

Allport (1937) introduced the concept of traits as generalised ‘neuropsychic’ systems or structures that could make environmental stimuli similar and that could initiate and guide consistency in behaviour. These individual differences are learned by experience but represent consistencies in our behaviours. They are sometimes called dispositions to reflect the uniqueness in the ways individuals produce equivalences and consistencies between beliefs, feelings and actions. Dispositions, or traits, vary from person to person.

Despite Allport emphasising the uniqueness of everyone’s consistency of personality, he also recognised that there may be **common traits** within a culture. These traits include **extraversion**, **introversion**, **competitiveness** and **liberalism**.

We, as a culture, largely know what is meant by these traits. Different cultures recognise different common traits. Individuals can, of course, be high or low on these traits, so you can still look at individual traits – a person’s unique personality – even if there are commonalities as a result of us being part of a social and cultural environment.

Trait	Characteristics
Extraversion	Sociable, talkative, excitable, aggressive and impulsive
Introversion	Anxiety, rigidity, care, thoughtfulness and calmness
Competitiveness	Rivalry and having a desire to win
Liberalism	Open-mindedness and being free from strict conventions

Table 7.3 Characteristics of traits according to Allport

Broaden your understanding

'Proprium' defined: A new word

Allport recognised that some traits are linked closely with one's self (or the proprium, as Allport termed it). Allport defined the word 'proprium' as the essential nature of the self. Human behaviour is motivated by functioning that reflects and is expressive of the self – that is, we are who we are. Allport termed this appropriate functioning. Allport developed his theory of the proprium to cover a developmental theory of personality. The theory covers seven ages (from birth to teenage years) at which certain functions of the self develop. For example, between the ages of two and four years, self-esteem develops and children recognise they have a value to themselves and to others. Sadly for Allport, the term never caught on, but we can still capture what he meant when we think of the phrase 'be yourself'!

Cardinal traits are core traits that are regarded as basic building blocks for personality development. Few people have cardinal traits but they define a person and control their behaviour and their life. Examples of people with cardinal traits are Mother Teresa (known in the Catholic Church as Saint Teresa of Calcutta) whose fundamental personality was based on religious service, honesty, goodness and charity, and Martin Luther King Jr who is associated with justice and equality.

Central traits are the building blocks of personality more commonly recognised. Each of us has between 5 and 10 of these (Allport found seven in a survey of American college students) and they capture our essence. They include such things as kindness and friendliness. You should be able to think of seven fundamental traits that you have.

Secondary traits, on the other hand, are more inconsistent and less obvious. These would include things such as preferences and attitudes, which can change according to the situation. Examples would be nervousness and impatience. Lastly, there are **source traits**. These later traits were not defined by Allport but by Raymond Cattell (1946) and refer to underlying personality traits, which are to be distinguished from surface traits (the visible display of personality). Cattell identified 16 of these traits through **factor analysis**, a statistical method used to describe variability among observed, correlated variables in terms of a potentially smaller number of unobserved, underlying variables called factors.

The main difference between source traits and central traits is that Cattell derived source traits through factor analysis, while Allport derived his central traits through qualitative methods (sometimes called idiographic techniques) such as interviewing people, the use of personal material like diaries, correspondence and other materials, as well as questionnaires. The alternative approaches both examine groups of people and compare measures of specific attributes. Allport also contributed to the use and development of tests of personality but it is his recognition of individual differences that led to his study methods of choice and, latterly, to a popularisation and acceptance of these ways of collecting information.

British psychologists Sybil and Hans Eysenck (1963) came up with two main personality factors: extraversion–introversion and emotional stability–instability. They considered that by measuring these and looking at how people scored on these two factors, you could describe their personality. A person who was high on extraversion and stability would be carefree and show leadership, whereas one who was high on extraversion, but unstable, would be likely to be restless and aggressive.

This popular personality theory was further developed by Hans Eysenck alone and his trait theory has led to research into the biological bases of personality. Eysenck combined clinical psychology with experimental psychology to determine personality

types based on the presence or absence of certain characteristics. Eysenck developed the dimensions of neuroticism–emotional stability and extraversion–introversion. **Neuroticism** refers to emotional instability and a tendency to be restless and anxious, whereas emotional stability refers to calmness and a relaxed manner. Extraversion describes individuals who are active and outgoing, while introversion describes those who are more passive and calm, seek lower levels of stimulation and are characterised by being so traumatised by any displays of extravagant or uncharacteristic behaviour that they withdraw socially. Another dimension, **psychoticism**, was added in the 1970s and was described by Eysenck as recklessness or disregard for common sense. People characterised as psychotic have a tendency towards anti-social behaviour that is common in criminals and psychopaths.

These dimensions were seen as representing regularities in the traits observed in people and were measured on a large number of scales. While the theory is based on solid evidence, any traits or personality types are only as good as the instruments developed to measure them. Eysenck found that some people scored high or low on the two dimensions, while others were in the middle. The high scores were taken as evidence by Eysenck that two different personality types existed. Eysenck then developed a theory of personality based on his measures. The Eysencks' traits are similar to those proposed by Cattell using his Sixteen Personality Factors (16PF) Inventory, suggesting a high level of agreement between these researchers despite the different experimental techniques used.

Humanistic

Humanistic psychology was developed to counter the extreme theoretical positions advanced by psychoanalytical psychology and learning theories and the emphasis on statistical analysis. In line with the more conventional ways of studying personality such as interviews, there was a shift to studying how personality developed out of people's social interaction with others. This approach is labelled humanistic since it stresses the importance of the individual and human potential, goodness and self-awareness. Humanistic theories focus on healthy personalities (unlike the psychoanalytic view that regarded people as being troubled psychologically), and regarded people as inherently good. Similarly, in contrast to learning theories that regarded personality as developing through environmental reinforcement and punishment, humanistic theories believe people grow psychologically from within and are motivated to do so. Humanistic theories of personality arose in the 1960s in the United States and provided a distinct contrast with the psychodynamic and learning theories that were common at that time. At the centre of humanistic theories is the belief that people are born good and that they try to reach their potential throughout their lives.

A psychologist who made a big contribution to this theoretical approach was Abraham Maslow (1908–1970). Maslow considered that we all have a hierarchy of needs (see Figure 7.5). We must first have our most basic needs for food, water and security met before we will try to meet higher-level needs. Once lower-level needs are met, we try to satisfy increasingly higher-level needs. Gratification of each need is required before moving upwards to the next levels.

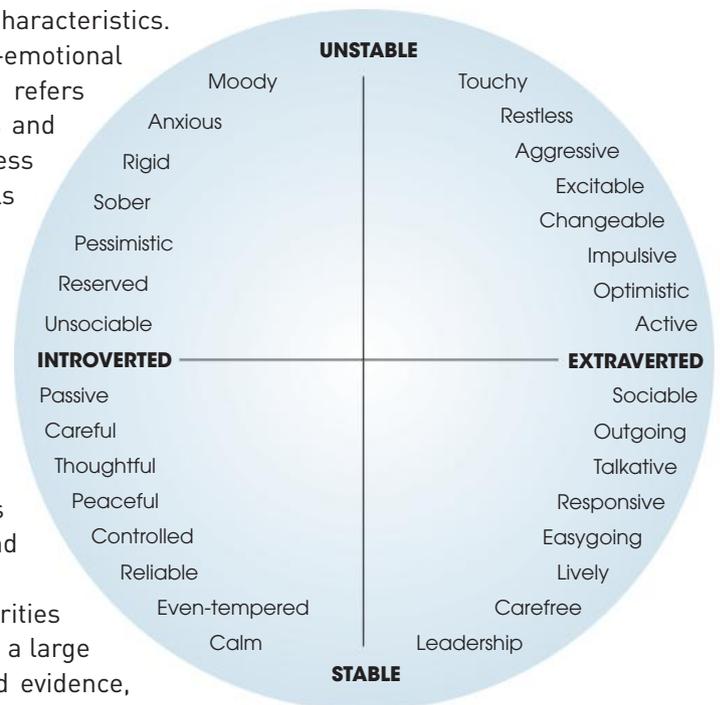


Figure 7.4 The Eysencks considered that differences in personality could be explained in terms of introversion–extraversion and emotional stability–instability.

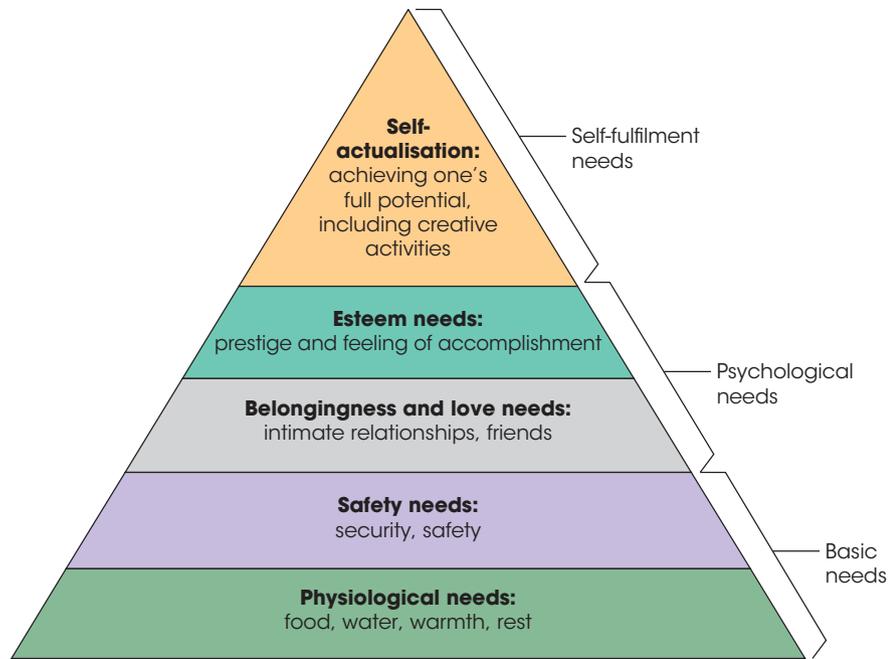


Figure 7.5 Maslow's hierarchy of needs

The very top of the hierarchy is the need for **self-actualisation**, the drive towards growth, self-expression, creativity and the achievement of one's highest unique potential. People who are fully self-actualised are rare, but some of their characteristics are self-acceptance, high self-awareness, the need for privacy, independence, creativity and the ability to enjoy life.

There are five levels of needs in the hierarchy. At the base are *physiological needs*, which are those of food, water, warmth and sleep. The next basic need is *safety* – we need to make sure we are safe and secure. The intermediary needs are *belongingness* and *love needs*, characterised by the establishment of friendships and then of intimate relationships, and *esteem needs*, which are those needs that are achieved through accomplishment and recognition of success. Finally, *self-actualisation needs* are those achieved when a person reaches self-fulfilment, the full use of one's talents, capacities and potential. They are sometimes grouped into three levels, as seen in Figure 7.5.

We try to satisfy higher-level needs once our basic needs are satisfied. When a need such as feeling safe and secure has been satisfied, it will go away. Our behaviour becomes directed towards meeting the next set of needs that we have yet to satisfy.

Every person is capable and has the desire to move up the hierarchy toward a level of self-actualisation. Unfortunately, progress is often disrupted by failure to meet lower-level needs. Life experiences, including divorce and loss of job, may cause an individual to fluctuate between (higher) levels of the hierarchy. Therefore, not everyone will move through the hierarchy in a unidirectional manner but may move back and forth between the different types of needs.

Maslow developed his ideas regarding personality through studying healthy, creative people, including major figures in American history whom he viewed as having achieved self-actualisation. He considered that they shared certain personality characteristics – being open and self-aware, secure in who they were, able to enjoy deep relationships and to tackle problems without worrying about others' opinions. He thought that these characteristics were indications of the self-actualised person. His theory is not as popular as it used to be, but researchers continue to examine the motivation and development of psychologically healthy people, and the use of psychological needs as motivators.

Table 7.4 Summary of historical perspectives

Theoretical perspective	Significant theorist	Contribution
Psychodynamic	Sigmund Freud	Personality as a conflict between the id, ego and superego, and progress through psychosexual stages in childhood
Trait	Gordon Allport	Personality as an individual difference comprising extraversion, introversion, competitiveness and liberalism
	Raymond Cattell	Link between Allport and Eysenck and the development of 16 underlying traits and their measurement
	Hans Eysenck	Development of two main personality factors: extraversion-introversion and emotional stability-instability, then expanded to include psychoticism
Humanistic	Abraham Maslow	Hierarchy of needs pyramid – personality as steps towards achievement of self-actualisation

Approaches to measuring personality

Projective tests

Personality psychologists who follow psychodynamic theories, such as that of Freud, are interested in measuring unconscious desires, motivations and conflicts. They are not concerned with what an individual is consciously aware of and can therefore state about themselves. For this reason, they find no use for the self-report inventories used by personality psychologists who are interested in traits. **Projective tests** are the preferred tool of psychodynamic psychologists. A projective test presents an ambiguous stimulus, one that can be interpreted in different ways. The test-taker is asked to describe the stimulus or make up a story about it. It is assumed that different test-takers will interpret the stimulus differently, depending on their personalities. In this way they reveal something about themselves. The two best-known projective tests are the Rorschach inkblot test and the Thematic Apperception Test (TAT).

In contrast to interviews, observations, rating scales and questionnaires that attempt to describe and identify objective, observable personality traits, projective tests are those that try to expose hidden traits or unconscious ways of behaving, thinking or feeling through psychological interpretation of responses and ways of responding. Projective tests derive from a different theoretical view of personality from the trait approach and the underpinning theories are those, like Freud's psychoanalytic theory, which emphasise the biological and sexual nature of personality. Deviant personality is a result of unconscious and internal conflicts and problems during childhood development. Projective tests ask people to describe ambiguous stimuli (often inkblots such as the Rorschach inkblots, or similar 'blobs') to try to uncover their personalities through their descriptions and interpretations of the ambiguities. There are no right or wrong answers to projective tests and it is difficult for test-takers to fake their responses (either positively or negatively) although there are ways of responding that can be regarded as typical.



Figure 7.6 The client taking the Rorschach inkblot test is asked to describe what she sees in the inkblot.

Most projective tests come with manuals about how to interpret certain common responses and what these represent in terms of a person's personality. Like other measures of personality, projective tests have limitations, but they would typically form part of a larger battery of tests or techniques used to assess personality. They have limited objective validity and reliability, although they have a lot of appeal for psychologists and are used by some psychologists on a regular basis.

The Rorschach inkblot test was developed in the 1920s by Swiss psychiatrist Hermann Rorschach. It consists of a series of 10 cards. Each card shows a complex inkblot. Some of the blots are in black and white; some contain colour. The client is asked to look at the cards one at a

time and describe what he or she sees in each. Later, the psychologist usually goes back over the cards to get the client to clarify responses or indicate what part of the blot led to a particular response.

The client's responses are usually scored according to location (what part of the blot determined the response), influences (whether the client is responding to shape, colour, texture and so on) and content (what the client sees in the blot). Several elaborate scoring schemes have been developed based on these categories. In 1974, a system was devised that attempted to bring together the validated parts of these systems into one system. This has since been revised and supplemented by a computer scoring system (Exner, 1993; Smith, 2003).

The Thematic Apperception Test (TAT) is another popular projective test. It was developed by Henry Murray at Harvard University in the 1930s. It consists of 30 drawings showing scenes and life situations, like the one shown in Figure 7.7. The person taking

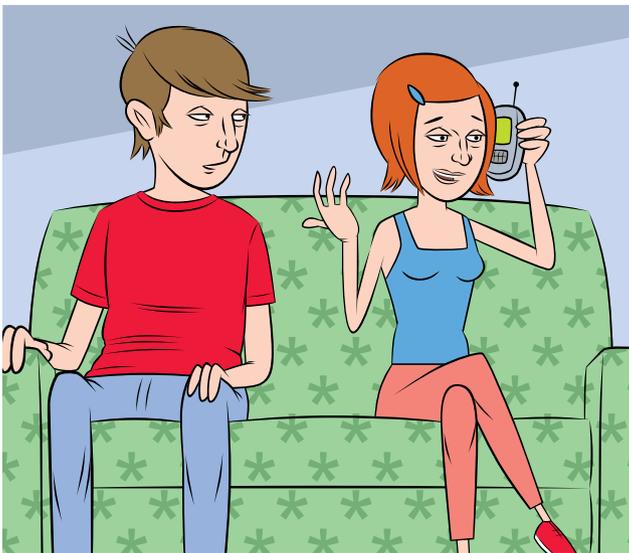


Figure 7.7 A situation similar to that used in the TAT. What is your story about this picture?

the test is shown about 10 of these drawings, depending on their age and gender. Then the client is asked to make up a story about each picture, talking about what led up to the scene in the picture, what the characters are thinking or feeling and what will happen. The TAT is scored on the basis of the content of the story and the way it is told. The psychologist assumes that the person telling the story will reveal the conflicts or themes that are important to him or her and that underlie the individual's personality.

Self-report and other ways of measuring personality

In this section, we are going to cover some approaches to the measurement of personality. These are self-report inventories, interviews, observation, rating scales and questionnaires. They are defined and described below, with examples, in terms of their uses and possible limitations.

Self-report inventories are the most common form of personality test. They use people's responses to questions about the ways they think, feel or act to develop a profile of their personality. That is, they show how weak or strong a person is on particular personality traits. These tests are usually administered in paper-and-pencil form and are scored by hand or by computer. In most tests of this type, the person is presented with a list of statements and asked to indicate how much they agree or disagree with the statement.

Feeling and thinking

The following statements ask about your thoughts and feelings in different situations. For each question, circle only one letter, A, B, C, D, or E. Circle the letter that you think is most like you. **READ EACH STATEMENT CAREFULLY BEFORE ANSWERING.** Answer as honestly as you can.

1. I often feel worried about people that are not as lucky as me, and feel sorry for them.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
2. Emergency situations make me feel worried and upset.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
3. When I am arguing with my friends about what we are going to do, I think carefully about what they are saying before I decide whose idea is best.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
4. I want to help people who get treated badly.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
5. Sometimes I feel helpless when people around me are upset.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
6. I sometimes try to understand my friends better by pretending I am them.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
7. When people around me are nervous or worried, I get a bit scared and worried too.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
8. I often get quite affected by things I see happen.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
9. I think people can have different opinions about the same thing.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
10. I am quite a soft-hearted person.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
11. When I am angry or upset at someone, I usually try to imagine what he or she is thinking or feeling.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me
12. I get very worried and upset when I see someone who needs help in an emergency.

A	B	C	D	E
Not like me at all	Hardly ever like me	Occasionally like me	Fairly like me	Very like me

Follow the instructions and complete this inventory by copying your answers into your work folder.

Table 7.5 Example of a self-report inventory

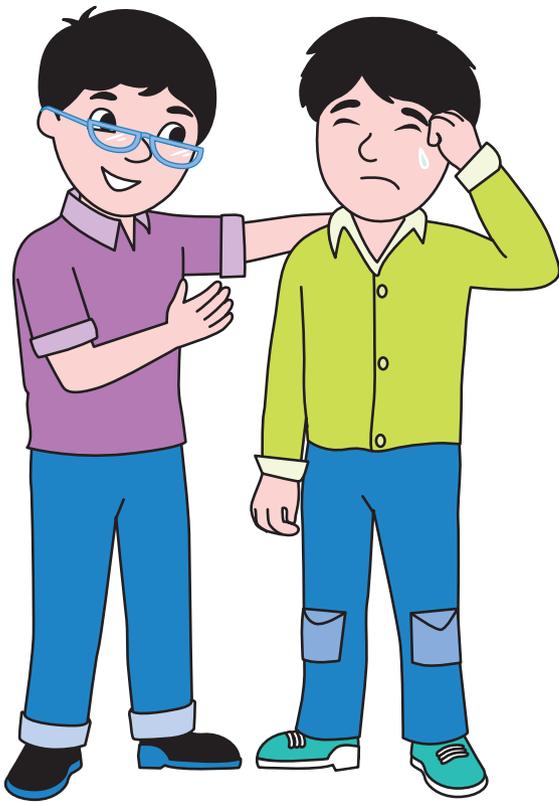


Figure 7.8 Developing empathy is important in children.



This self-report inventory is adapted from the 'Feeling and Thinking' scale designed by Garton and Gringart (2005). You score as follows: E=5, D=4, C=3, B=2 and A=1. Tally your scores and see if you are empathic. A higher score means you are empathic, that is you have emotional ('feeling') or cognitive ('thinking') understanding or both and can 'place yourself in others' shoes' and take their feelings or thoughts into account. There is widespread agreement that both components are necessary for empathy and if you want to explore the two components and see if you have greater emotional or cognitive empathy then items 1, 2, 4, 8, 10 and 12 are emotional (feeling) and items 3, 5, 6, 7, 9 and 11 are the cognitive (thinking) ones.

As we noted above, personality can be measured by a number of different tools. We can use self-report and projective tests. We can also use interviews, observation, rating scales and questionnaires. Since each method of measurement has limitations, they are very often used in combination. That is, we use more than one measure at a time when we study personality.

Interviews obtain information, usually personal, from people, although they can be used to obtain information about a person's psychological state (how they are thinking or feeling at

the time, for example) or their psychological history. Interviews can be structured or unstructured. Structured interviews follow a series of planned questions, usually asked in the same order and very often as part of a formal assessment. Questions are similar to those included in a survey, with fixed wording and fixed response options, with often a final open-ended question or two (of the 'Is there anything else you'd like to add?' kind). Unstructured interviews are more like a conversation and are informal, even if the material to be obtained is essential to the assessment.

Interviews are used to obtain general information about a person. In addition, they allow the psychologist to take into account things like the way people present themselves through observing the way they are dressed, their tone of voice, their use of hand gestures and their facial expressions. These complement the answers to the questions and are important because they can provide clues as to what the person is actually feeling, even if he or she is saying something else. Interviews, however, often

mean that impressions are formed of a person's personality (or any other characteristic) that may be based solely on a subjective first impression.

Observation is simply looking at behaviour and, as noted, is used in interviews to watch for behaviours, traits or mannerisms that can provide clues or cues to what someone's personality is like. Observation shares some of the limitations of interviews, because it too can be subject to misinterpretation or misconception. Observation is also used as a technique when looking at the actions and behaviours of people, recording what they do and say and then describing, analysing and interpreting these observations.

Figure 7.9 An interview



Shutterstock.com/fizkes

The most common type of observation is structured observation – watching and recording – which takes a considerable investment of time and effort. An example of structured observation is the viewing of children’s play, where, for a fixed period of time, a child or children would be followed and their actions and behaviours towards other children recorded. We discussed Parten’s observational study of children’s play in Chapter 6. It is usual to have more than one observer as we need to assess the extent to which these observers obtain the same results when measuring or coding the same behaviours. This is called **inter-observer agreement** (and often called inter-rater reliability) and a high level of agreement increases the validity of the observations and is measured as a correlation.

Rating scales are standard ways of recording behaviour and listing personality traits that the psychologist looks for. Personal characteristics are listed; the observer looks for their presence or absence and uses the rating scale to determine the extent to which the trait is present. It avoids the situation where characteristics are overlooked or exaggerated by the subjective impressions of the observer or psychologist. Behaviour including personality traits is evaluated through direct observation. Rating scales are used a great deal in work with children, particularly where their behaviour is to be observed in the classroom, in the playground or at home. Rating scales are regarded as valid and reliable ways of observing behaviour and are easy to administer and score.

As with direct observation and interview, the psychologist can gain a favourable (or an unfavourable) impression that is not related to personality. This is sometimes called the **halo effect** and reminds us again how important first impressions are, because the halo effect, also termed cognitive bias, occurs when a psychologist – or anyone – judges a person, product or other entity based on his or her feelings or thoughts about that person or thing. Ratings are also subject to influences from factors other than those that are part of the attributes being rated (such as interpersonal factors, gender and cultural factors). For example, a person wearing worn or dirty clothing to a job interview could be seen as slovenly, whereas it might, in fact, be due to them being poor.

Questionnaires are paper-and-pencil or online tests containing questions that reveal personality, among other elements. They are supposedly more objective than interviews, observations and rating scales since they give the same characteristics in different people the same score. This scoring should also be the same whoever does the scoring. All aspects of the questionnaire are standardised, including the questions and the administration, so that subjective impressions cannot play any part in the assessment.

They can be self-completion questionnaires, where respondents fill in the answers themselves (the answers may be rating scales, multiple choice, yes/no responses or require a written answer) or questionnaires that can be used in an interview format. Self-completion questionnaires can be administered in a group setting for administrative convenience.

Most questionnaires, if they are to be completed successfully and with as large a sample as possible, should be short, with simple questions that are easy to read and answer. Surveys are generally conducted for wide-ranging descriptive purposes, like the five-yearly Australian census that provides the Australian Bureau of Statistics with information about the characteristics of the population. Surveys can use questionnaires. And questionnaires can be descriptive, exploratory or experimental, and can be used in research that is looking at relationships between specific variables.

Many questionnaires and surveys, including the census, are now presented online and relevant participants are recruited through various means, such as email or social media (although note that the census is compulsory). Responses are entered electronically and are stored securely for analysis by researchers. The ways questions are answered can ensure that certain responses lead the person completing the survey to go to the next relevant question automatically, thus reducing errors.

Many so-called personality tests appear in popular magazines and may be driven by advertisers wishing to promote a product, but these are not considered reliable (which means the test gives the same score – or close to it – each time it is given to the same person) or valid (the test is actually measuring what it says it is measuring). They often tackle current topical issues such as finding out which *Pokémon* or *Game of Thrones* character you are most like or how your skincare routine can affect your personality and help attract a boyfriend/girlfriend.

Minnesota Multiphasic Personality Inventory

A common personality test is the Minnesota Multiphasic Personality Inventory (MMPI). It is used to find out personal, psychiatric or social problems in patients and can be used to identify people with personality problems. It is a long test with over 500 items, which are answered 'true' or 'false'. Ten sub-scales represent 10 personality traits including paranoia (interpersonal sensitivity), schizophrenia (bizarre thoughts) and hypomania (unstable moods, excitement). There are also scales that check the taker is answering the questions truthfully. The test is copyrighted, so items cannot be reproduced.

Questionnaires also have limitations. They rely on people completing them or responding to them accurately and truthfully. This requires skill on the part of the test administrator to make the patient or client feel comfortable and to realise the value of accuracy in describing a personality disorder, perhaps for a diagnosis and treatment, or the value of revealing a truthful picture of one's personality for employment suitability. The MMPI contains validity scales that detect if test-takers are 'faking good', or presenting themselves in a favourable light, or 'faking bad', presenting themselves in a poorer light, that is, describing themselves as having more problems than they really have. While these validity scales can detect untruthfulness, they cannot completely prevent dishonest responding.

It should be emphasised to test-takers that it is essential to be honest and not appear to be making socially desirable responses; that is, answers that are false or misleading to create a favourable impression of the respondent. Socially desirable responding can be seen in people's answers to socially sensitive issues such as cruelty to animals or attitudes to homosexuality, where people do not always want their true attitudes or personality traits to become evident. But, as noted at the start of this section, psychologists usually use information from a number of sources and would not rely on the scores of one questionnaire alone when making a judgement or assessment of personality.

The measurement of personality has found most use in forensic psychology, specifically the study of criminal behaviour. The assessment of personality can provide clues as to why criminals, for example, act, think and feel in certain ways, usually regarded as anti-social ways. Criminals are often assessed as having personality characteristics that are abnormal. That is, they have personality traits that can be considered dysfunctional for normal everyday interactions and living.

Forensic psychologists are interested in the criminal mind and assess and diagnose abnormal behaviour and personality in order to provide treatment. Personality disorders are ingrained deviant personality patterns that are dysfunctional. They include such things as anti-social personality and borderline personality. These personality types have been shown in research studies (usually of criminal prison inmates) to be strongly associated with criminal behaviours such as murder, rape and aggravated burglary.

Broaden your understanding

Forensic personality measurement in action: A case study

Bert is in prison. He has been sentenced to spend some 10 years in gaol for attempting to rob a liquor store while carrying a machete, with which he threatened the store attendant. He initially escaped with the money from the till, plus some cartons of cigarettes, but was later identified through the store's CCTV and arrested. He pleaded guilty since it was not his first offence. He had spent time behind bars previously.

Prison psychologists conducted a personality assessment on him with a view to offering treatment. After comprehensive psychological and psychiatric interviews and testing, a diagnosis of anti-social personality was given. What does this mean? In general, Bert can be described as selfish, impulsive and emotionally shallow. He will not take responsibility for his actions, lacks judgement and is unable to learn from experience. He may also be a thrill seeker. Most worrying, he could well present himself as a 'charmer', using others and manipulating them for his own ends. He has, however, never been married, since he has been unable to form a strong and stable relationship with a woman.

Sadly for Bert, anti-social personality is very difficult to treat. It seems to be a result of a childhood history of abuse and neglect and may also have a biological component, as PET scans have revealed neurological abnormalities in the brains of people with anti-social personalities. So, what can be done to treat Bert, who may very well manipulate treatment anyhow? It is to be hoped that his time in prison will cause him to think about his life. Perhaps he will realise that there are other things than criminal ways and that his behaviour can be channelled into more socially acceptable activities. But perhaps not.

Forensic psychologists work at the intersection of psychology and the law. Criminal behaviour and personality is one aspect of their work and they conduct assessments for the courts (both civil and criminal). They work in prisons and other corrective services, as well as in community services, private practice and with police. Forensic psychologists assess the causes of criminal behaviour as well as providing intervention and treatment to offenders and their victims. More work is being done on preventive services because more accurate prediction of offenders, through personality assessments, can assist in the identification of potential criminals before they offend.

CHAPTER SUMMARY

Personality

Definition of personality

Historical perspectives

- Psychodynamic
 - Freud
 - Id, ego and superego
 - Defence mechanisms
 - Psychosexual stages
 - erogenous zones
 - Trait
 - Allport
 - Extraversion, introversion, competitiveness and liberalism
 - Cardinal, central, secondary and source traits
 - Cattell
 - Eysenck
 - Extraversion/introversion and emotional stability/instability
 - Humanistic
 - Maslow
 - Hierarchy of needs
 - Self-actualisation

Approaches to measuring personality

- Projective tests
 - Rorschach inkblot test
 - Thematic Apperception Test (TAT)
- Self-report and other ways of measuring personality
 - Self-report inventories
 - Interviews
 - Observation
 - Rating scales
 - Questionnaires
 - Minnesota Multiphasic Personality Inventory (MMPI)
 - Forensic personality measurement in action: A case study

Check your psychological understanding

Terminology

Define the following terms:

- 1 Superego
- 2 Repression
- 3 Projective test
- 4 Rating scale

Multiple-choice questions

- 1 In Freud's theory, the id:
A is irrational, impulsive and unconscious.
B is the voice of conscience.
C is the regulator and sets the standards for behaviour.
D leads to positive feelings of pride or negative feelings of guilt.
- 2 Reaction formation is a:
A stage of ego development.
B conflict.
C defence mechanism.
D trait.
- 3 Personality psychologists who follow psychodynamic theories, such as those of Freud, are likely to use:
A self-report inventories.
B pen and pencil tests.
C projective tests.
D intelligence tests.
- 4 Personality traits are:
A descriptions of prisoners.
B how we behave at parties.
C stable forms of behaviour.
D predicted from horoscopes.
- 5 Trait theories of personality focus on:
A group differences.
B individual differences.
C models of personality development.
D unconscious processes.
- 6 Rorschach inkblots are types of what measures?
A Interviews
B Rating scales
C Questionnaires
D Projective tests

- 7 Maslow's hierarchy of needs represents:
A human motives.
B human culture.
C human learning.
D human social experience.
- 8 Observation is a technique that involves:
A looking at people.
B staring at people.
C following people.
C interviewing people.

Apply and relate psychological understandings

Short-answer questions

- 1 Describe why defining personality is difficult.
- 2 Outline defence mechanisms and list three of them.
- 3 Describe three ways by which personality can be measured.
- 4 Outline how Maslow described the path to self-actualisation.
- 5 Outline the benefits of interviews.
- 6 Describe the job of a forensic psychologist.

Extended-answer question

Paper and pencil personality inventories have strengths and limitations. These need to be considered when you are planning a study using an inventory. Think about what some of these might be and explain in detail the issues and their strengths or limitations.

UNIT 2

CHAPTER 8

Others: Social psychology

Key knowledge and understanding

Definition of a group and its purposes

Individuals and groups

- Self-concept and group membership
- Social identity

Behaviour within groups

- Cooperation
- Competition
- Deindividuation
- Social loafing
- Brainstorming
- Impact of group size

Social categorisation

- Stereotypes
- Social values and behaviour

Social psychology

Definition of a group and its purposes

We all spend time with other people, but there are times when we feel part of a group and other times when we feel 'alone', even if we are with other people. There are various definitions of a group. Look at the photos below. Do you think these photos show what is meant by the term 'group'?



Social psychologists, who study social behaviour, talk of a group as being two or more people who interact with and influence each other for more than a short period of time. Group members do not have to like each other or be friends but they do see themselves as being part of that group. Look at the photos again. Which of these shows a group, using the definition of social psychologists? Is this what you thought when you first saw the pictures?

There are clearly some groups that we are members of by circumstance, rather than choice, such as families, class groups and so on. But there are many groups we choose to join. We enjoy the company of other members of the group and find it rewarding. Humans seem to have a basic need to be with other people, and when people are worried or fearful, they usually prefer to be with others than be alone. Being separated from other people for long periods can be highly disturbing for many.

So we join groups for the pleasure of the company of others, but groups also form to undertake specific activities. Sporting teams, interest groups and working parties are examples of groups that come together to achieve a particular goal.

Group members have shared rules or expectations about how to behave. These rules or expectations are known as social norms. **Social norms** are standards that govern what is expected in society and in social situations. Sometimes these rules are stated or written down. Groups as different as a football team and a church youth group may have standards of behaviour that members are expected to follow. Breaking the rules can lead to punishment by the group or even to the rule-breaker being thrown out of the group. Think of the AFL or NRL players who, in recent seasons, have been demoted or stood down because they broke rules relating to curfews, drinking or attitude. At other times, the rules are simply 'understood' without being written down. This type of rule may involve matters as different as how members dress and with whom they mix.

Figure 8.1 Sporting teams and business people often dress similarly to others in their group.

Broaden your understanding

Social groups

List three groups that you belong to in the table below. Write down a rule that is important for each. Indicate whether it is a stated rule or one that is simply 'understood' by members.

Group	Rule	Stated or understood?
1		
2		
3		

Within groups, members have **social roles**. These are activities taken on by individuals for the benefit of the group. For each role there is a set of social norms or rules that outline the expected behaviour for the person in that position. Sporting groups usually have captains and coaches, for example. Members of the team know what these people are supposed to do and how they should behave. Members of peer groups also play roles that are governed by rules, even if these are unstated rules. Think of your class group for Psychology. One person is likely to be the 'organiser' who suggests who should do what in a group project and texts people to remind them of deadlines. Someone else may act as the 'clown' who keeps the group amused or cheers members up if they are feeling down.

When people in groups take on different roles, it is hard to avoid the fact that some roles are thought to be more important to the group than others. These roles are said to have higher **social status**. People in high-status roles tend to gain prestige and are usually admired or respected by others in the group. The role of leader has the highest social status in any social group and they usually have the greatest power and influence of any member of the group.

Now we want to look at some of the characteristics of groups and what makes up a group. Groups can be distinguished from numbers of unrelated people, although it is not always clear. Look, again, at the pictures on the previous page. You should already know which photo shows a group and on what basis you have made that judgement. In this case, it is not the uniform, since in both pictures group identification could be through the wearing of similar/identical clothes. Groups are defined as two or more people who interact with one another for an extended period of time and also perceive themselves as being part of that group. Groups do not apply to gatherings of, for example, business people who all happen to be in an airport lounge at the same time waiting for an aeroplane. These people have no extended contact with the others (even if they dress almost identically) and have no relationship with each other. They may chat in the airline queue but they are not part of a group. So a major characteristic of a group is extended interaction.

Other characteristics include stability and endurance, which could reflect the extended interaction, the sharing of common goals, the undertaking of similar tasks each time the group meets (meeting regularly in and of itself is a sign of a group), and the perception that the group is composed of its membership. Members recognise and value these characteristics.

People apply these characteristics when asked if they belong to a group. In a classic study by Chester Insko and his colleagues in 1988, male and female students had to choose, in a game-like situation, whether to compete or cooperate with others. Various conditions were investigated, using three individuals in each one.

The sorts of conditions studied were those of interdependence (participants could not see each other), discussion (participants talked about the game) and consensus (participants had to reach total agreement) and the aim of the experiment was to see under which condition or conditions the students thought of themselves as being part of a group. Insko and colleagues watched the various conditions and also asked the students some questions at the end. It was predicted that when people felt part of a group they would act more competitively against opponents.

The researchers found that students in groups such as the consensus group acted like a true group in that they demonstrated higher levels of cooperation and rated themselves more highly as being part of a group. This work is interesting because it shows that when asked to work together through interaction and sharing common goals to reach consensus, people believe they are part of a group. This fits in with the characteristics described above as those that define a group.

If you play a sport or are in a band, hang out at the weekend with friends, belong to Scouts or to a special interest group, then you are a member of a group. Perhaps you belong to several groups, each with its own characteristics. People join groups for various, and different, reasons. Some of these reasons include the need to 'belong', or to give and receive attention and affection (sometimes called affiliation), to obtain and share knowledge or skills and goals that would not otherwise be available to you as an individual (and are perhaps unique to the group or at least transmissible by the group) and, finally, to allow you to develop a social identity based on the group. This contributes to the development of self-concept and also gives you a sense of belonging and contributing to a group.

People join groups because humans are overwhelmingly social and get a great deal out of being part of them. Being part of a group defines you as a human being, both as an individual and as a member of that group. Roles within the group enable you to define yourself and build your self-concept and self-esteem. Thus, there are roles that groups give individuals that can contribute to their definition of themselves.

Individuals and groups

Self-concept and group membership

Self-concept is our definition of ourselves – who we consider ourselves to be. Try completing the sentence: I am a ...

You might have described yourself physically: 'I am a short, thick-set guy with a Number 4 haircut.' Or you might have described your interests or abilities: 'I'm a bit of a muso and play lead guitar in my own band.' Or you might have described your personality: 'I am a quiet, indoor type who enjoys the company of a few close friends.' Your description is part of how you see yourself – that is, part of your **self-concept**.

Theorists vary in their definition of self-concept. For example, Baumeister (1999) defines self-concept as follows: 'The individual's belief about himself or herself, including the person's attributes and who and what the self is', while Baron and Byrne (1991) define it as 'A system of affective and cognitive structures (schema) about the self that lends coherence to individuals' self-relevant experiences'. Although they are not quite identical definitions – and quite complicated language is used – they both mention the self.



Figure 8.2 Hanging out with a group of friends

Broaden your understanding

Social roles

You are part of a group that is developing a community action project to plant trees. The roles of the members of the group are being established. What role would you take?

- Would your role be decided by the task to be done, such as chairing meetings, fundraising or digging holes for planting the trees?
- Or would your role be decided by what tasks you are skilled at?
- What skills does the group have? Are there any new skills needed or existing skills that need improving?

In thinking about what role would be best suited to you, also consider which roles might suit your friends or what your friends might contribute in such a community project.



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Figure 8.3 Congratulating yourself with a selfie!

According to Burnett, Craven and Marsh (1999), ‘... self-concept research has suffered in that ‘everybody knows what it is’ so that researchers have not felt compelled to provide a theoretical basis or psychometric evaluation of their self- concept measures’. Psychometric evaluation in this definition means standard and scientific psychological evaluation. Australian researchers have been at the forefront of self-concept research and people like Professor John Hattie, at the University of Melbourne, regard self-concept as more-or-less synonymous with self-esteem, itself defined as ‘... the global feelings (happy, proud, satisfied, pleased) and beliefs (in general, I like being the way I am, I am a nice person, I do lots of important things) about oneself as a person’ (Burnett, 1994).

Other people in groups that are important to us, such as our families and close friendship groups, play a major role in shaping our self-concepts. They let us know what they like or do not like about us and provide us with feedback on our abilities, skills and personalities. Children as young as eight years old can usually tell you where they stand in their class with regard to skills in maths, running ability and popularity, and this information helps them think about who they are.

As members of social groups, we have roles and status within these groups and these help us shape our self-concept. Holding an important role within a group we value is likely to result in a positive self-concept.

Social identity

Social identity is that part of our self-concept that is based on membership in particular groups: ‘I am an Eagles fan’ or ‘I am a Dockers fan’; ‘I am a Buddhist’ or ‘I am a Christian’. A social identity is that part of an individual’s self-concept that is derived from perceived membership in a particular social group. Sometimes our social identity is clearly on display: bumper stickers, club colours and dress are all ways of showing our social identity.

Social identity can be contrasted with personal identity, which is the identity of the unique individual, each with his or her own specific psychological and physical traits. Social identity theory describes what motivates us to join groups. Generally, this is because we see the group as attractive and successful; this in turn affects and improves self-esteem. Being part of a successful group adds a good feeling of our sense of self, and we will also defend and promote the group. Taken to its extreme, the more prestigious the group, the higher our self-esteem will be since the group is very highly regarded by both its members and others. One way in which individuals can maintain their self-esteem is through their membership of successful and attractive groups and also by believing that their groups are superior to any of the others. According to social identity theory, this happens because inter-group behaviours can be predicted on the basis of perceived group status.

In the 1970s and 1980s, Henri Tajfel and his colleagues in the United Kingdom (Tajfel, 1970; Tajfel & Turner, 1986) carried out a series of studies that showed that we determine the status of our group by comparing our group with others. Comparisons that show our own group to be better than others lead us, as individuals, to having a positive self-concept, and we prefer to have a positive rather than a negative self-concept. While



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Newspix/Craig Greenhill

comparison of groups is sometimes easy, such as when the team we support wins a game, often we really do not know very much about the other group. In these cases, we may simply look for evidence to confirm our belief that our group is better. This is one way in which prejudice can develop.

Social identity can, of course, have positive effects. If the social norms of the group involve doing good work in the community, then gaining social identity through the group may lead to members playing useful community roles. Many community groups, such as Rotary, Apex and Lions, have helping others as a major reason for their existence. Other groups, such as sporting clubs, may see supporting a children's hospital or providing coaching clinics for disadvantaged youth as valued activities that give their group status.

There are, therefore, many reasons why people join groups and move between groups. People move between groups to enhance their sense of self and to elevate their status in the eyes of others. We can belong to multiple groups at any one time and these groups can have labels. Sometimes it can be beneficial to belong to a minority group since this can also confer status (such as being a member of a bikie gang).



Newspix/News Ltd

Figure 8.5 Some people gain status from membership of a bikie gang.

Figure 8.4 Our clothing may show our social identity, and other forms of identity, such as our religion or culture.

Broaden your understanding

In-groups and out-groups

Think of groups you know about. Some will have a label (such as Scarborough Junior Netball Club) while others may be more loosely grouped (such as those who meet to develop their coding skills after school). Some of these groups may be in-groups, those groups you identify with as a member, and some are out-groups, that is, those groups of which you are not a member. Consider how and on what basis you make decisions about which groups to join.

Behaviour within groups

Groups that are together for the long haul – families, dance groups, research teams, flight crews and school staff, just to name a few – are highly dependent on each other. They are **socially dependent** – they rely on each other for emotional outcomes, feelings of belonging and social identity. Many are also **task dependent** – having to work together

to complete a collective task successfully. Social psychologists are interested in the impact that working in a group has on an individual's behaviour and also in the factors that influence how effectively people work together.

Cooperation

An important feature of groups is that they encourage cooperation rather than competition in order to reach group goals. Even in competitive teams, cooperation and coordination within the group are seen as being more likely to produce a win rather than individual brilliance. Cooperation requires commitment to a common goal and to the process of achieving that goal to ensure each member receives an appropriate share of the rewards or benefits.

A sense of cohesiveness within a work group can also boost productivity through the development of **group norms**. These are the unwritten and often unspoken informal rules that govern individual behaviours in a group, unlike social norms, which can be written. Once agreement has been reached on norms (and these may be negotiated if they are unwritten), members usually conform to the agreed-upon rules. Such agreement can boost productivity, especially if the group has a high-productivity norm. If there is disagreement and distrust between the group members and management, and the group has a norm of passive resistance, group cohesiveness can actually lead to decreased productivity. This is why most work groups now have team-building days, where, away from the office, team members can work together to achieve a single outcome such as in cooking, playing Ambrose golf or learning to trust each other in activities such as rock climbing. These activities can establish group norms in a different environment, which can spill over into the work environment.

Competition

Competition refers to rivals trying to outdo one another to achieve a goal. While competition *within* groups reduces group cohesion and hinders efforts to achieve group goals, competition *between* groups increases group solidarity. Unfortunately, it also leads to inter-group hostility. Realistic conflict theory has been proposed as a way of accounting for this. This theory proposes that inter-group hostility arises because of competition between groups for scarce but valued resources. We see this in Muzafer Sherif's classic study of 'The Rattlers' and 'The Eagles' (see below), where two groups of boys attending a summer camp competed for prizes in a variety of activities in which the winner took all. Competition soon deteriorated into hostility and aggression. In the real world, competition for resources, such as land and jobs, can pit one ethnic or national group against another, also resulting in hostility.

'The Rattlers' and 'The Eagles': A research study into inter-group relations

In a classic study reported back in 1961, Muzafer Sherif and his colleagues ran a summer camp for 11- to 12-year-old American boys. It was an experiment in social psychology that traced the formation and functioning of negative and positive attitudes of members of one group toward another group and its members, as a consequence, of situations introduced by the researchers. In experiments such as this, research design and the reporting of results may follow a standard way of presenting a study, using headings such as those below.





Background

The boys, who were strangers at the start of the camp, were put into two groups. One group took on the name 'The Rattlers'. The other group called themselves 'The Eagles'. During the course of the camp, the groups were told that there was going to be a competition between the groups, with the winning group getting prizes and the losing group getting nothing. In this experimental study of inter-group relations, the researchers deemed it necessary that various conditions between groups be experimentally introduced and manipulated and the consequences of their variation predicted.

Hypotheses

The main hypotheses related to attitudinal and behavioural changes predicted as a result of alterations of the conditions in which experimentally formed in-groups interacted. There were a great number of hypotheses, but from the three stages listed below, various predictions were made about the formation of the groups, their communication pattern behaviours and then the patterns of behaviour that emerged when the various experimental tasks were introduced.

Method

Three successive stages were used:

- 1 The experimental creation of in-groups through the introduction of goals that arose naturally, had common appeal and were liked by all the boys, and required the students to face a common problem and engage in discussion, planning and execution in a mutually cooperative way.
- 2 The two experimentally formed groups were placed in situations in which the groups found themselves in competition for given goals.
- 3 The introduction of goals that could not be ignored by members of the two antagonistic groups, but the attainment of which was beyond the resources and efforts of one group alone.

Outcomes

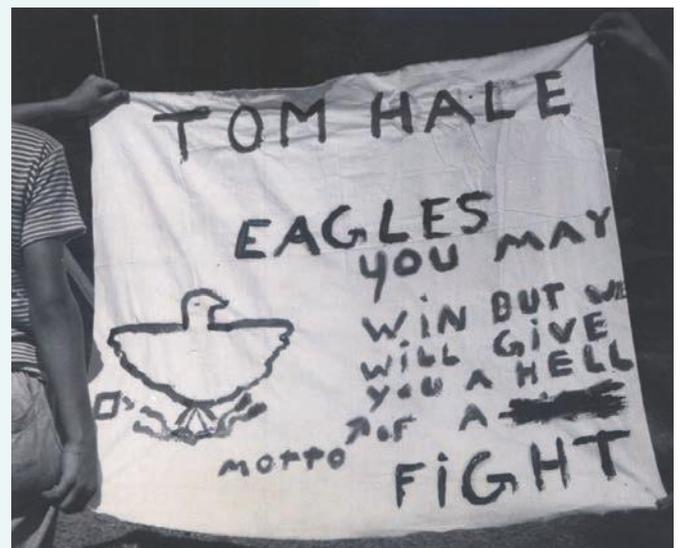
While the competitions in Stage 2 were usual camp activities such as tug-of-war and baseball, strong negative feelings towards the competing group arose. The boys thought that those in their own group were strong and brave, while those in the other group were sneaky smart-alecks. They started abusing each other and fights broke out. Feelings became so intense that, by the end of the competition, the boys would not even speak to those on the other team.

Sherif and his colleagues finally got the two groups of boys back on friendly terms by having them work together, cooperatively, to solve several problems: clearing a blocked drain that was threatening their drinking water supply, raising money to secure some movies they wanted to see and helping to free a bogged truck.

Conclusion

The experiment showed that inter-group relations could be manipulated and there were real consequences to being in competing groups.

Figure 8.6 One of the banners on display during competitions



The Drs. Nicholas and Dorothy Cummings Center for the History of Psychology, The University of Akron



age fotostock/Thomas Frey/imageBROKER

Figure 8.7 Deindividuation can occur among soccer fans.

While realistic conflict theory is based on competition for scarce resources, we still get competition and conflict when there are enough resources for everyone. It appears that once groups have the basic necessities, they start comparing themselves with other groups to determine how they are going. For example, one person's new-found prosperity as seen in a brand new luxury car or going on an overseas holiday might be someone else's deprivation, such as driving an old 'banger' or not going on holiday, and can result in social unrest (such as riots and violence).

Deindividuation

Some people prefer to go to the cricket or the movies by themselves and some prefer going with a group. There are various reasons why this might be the case and there is plenty of evidence to show that we tend to behave

differently when we are in groups than when we are by ourselves.

The presence of others leads to heightened arousal and it can also lead to a diminished sense of responsibility. In some instances, being in a group can cause both heightened arousal and diminished responsibility at the same time. The result can be immature behaviour such as food fights or abusing a referee, or more seriously negative behaviour such as vandalism and rioting. Abandoning the usual restraints of an individual to join in crowds or group behaviour is known as **deindividuation**.

Some research has suggested that this type of behaviour is due to two factors: anonymity and shift of attention. Being in a large group, especially a group dressed in uniforms or similar outfits, can certainly lead to a sense of anonymity. Attention is often focused on external events and not on internal thoughts or evaluations of the situation. An early study by Philip Zimbardo (1970) provided support for the anonymity hypothesis. They examined the impact of deindividuation on students' willingness to deliver electric shocks to another student. They compared the behaviour of college students whose identities were deindividuated or concealed through wearing identical overalls and hoods over their heads (like the Ku Klux Klan) with that of students wearing normal clothing and name tags. They found that the anonymous students were prepared to deliver stronger and longer electric shocks than those who were identifiable. The researchers interpreted this as being due to the power of individual norms becoming undermined by being an unidentifiable face in the crowd.

There is, however, another interpretation of these findings. Steve Reicher (1987) argued that rather than reducing self-awareness, deindividuation increases awareness of social norms. This means that when the social norms are positive, positive group behaviour will result. This can be seen in responses to major disasters, such as earthquakes, when crowds of people will rush to rescue victims from the rubble. Support for this interpretation has come from several studies, including one that took a similar form to that conducted by Zimbardo. Johnson and Downing (1979) had two main groups of participants, both of whom were deindividuated: half were dressed in nurse uniforms and half in Ku Klux Klan robes. Attention was drawn to the resemblance of the special clothing in each of the groups. In half of each of these groups, participants wore name tags to individuate them.

Participants in this experiment could increase or decrease the level of shocks administered to another student. As can be seen from Figure 8.8, those dressed as

nurses behaved in a way in keeping with the helping/caring norms of this group (i.e. they were less aggressive), while those dressed as Ku Klux Klan members behaved in keeping with the normative behaviour of this group, that is, the expected and accepted cruel behaviour of this group. Deindividuated nurses were the least aggressive of all.

Social loafing

In an activity like a tug-of-war, would you expect an individual to put in as much, more or less effort in a team event than in an individual one-on-one competition? Alan Ingham and his colleagues in the United States posed this question (Ingham et al., 1974). They asked blind-folded students to pull on a rope as hard as they could. When they had been tricked into believing that they were part of a three-person team, they only put in 82 per cent as much effort as when they thought they were pulling alone. Later, the term **social loafing** was used to describe this practice of putting in less effort when in a group. The decrease in performance is usually attributed to a loss of motivation rather than coordination loss.

Social loafing is not only found in simple motor tasks. Individuals working in groups have been found to make twice as many errors on vigilance tasks in which they had to detect brief flashes on a computer screen as they did when working alone. This happens because individuals feel less accountable when part of a group. This is a factor in lack of responses by bystanders to emergencies. Individuals may also feel that their efforts are not as important – that their contribution is dispensable – and so slack off. You may have noticed this yourself when doing group projects. If everyone is not highly motivated to achieve the task, some may try to take a free ride, considering that their lack of effort will not make much difference. Social psychologists agree that less social loafing occurs:

- if the task to be completed by the group is interesting
- when members are highly motivated
- when individual contributions are essential for success
- if individual performance is monitored
- if individuals identify strongly with the group.

Brainstorming

Groups can do most tasks better and/or faster than an individual working alone. Their members can bring a wider range of skills and provide encouragement and support for each other. However, the question still remains as to whether two individuals working together perform better than two working separately. Research addressing this question has resulted from the popular technique of brainstorming. **Brainstorming** is used to generate ideas in groups. What distinguishes it from other types of group problem solving is that members are encouraged to be uninhibited in generating their ideas: to offer suggestions without worrying about whether they are practical or not. Group members are encouraged to build on or combine ideas already offered. It was thought that by following these rules, groups would generate many more ideas than individuals working separately.

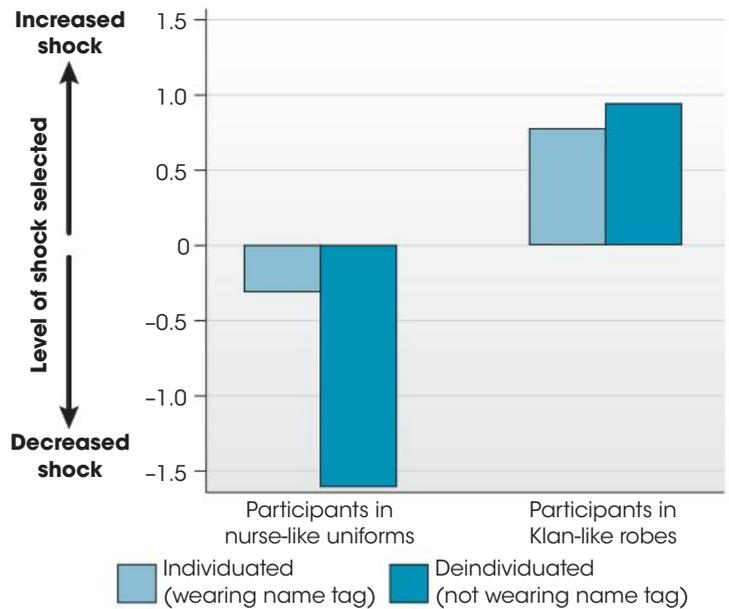


Figure 8.8 Deindividuation leads people to behave in accordance with accessible group norms.



iStock.com/fridofranz

Figure 8.9 Would this team of business people generate more ideas by working individually?

Impact of group size

Groups are sometimes characterised in terms of their size or in terms of their function. We work in groups, we meet up with groups of friends, we join various community groups and we represent our views through groups. Social groups, in other words, occupy much of our daily lives and influence the way we speak, the way we dress, our cultural and religious practices, what school we send our children to, what suburb we live in, and what attitudes we hold. Social groups are, therefore, pervasive influences on all aspects of our life and our being. Any group can be described by a number of features that draw attention to its similarity to, and difference from, any other group.

Communication is fundamental for working with others, either cooperatively or competitively, and is heavily influenced by group size. Social interaction, by definition, requires at least one speaker and one listener, but very often there are more than two participants. Face-to-face interaction characterises one speaker and one listener (with interchanging roles). Much research has been conducted on two-person exchanges. Descriptions are then applied to larger groups. Any interaction has to be started and ended: you need to know when to enter and when to leave a conversation (Clark, 1985). Work on group communication has been conducted by social psychologists who study different types of groups, the functions of groups, the size of the groups and the dynamics of groups (such as leadership) (Robinson, 2003). Much research was aimed at describing 'normal conversations', often between university students, but other sorts of communication were also of interest. Among these were police interviews, interviews by journalists, intimate conversations between couples, and parent-child conversations. A hallmark of this early work was the focus on opening and closing the conversations (Who opens the conversation? At what point can each person talk? How can the conversation be closed?), how long the conversations lasted, as well as who 'controlled' the conversation in terms of its length, the taking of turns by the participants, and the actual content. Characteristics of face-to-face communication were then applied to group conversations or exchanges.

Small groups, however, have slightly different dynamics from face-to-face conversations and are more like larger meetings, which are governed by rules and formal requirements about who can speak when and for how long. Formal meetings are usually chaired by someone to whom others defer and who 'controls' the content of the discussion, who talks and when, and for how long the topic is discussed. An agenda typically sets the topics for discussion. Small groups take on some of these characteristics so that they are manageable and so that everyone does not talk at once, for example.

However, empirical studies have consistently failed to support this claim. Michael Diehl and Wolfgang Stroebe (1991) reported studies in which they investigated several possible reasons for this finding. They found that the main reason for fewer ideas being generated by groups working for the same length of time as individuals was because production was blocked due to only one person being able to speak at a time. Individuals became distracted between generating an idea and being able to report it. We discuss Diehl and Stroebe's work again in Chapter 10, when we look at some of the steps taken in conducting experimental research.

As noted previously, groups are usually defined as collections of individuals who assemble to relate to one another, so there is interdependence between the members. Group size is related to the task being undertaken and to the emotional functions provided by group membership. Some suggestions are included in Table 8.1.

Size of group	Tasks for which the group size is suited	Emotional functions
2–3	<ul style="list-style-type: none"> • Generating ideas/data • Checking out ideas/data • Sharing interpretations • Good for basic communication skills practice (e.g. listening, questioning, clarifying) • Good size for cooperative working 	<ul style="list-style-type: none"> • Active involvement • Builds confidence • Lays foundation for sharing and cooperating in bigger group • Reticent members can still take part
4–10	<ul style="list-style-type: none"> • Generating ideas/data • Criticising ideas • Usually sufficient numbers to enable allocation of roles and responsibilities so a wide range of work can be tackled (e.g. project work, problem-based learning) 	<ul style="list-style-type: none"> • Decreasing safety for reticent members • In smaller groups, still difficult for members to 'hide' • Strong members can encourage the weak • Size of group still small enough to avoid splintering • Sufficient resources to enable creative support
More than 10	<ul style="list-style-type: none"> • Holding on to a task focus becomes difficult • Workshop activities are possible and sub-groups can address some of the issues since size may hinder discussion 	<ul style="list-style-type: none"> • Difficulties in maintaining supportive climate • 'Hiding' becomes common • Leadership struggles a potential risk • Divisive possibilities with spontaneous splintering into sub-groups

Table 8.1 Size and functions of groups

Adapted from Multiprofessional Faculty Development Unit (London and South East)

Group dynamics have been studied extensively, often in relation to how group members establish roles for themselves and others within the group (Robinson, 2003). Clearly these negotiations, as well as discussions about action needing to be taken, require communication. The structure of the group and the roles of its members require an internal communication network that regulates the patterns of communication. Formal structures exist in organisations like schools or government (or teams) where there is a clear social hierarchy but in informal groups that have come together incidentally, such as sporting fan clubs or university classes, the networks have to be worked out to enable the group members to communicate with one another (if they choose to do so!).

The effectiveness of communication networks to some extent depends on the number of members of the group and the number of communication links that have to be crossed to communicate with another person. For example, in a school, you as a student or parent would be likely to talk to the teacher before talking to the principal; therefore, there are two links. When psychologists study networks, they tend to look at groups of three, four or five people; that is, fairly small groups. Networks can be highly centralised, decentralised or completely connected (Vaughan & Hogg, 1998).

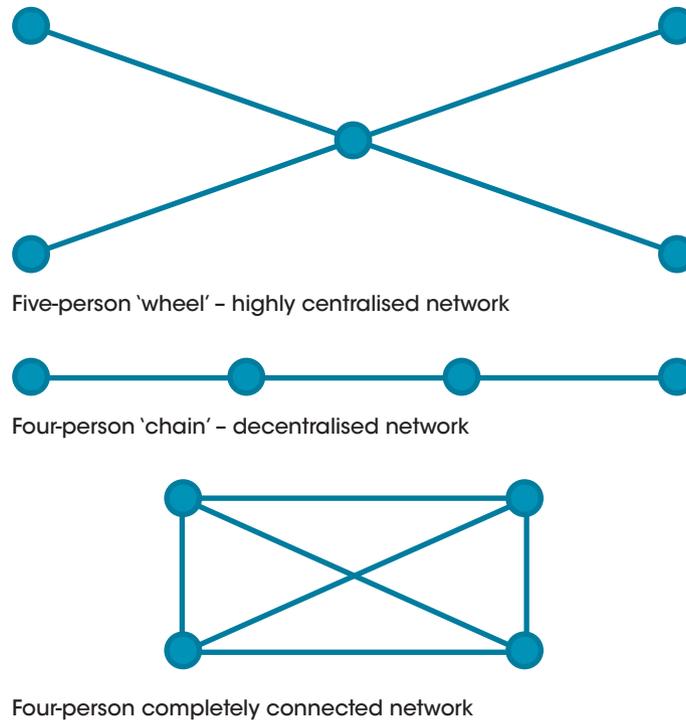


Figure 8.10 Highly centralised, decentralised and completely connected networks

When groups work together on simple tasks, centralised networks are best where everyone reports to one person, because the central person can give and receive information and knowledge while the peripheral group members get on with doing the activities. For more complicated tasks, a less centralised network structure is better because the volume of the information flow and the complexity of the information required are too much for one single person. Such an inability for the central person to assimilate, integrate and pass on the necessary information quickly and accurately would mean that the peripheral group members would be less efficient. So, a more decentralised network where people communicate in a chain-like fashion with their immediate senior can pay off. However, in complex activities that are long established, a centralised network can work well.

Another factor affecting the way that networks function relates to the role of the group members. The central person can adopt an air of having an important role or higher status, which can lead to peripheral members feeling left out or dependent on one person for information. Having more power leads to greater feelings of autonomy and satisfaction, and, in general, group members feel satisfied the more control they have. Perceived control itself is linked to the nature of the communication network and the perceived role the person has within it, especially in relation to decision-making and autonomy. So, group communication is a very important area of study since it links the effectiveness of the group to the individual, mediated to some extent by the size of the group.

Social categorisation

Stereotypes

When you imagine a doctor, you may picture a clever, competent person, a person who works long hours or a rich person who drives a flashy car and lives in a big house. When we think of people as belonging to a group, rather than thinking of them as individuals,

we are putting them into social categories. Social categorisation, as with categorisation of any kind, is a necessary tool for us to make sense of our world and to function effectively.

Social categorisation is the process of classifying a person as a member of a certain group because of features they share. Sometimes these features may be obvious, like gender or ethnicity. They may be physically marked by uniforms, name tags or the tools of trade. Sometimes the features are more subtly marked, such as by accents in the way we speak or our style of dress. Social categorisation saves us from having to deal with all the unique aspects of every individual we meet when these are not relevant to our interactions. Imagine how irritating it would be if there was no way of distinguishing shop attendants from customers in a store, or how awkward it would be if we could not pick out a police officer in a crowd.

Stereotypes are a form of social categorisation. Stereotypes are based on what others think of as shared features. These are used to put people in boxes, making them seem more similar than they really are. While stereotypes may be positive or negative, we usually dislike being stereotyped, as it means that we are not being seen and responded to as individuals. If we were to meet our pictured police officer in 'civvies' at a party and discover that he was a police officer, our reaction to him is likely to be governed by our stereotype for police, which may include someone who is always on duty. This could affect whether we interact with him or avoid him at the party.

As we encounter a person from an identifiable group for the first time, our initial impressions can form the basis of stereotypes. Our first meeting with a Peruvian or East Timorese, or with a landscape architect or rigger, can lead us to hold expectations about the behaviour of others from those countries or professions.

The behaviour of an individual can also activate existing stereotypes. E Aaron Henderson-King and Richard Nisbett (1996) showed this in a study in which the participants (white students) watched an interaction between an individual and the experimenter. Unknown to the participants this individual was a confederate of ('known to and collaborating with') the experimenter. Some participants saw the confederate as being rude and aggressive towards the experimenter, while others saw a pleasant interaction, and still others saw no interaction take place. In some instances, the confederate was white, while in others, they were black.

Later, in a second study, the same participants were asked to conduct an interview of a black student for the position of a student counsellor. This was not a real interview but instead a mock one where the black student was a confederate. They were told that the interview could last up to 20 minutes and were given a list of possible questions to ask. The researchers found that those participants who had observed the black confederate behaving in a negative manner conducted a much shorter interview than those who had either witnessed a white confederate (whether hostile or not) or who had not witnessed any hostile behaviour. It would appear that single instances of negative behaviour by a member of an identifiable group can activate negative stereotypes about others in the same group.

We also learn about stereotypes from others: parents, friends and teachers. Children as young as five years of age have been shown to have clear-cut racial stereotypes. They do not have to be explicitly taught, but can pick up negative stereotypes from



Figure 8.11 Uniforms can make it easier for us to recognise people who can help us.

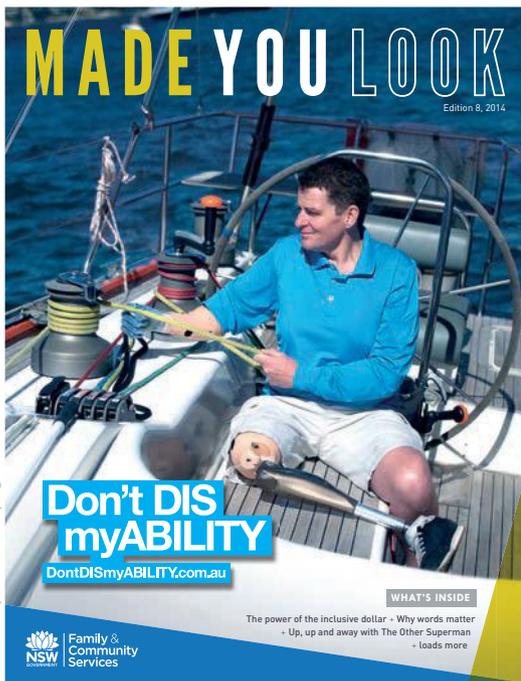
Broaden your understanding

Gender stereotypes in cartoons

Watch a children's cartoon for up to one hour. Create the table below in your work folder and record your observations in the table.

Show	Character	Activity	Gender stereotyped? Y/N

Calculate the percentage of activities that were gender stereotyped. Do your findings agree with those of Thompson and Zerbino in the United States in 1995?



Cover: Made You Look, December 2014. NSW Department of Family and Community Services, the Don't DIS my ABILITY campaign and Sailors with disabilities

Figure 8.12 *Made You Look* is the official magazine of the Don't DIS my ABILITY campaign, released yearly.

group labels, derogatory jokes and other behaviour of adults. This behaviour reflects the social norms or values of the group – ways the group accepts as being appropriate ways to think, feel and behave.

The media, in all forms, also play a role in forming or strengthening stereotypes. Think about the stereotype of a Jew portrayed in Shakespeare's *The Merchant of Venice*, or the stereotype of a refugee or of a rugby league player that can be drawn from current TV and newspaper reports. The media also tends to reinforce gender stereotypes, although women are increasingly being shown in realistic or counter-stereotypical roles in drama and comedy series, and even in commercials. Male voice-overs, however, tend to be used when an 'expert' is required. Children's cartoons represent the extreme of gender stereotyping. An analysis of cartoons in the United States by Thompson and Zerbino (1995) showed that boys were presented as active, rough and often violent, whereas girls were shown as home-oriented and interested in their appearance and boys.

Given that the vast majority of us are aware of stereotypes, knowing how this social phenomenon affects us is vital. Research has shown that once we have categorised a person according to a stereotype, we tend not to see their individual characteristics, but simply attribute to them

the characteristics of the group to which they belong. Darley and Gross (1983) carried out an experiment with a group of teachers. Half the group were shown a videotape of a female student, Hannah, from an apparently low socioeconomic background. She was shown in a street with old run-down houses and playing in a fenced-in asphalt schoolyard. The other half were shown a video of the same student playing in a tree-lined park and standing near large, expensive homes set in landscaped grounds. The teachers were then shown a videotape of Hannah doing a test. During the test the girl's behaviour and performance varied. At times she seemed interested and on task, at other times she looked bored and distracted. She answered some easy and some difficult questions correctly and others incorrectly. The teachers were asked to indicate how well they thought Hannah performed on the test and give their reason for their prediction. Those teachers who had seen the

video of Hannah in poor surroundings predicted poorer performance than those who had seen the video that suggested that she was from a wealthy background.

Both groups of teachers justified their predictions by referring to Hannah's behaviour during the test. Those predicting poor performance noticed that she had looked bored and distracted during the test. Those who predicted good performance remembered those parts of the video where she had looked attentive. These results suggest that the teachers had been influenced by their stereotypes. Placing Hannah in a particular socioeconomic group had affected both what they remembered of her test behaviour and their expectations for her performance.

People with disabilities tend to be stereotyped as lacking in ability in all areas. This has led to advertising campaigns such as the NSW Department of Family and Community Services' 'Don't DIS my ABILITY' and the Australian Human Rights Commission's 'Don't judge what I can do by what you think I can't'. Such campaigns attempt to get members of the general public to see beyond the stereotype.

Broaden your understanding

Stereotypes

The UK developed an advertisement for its participation in the Paralympics at Rio in 2016. Called 'Yes I Can', the video clip claimed 'We're the Superhumans'. View this at the link – it sends a powerful message about stereotypes.



Stereotypes can be even more dangerous when they are used to justify existing social conditions. As we mix with people from other groups and learn the beliefs and values of our own groups, it is easy to reinforce the view that people are well-suited for the roles they play. Elderly people are seen in most societies as fitting the stereotype of being warm but not competent. We see more elderly people in nurturing 'grandparent' roles than in leadership roles, reinforcing our perceptions that they are warm and caring but not capable of important decisions, since they are less capable, less ambitious and less responsible than younger people. This can lead to older employees being seen as less effective in the workplace.

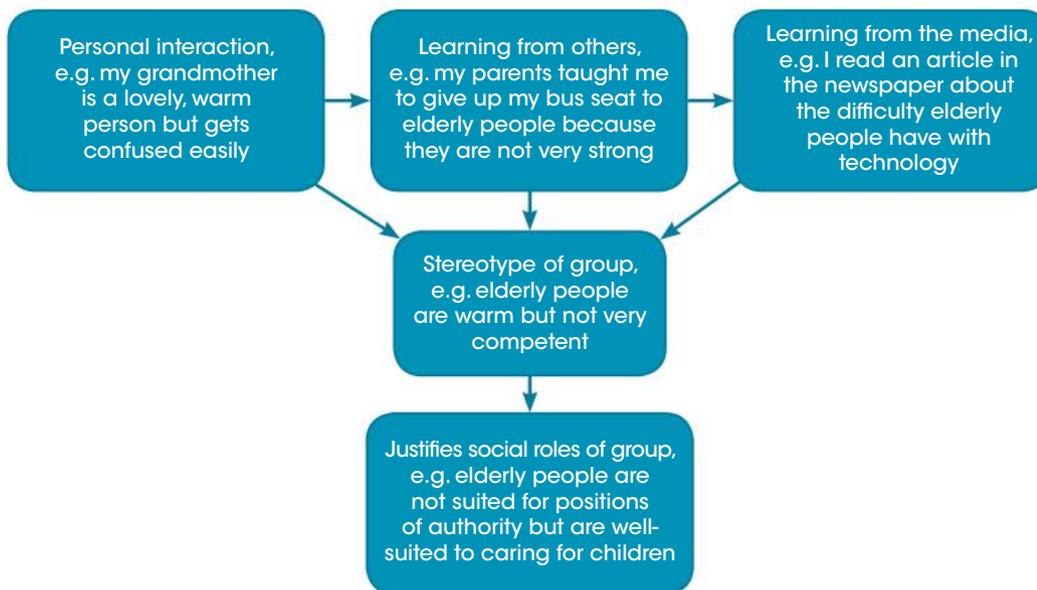


Figure 8.13 The process of justifying social roles

This stereotype has also been associated with the emotion of pity. While this may not seem on the surface to be a matter for concern, it has been found to have negative

consequences. Expressions of pity and sympathy by medical practitioners and other professionals can lead to a dangerous self-fulfilling prophecy, where the elderly people see themselves as helpless and dependent (Cuddy, Norton & Fiske, 2005).

Self-fulfilling prophecies can be seen in many situations in which we have stereotyped and stigmatised groups. A **self-fulfilling prophecy** stereotype is a prediction that directly or indirectly becomes true, by the conditions of the prophecy itself, due to positive feedback between belief and behaviour. This affects not only the perceiver's beliefs and behaviours, but also those of the person in the stereotyped group. Expectations can be based on the social categories of gender, race and social class or on personal characteristics, such as physical attractiveness. They can operate in the home, in school and in the workplace. Parents who treat their vision-impaired child as if he or she were totally helpless end up with a dependent child. When teachers' expectations for their students are high, they teach them more material and allow them to contribute more to class discussions and answer more questions in class. This translates into higher academic performance.

Broaden your understanding

Stereotypes in film

Watch the computer-animated movie *Zootopia* (2016) released by Walt Disney Animation Studios and list the main stereotypes in the film, noting the following for each stereotype:

- How did the stereotype affect the actions of the person who held the stereotype?
- How did the stereotype affect the behaviour of the person/people in the stereotyped group?
- What helped the characters see beyond the stereotype to the individual?

In all societies there are the 'haves' and the 'have nots'. Those in the more powerful groups usually justify their position by an appeal to stereotypes. Melvin Lerner (1980) thought that we found ourselves in this position because of the widespread belief that the world is just – what he called the **just-world phenomenon**. This leads us to blame people who are victims for their misfortunes: 'They must be in this position because they are lazy, or lacking in intelligence, or have behaved badly'. This then lets us 'off the hook' morally, meaning we do not owe these people anything. This type of reasoning has unfortunate consequences for such people as victims of rape and domestic abuse, often leading to under-reporting of these types of crime.

Social values and behaviour

We have seen that stereotypes encapsulate the social values of groups. But social values are not static. Social values are what are considered to be important to our lives and to our interactions with others and these can change and evolve over time.

If we look at stereotypes of the elderly, we can see how changing social values in a society can lead to changed stereotypes and behaviour. For many generations, the elderly in countries with collectivist cultures, such as China and Japan, have had higher status than in countries with predominantly individualist cultures, such as Australia and the United States. Older people were seen as having valuable knowledge and being in control of important family and community resources. They lived in extended families and played valuable roles. Their high status led to them being shown respect, such as being bowed to, being given the best seats and having meals prepared according to their tastes. At times these social values also had religious roots, with Confucianism requiring respect of elders.



However, recent research suggests that the social values in these collectivist countries are changing, and this is reflected in stereotypes of elderly people that are remarkably similar to those found in Western societies. Cuddy and her colleagues (2005) consider that there are several factors leading to these changing social values:

- technological skill is becoming more important than experience, putting older people out of work
- young people are becoming more transient and losing touch with older relatives
- increasing literacy levels are making the role of the elder as the 'passer-on' of wisdom obsolete
- the increasing size of the elderly population is making retirement a necessity and removing older people from prestigious positions.

Martin Fishbein and Icek Ajzen (1975) developed a **theory of reasoned action** that tries to explain how social norms and values are translated into the way people behave. In this theory they propose that our intention to behave in a certain way is influenced by our social values and by our own personal attitudes towards the behaviour and evaluation of the costs and benefits of engaging in the behaviour. These behavioural intentions then lead us to our actions.

Western Australian researchers Clare Roberts and Janina Lindsell (1997) used this theory to look at the causes of primary school children's attitudes and behavioural intentions towards children with physical disabilities. Children in fourth and fifth grade from eight schools completed a Likert-type scale measuring their attitudes to people with disabilities. A week later they completed a *behavioural intention scale*. This scale involved a short story about a hypothetical new class member with a physical disability. The children had to indicate how they would behave towards this person in 10 different social situations. The children's parents, teachers and principals completed a questionnaire that indicated their comfort in interacting with disabled people. These measures were used to provide an indication of social values.

Roberts and Lindsell's findings supported the theory of reasoned action. They found that children with positive attitudes towards peers with a physical disability were more likely to indicate that they would engage in positive interactions with a class member with a physical disability. Conversely, those with negative attitudes were less likely to indicate that they would interact with the disabled peer. Social norms and values also contributed towards the children's behavioural intentions, although they were less important than the children's own attitudes. Surprisingly, it was the attitudes of parents and school principals, rather than the attitudes of teachers, that helped to predict the children's behavioural intentions.

In this study, half of the schools were ones in which children with disabilities were included in the mainstream classrooms and half were not. The attitudes of both the children and the teachers towards children with disabilities were strongly influenced by this factor. Those who had first-hand experience of children with disabilities were much more likely to be positive in their attitudes than those who had not. This shows how personal contact can help break down negative stereotypes.

Figure 8.14 Do you hold a stereotype of the elderly? Do either of these pictures capture it?

CHAPTER SUMMARY

Social psychology

Definition of a group and its purposes

- Social norms
- Social roles
- Social status

Individuals and groups

- Self-concept and group membership
 - Definition of self-concept
- Social identity
 - In-groups and out-groups

Behaviour within groups

- Cooperation
 - Group norms
- Competition
 - Inter-group relations – ‘The Rattlers’ and ‘The Eagles’ research study

- Deindividuation
 - Zimbardo’s ‘electric shock’ study
- Social loafing
- Brainstorming
- Impact of group size
 - Communication
 - Tasks group sizes
 - Communication networks

Social categorisation

- Stereotypes
 - Research studies
 - Self-fulfilling prophecy
- Social values and behaviour
 - Stereotypes of the elderly
 - Theory of reasoned action

Check your psychological understanding

Terminology

Define the following terms:

- 1 Social norms
- 2 Social identity
- 3 Competition
- 4 Social loafing
- 5 Stereotype

Multiple-choice questions

- 1 A group is two or more people who:
A like to be together.
B interact with and influence each other.
C are together in a small area.
D attend the same club.
- 2 Social norms:
A are the shared rules of a group.
B are written or stated rules about how to behave.
C are important for group membership.
D all of the above.
- 3 A bumper sticker saying 'Go the Blues' is showing the owner's:
A social status.
B social influence.
C social role.
D social identity.
- 4 Self-concept develops:
A as we get older.
B as we get more friends.
C as we learn to talk.
D as we understand more about our social world.
- 5 People join groups to:
A dress alike.
B fulfil their need to belong.
C lead and be bossy.
D get out of the house.
- 6 Group members stay members because they:
A meet frequently.
B perform activities together.
C dress alike.
D all of the above.
- 7 Stereotypes are:
A a form of social categorisation.
B always negative.
C a means of helping us judge what people are like.
D a type of sound system.
- 8 The just-world phenomenon leads us to:
A treat people fairly.
B respect the law.
C work for human rights.
D blame people for their misfortunes.
- 9 The stereotype of elderly people as warm but not competent is likely to lead to:
A feelings of pity towards the elderly.
B learned helplessness in the elderly.
C discrimination in the workplace.
D all of the above.
- 10 In brainstorming, individuals are encouraged to:
A offer ideas, whether they are practical or not.
B generate ideas in groups.
C build on or combine ideas already offered.
D all of the above
- 11 Social loafing best describes:
A groups with a poor work ethic.
B people hanging out socially.
C individuals putting in less effort when in groups.
D individuals adopting others' ideas.
- 12 Business leaders who make rewards to individuals dependent on group outcomes are trying to foster:
A cooperation.
B competition.
C envy.
D whistle blowers.

Apply and relate psychological understandings

Short-answer questions

- 1 Describe the characteristics of groups.
- 2 List the individual roles that groups can help to develop.
- 3 Discuss three types of communication networks.
- 4 According to the theory of reasoned action, describe how social norms and values affect the way people behave.
- 5 Explain the sort of behaviour displayed by people in groups such as the Fanatics (the dressed-up fans who support Australian tennis players around the world and in Australia).
- 6 If you were trying to get a group to work together on a project, describe what you would do to reduce social loafing.
- 7 Discuss the conditions under which you would expect group cohesion to lead to reduced productivity in a work group.

Fact checker

Stereotyping refers to the collection of information about people and fitting them into a category based on that information. Elderly people in Australia often feel that they are stereotyped, but the numbers of over 65s are increasing and we are living longer. Find out if the following are facts or myths:

- 1 Older people are less productive in the workplace than younger people – fact or myth?
- 2 Older people are set in their ways and unable to change – fact or myth?
- 3 Older people are unable to learn new things – fact or myth?
- 4 Most old people feel unhappy most of the time – fact or myth?
- 5 Older people are bad drivers – fact or myth?
- 6 Older people are poor and rely on government 'handouts' – fact or myth?
- 7 You have to speak loudly to an older person because they are hard of hearing or have difficulty following your conversation – fact or myth?

CHAPTER 9

Others: Culture and values

Key knowledge and understanding

Attitude formation - tripartite model

Tools for measuring attitudes

- Observational methods
- Qualitative self-report methods
- Quantitative self-report methods

Prejudice

- Causes of prejudice
- How can we reduce prejudice?

Cultural influences on attitudes

- Individualistic and collectivist cultures



Figure 9.1 Strong feelings about an issue may result in conflict, such as when this Greenpeace boat tried to intercept a Japanese whaling ship.

Culture and values

There has been much debate in this country around the compulsory wearing of bike helmets for cyclists, about the legal recognition of same-sex marriages and about the labelling of the source (known as provenance) of all food produce in shops and restaurants. The views you hold on these indicate your attitudes towards these issues. **Attitudes** are long-lasting evaluations we hold about ourselves, other people, objects and issues. Because our evaluations can be positive, negative or simply neutral, they are said to have direction. Our evaluations can also vary in intensity: we may feel very strongly about a particular issue or only take a mild interest in it. The strength of our beliefs and feelings is

likely to have an impact on our actions. Cognition (our thoughts and beliefs), affect (our feelings and emotion) and behaviour (what we do, our actions) are often referred to as the three components of attitudes.

Attitudes are not something we are born with – they are learned. There is a number of different ways in which we acquire our attitudes. Sometimes we form our attitudes from our direct experience. We are likely to think that wearing bike helmets is a good idea if we have injured ourselves falling off a bike without a helmet. We also learn attitudes from our interaction with others, such as parents and friends. Often we are unaware of learning certain attitudes because they are the beliefs and values of the culture in which we live. We have grown up with, and experienced, them and, if we do not move out of our cultural setting, we may never question them. Cultural attitudes affect so much of what we think, value and do: what we eat, where we eat, how we dress, how we will spend our leisure time, whether we value environmental concerns, who we will marry, and so on.

Attitude formation – tripartite model

There is research evidence on how groups form and how they influence individuals' attitudes and behaviour. Let us take the example of **attitude formation**, which is how our long-lasting evaluations are formed throughout our lives. It is inherently a social activity. We have attitudes about everything and a person with style is said to have 'attitude'. You have an attitude to food, to animals, to cars, to certain types (class, race, gender) of people, to stupidity, to rudeness, to politics and so on.

The word 'attitude' is derived from the Latin word *aptus*, meaning 'ready for action', and in those days referred to something observable such as a gladiator fighting. Nowadays, it is regarded as a construct and not directly observable. It guides subsequent behaviour and choice for action. Research into attitudes has a long history and holds the fascination of psychologists and many thousands of studies have been conducted. Many of these studies have looked at the structure of attitudes, ranging from models that have one component to more recent three-component models. Attitudes are formed from emotion (or affect), behaviour (or actions) and cognition (thoughts and beliefs). Attitudes can also serve the purpose of saving us from something; for example, in a situation when we are confronted by a large spider that we think is poisonous. Our attitudes in this situation will lead us to a behaviour that we believe will make us safe.

Attitudes are often viewed as and defined by a tripartite model, depicted as a triangle (See Figure 9.2). Attitudes are learned through personal experience, and many attitudes can be learned quite early in life.

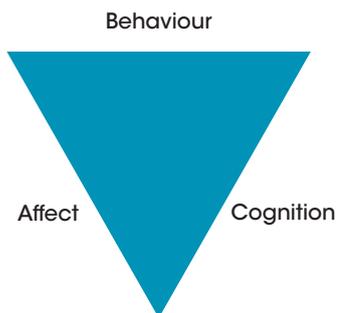


Figure 9.2 The tripartite model of attitudes

While direct experience is an important way that attitudes are formed, they also depend heavily on the lives we live and our social experiences. This is termed social learning and involves interaction with others, watching the behaviour of others and traditional processes of learning, including the reinforcement of positive and negative behaviours and the modelling or copying of the behaviours of others around us. This can be seen as follows:



We cannot view attitudes directly, only indirectly through observing the behaviour of individuals or tapping into their thoughts and feelings. To find out people's attitude to, for example, terrorism, we would ask them about their beliefs and thoughts and view their behaviour in relation to acts of terrorism. In this case, it is less likely that the attitudes will have been determined by direct experience, but rather through observation and feelings of fear and fright, or perhaps admiration.

The relationship between attitudes and behaviour has been questioned by psychologists who are interested in predicting behaviour. They question whether attitudes actually predict behaviour and, if they can, how and when this happens. Psychologists measure one or more of the component parts when they study attitudes. This can be done through paper and pencil tests that explore thoughts and beliefs about the object of interest (say, spiders in Australia), or people's feelings (both positive and negative) about them, or, finally, by measuring their personal action in relation to an activity (what they would do if they encountered a large spider in their bedroom).

Broaden your understanding

Forming attitudes

Ask a friend to suggest something they like and something they do not like (from a different category – so they cannot choose two sports, for example). Probe how this attitude was formed (What led to this view? Was it direct experience or through observation of others, such as family and friends?) and also how the attitude is reflected in the three components of affect, behaviour and cognition. Does it, for example, show up as a desire for (feeling) or avoidance (behaviour)?

Attitudes are often thought to be enduring and unable to be changed. This is not so. When you join a group, you may well adopt the dominant attitudes of that group, through the process of **social comparison**. Indeed, if you aspire to join a group that is attractive to you, you may adopt similar attitudes without having any social interaction with members of the group. You are making yourself acceptable to that group by holding similar attitudes. Alternatively, you may seek out a group whose values and attitudes you can identify with. These are subtle ways in which attitudes are changed. Less subtle is persuasion, which is used aggressively by the media to change people's views. Advertising on television, and on billboards and websites and in other prominent places, together with carefully worded messages, is aimed squarely at changing attitudes. Advertisers, along with business people and politicians, are among those who believe attitudes can be changed.

Tools for measuring attitudes

Because people's attitudes cannot be seen directly, psychologists have to use indirect means to learn about them. The three-part model of attitudes provides useful ideas about how this can be done.

We can observe people's behaviour and infer their attitudes from what we see, or we can ask people questions about their thoughts, beliefs or feelings. In discussing the measurement of attitudes, we are going to consider the application of a number of research methods that are discussed in Chapters 7 and 10. To measure attitudes, the most common techniques are qualitative: observation, self-report interviews and **focus groups**, which are specific discussions and limited in scope. Sometimes, quantitative self-report and rating scales are used. These are not preferred since they are based on questions derived by the researcher, though occasionally these scales are developed from answers provided during direct interviews, focus groups and questioning.

Observational methods

In most studies of attitudes that involve observing behaviour, the people being watched are unaware that this is happening. This technique is very useful when the attitude being investigated is one that people may not be prepared to be honest about if asked directly. So it is often used when trying to find out people's opinions about controversial issues. Direct, structured observation carried out by the researcher is the most common method, while in participant observation, the researcher joins in the activity and observes the behaviours of others. Both forms of observation are appropriate for the study of real-life behaviour, free from artificiality or experimental manipulation.

In a study back in 1965, Stanley Milgram and his colleagues used a clever variation on the observational method. He prepared 400 letters that were all placed in stamped, addressed envelopes. One hundred of the envelopes were addressed to 'Friends of the Communist Party', 100 to 'Friends of the Nazi Party', 100 to 'Medical Research Associates' and 100 to 'Mr Walter Carnap'. All had the same address, which used a post office box number. These letters were then 'lost'. They were carefully left lying around in places where they would be likely to be found by passers-by – footpaths, phone

The lost letter experiment - is it relevant today?

In 2016, some researchers from the University of Western Australia published a study in which they dropped 300 letters (half of them stamped, half of them unstamped) in 15 residential suburbs in the Perth metropolitan area that differed markedly in socioeconomic status (Grueter et al., 2016). The study design was very clever and carefully prepared to maximise the chances of letters being returned. In this study, the number of returned letters was used as evidence of altruistic behaviour and thus a positive attitude towards helping fellow citizens rather than reflecting political attitudes. It shows the usefulness of this experimental technique as a variant of behavioural observation.

A total of 92 stamped and 46 unstamped letters were returned. Unstamped letters had a significantly lower chance of being returned and socioeconomic index had a significant effect on whether or not a letter was returned with higher levels of return from higher socioeconomic areas.

The lower level of altruistic behaviour evident in poorer suburbs was interpreted to be a consequence of characteristics associated with socioeconomic deprivation. It was claimed by the research team that individuals facing financial hardship, poor health and general life instability are likely to be preoccupied with achieving immediate needs. In contrast, resource-rich individuals are not likely to be affected by such time and financial constraints and are more likely to return letters.

booths, shops – in the US city of New Haven. Milgram then waited to see how many of the letters would be picked up and posted. His results showed that while 72 per cent of the letters addressed to the medical group and 71 per cent of the letters addressed to Mr Walter Carnap were posted, only 25 per cent of the Nazi Party and Communist Party letters were posted. Milgram considered that this gave him information about the attitudes of the people of New Haven to the two political groups.

While this technique can clearly provide information on sensitive issues, there are limitations with the technique. In a situation such as this, we have to judge what attitudes underlie the behaviour. The belief or value underlying the behaviour of posting the letter may have been quite different from that assumed by Milgram. In addition, this type of technique cannot provide information about the intensity of the attitude held by individual 'participants'.

Qualitative self-report methods – interviews and focus groups

Sometimes psychologists want to find out about attitudes that are not accompanied by readily observable behaviours, such as attitudes towards the production of nuclear energy or towards the legalisation of marijuana use. At these times some form of **self-report** is usually used. Self-report involves the participants providing spoken or written answers in response to questions asked by the researcher. Acceptance of the data is based on the assumption that the respondents have been honest and accurate in their reports. Honesty is more likely when the respondents provide written answers anonymously than when they are interviewed face-to-face.

Self-reports can take the form of open-ended **interviews** that provide qualitative data. Numbers cannot be attached to qualitative data and so they cannot be analysed statistically. In open-ended interviews, the researcher asks individuals to comment freely on a particular issue. This type of interview can generate large amounts of information. While this can provide a rich source of ideas, sifting through all the information can be very time-consuming, although there is software available to assist with coding and sorting of the data. Another disadvantage of this technique is that the researcher has to decide what the major points being made are and organise the information so that it can be reported. For example, if people were interviewed about their attitude towards all shops being allowed to trade at any time on any day of the week, responses might cover topics



Figure 9.3 A focus group in discussion

Focus groups: A specific type of open-ended interview

A focus group is a kind of group interview. A focus group usually has six to eight members and the researcher plays the role of moderator. The moderator asks the members of the group a small number (hence the term 'focus') of open-ended questions. Participants are encouraged by the moderator to share their opinions, ask questions and expand on other people's responses. This differs from the usual interview, in which participants are individually asked questions. It is assumed that the interaction helps people to explore, clarify and articulate their attitudes. The group's discussion may be recorded for later analysis. It is commonly used in market research and politics to gauge attitudes to the acceptability of new products in the market and of proposed government policies, respectively.

ranging from the convenience of extended hours, the cost to the shopkeeper of opening extra hours, through to the impact on the family life of shop assistants. The researcher would have to record and transcribe people's responses, decide just what points were being expressed, note each different major point and then go back over the transcripts to determine whether people were for or against 24/7 trading and what was influencing their opinion.

Quantitative self-report methods – rating scales

To avoid the work involved in open-ended interviews and focus groups, researchers can use **fixed-response interview** questions to measure attitudes. With these, the interviewee is given only a limited choice of answers in response to a question. For example, to the question 'Do you think that old-growth forests should be logged?', interviewees may be given the alternatives: yes/no/undecided. Fixed-response questions can produce quantitative data, which is information that can be quantified (put into numbers) and analysed statistically. In this instance, the researcher can determine the percentage of people who fall into each of the three categories of for, against and undecided. If they have other information about the respondents, they can then determine whether the proportion of people who hold attitudes that oppose old-growth logging varies depending on gender, age, location of home and so on.

Rating scales are another common form of self-report measure that provide quantitative data. They also typically provide a series of fixed-choice questions or statements, to which respondents indicate the strength of their opinions. In this way, they can provide information about the intensity of an attitude, as well as about its direction.

A common form of rating scale is a **Likert scale**. A Likert scale measures responses to a series of statements about an issue. Each statement represents a positive or negative position with respect to the issue, reflecting various strengths of attitude. Respondents are asked to indicate the extent to which they support or disagree with the statement. There is a variety of ways in which this can be done. For example, researchers might

Using the Likert scale to measure attitudes towards wearing the school uniform

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

1 Wearing the school uniform shows pride in the school.	SA	A	N	D	SD
2 Students should be allowed to express their individuality at school through their choice of clothes.	SA	A	N	D	SD
3 Choosing what to wear to school is a waste of time.	SA	A	N	D	SD
4 School uniforms reduce social group distinctions.	SA	A	N	D	SD
5 Enforcing school uniforms shows a lack of respect for students.	SA	A	N	D	SD
6 School uniforms are more expensive than street clothes.	SA	A	N	D	SD

Statements 1, 3 and 4 would be scored SA = 1, A = 2, N = 3, D = 4 and SD = 5. Statements 2, 5 and 6 would be scored SA = 5, A = 4, N = 3, D = 2 and SD = 1. Half the items are scored in the opposite direction to the others, as agreement with some items reflects a negative attitude towards the topic of interest (such as in item 6). In this example, a low score indicates a strong positive attitude towards wearing the school uniform and a high score indicates a negative attitude.

ask respondents to select one option from the range: strongly agree, agree, neutral, disagree, strongly disagree, or they might ask the respondent to circle a number from 1 to 5 where 1 = strongly agree and 5 = strongly disagree.

After the Likert scale has been completed, the researcher scores the answers and adds them up. These scores provide a measure of the strength of the attitude held by the respondent. When developing a Likert scale, researchers need to make sure that half the items are stated in support of the issue and half against. They must take this into account when assigning the score for each response. This can be seen in the following example.

Prejudice

Prejudice means pre-judgement. It is an unjustifiable, and usually negative, attitude towards a group and its members. The most common forms of prejudice are based on visible differences between people, differences over which we have no control, such as race, age and sex. Prejudice usually involves the following three components:

- *Stereotypes* – these are oversimplified beliefs such as ‘Italians all like spaghetti, talk fast and loudly, and wave their hands around a lot’. Stereotypes tend to put people in boxes and make us think that characteristics of some members of the group apply to all members of the group.
- *Negative feelings* – feelings of dislike or even hostility are often part of prejudice.
- *A tendency to act in a discriminatory way* – discrimination is unequal treatment of people who should have the same rights as others. While prejudice is the attitude, discrimination is when the attitude has been put into action or has become behaviour. Discrimination can stop people from getting an education, finding jobs, buying a house or getting served in a hotel.

Racism is a form of prejudice based on assumed racial differences. People in one racial group think that their values, social norms and behaviour are superior to those in another group. In Australia, Indigenous Australians have been subjected to all those attitudes we regard as marking prejudice since the time of European settlement. Stereotypes of lazy, drunk and dirty are common (Walker, 1994), as are feelings of dislike or fear. The treatment of Indigenous people has been marked by discrimination. Unless they were returned servicemen, they were not allowed to enrol to vote in the Federal elections until 1962, and enrolment to vote was not compulsory until 1984. They have often been excluded from hotels and clubs, and they have much greater difficulty in obtaining housing and employment.

While prejudice is not as open these days as in earlier times, it still exists. There may no longer be ‘white only’ bars, but Aboriginal people may be excluded by other means. In the mid-1990s, Mr Yunupingu, an Aboriginal leader, former principal of Yirrkala School and founder of the band Yothu Yindi, was refused entry to a St Kilda night club on a supposed dress-code violation. He took the owners to the Equal Opportunity Commission and received a public apology (Australian Psychological Society, 1997a).

Prejudice in Australia has not only affected Aboriginal people. Most migrant waves have experienced prejudice to some extent. Asian people are often picked on because they are more readily identified than other migrant groups. In 1995, a study of more than 2000 international university students showed that 73 per cent of them had experienced discrimination while studying in Australia. A survey of Taiwanese students by Kee and Hsieh (cited in Australian Psychological Society, 1997a) also indicated high levels of discrimination. While mostly the discrimination took the form of verbal abuse, 15 per cent had experienced physical attacks.

Racism on the rise in Australia: Migrants report cultural shift

Dealing with prejudice is a way of life for many Australians. Cosima Marriner and Natalie O'Brien spoke to a range of people about how they have risen above discrimination.

It is being harassed on public transport, constantly being asked, 'Where are you from?' when you've lived here most of your life, not getting a job interview because of your Middle Eastern-sounding name, or missing out on a rental property because of your skin colour.

This is how racism looks in Australia today – and it is becoming increasingly prevalent.

The latest Mapping Social Cohesion survey by the Scanlon Foundation found 19 per cent of Australians were discriminated against because of their skin colour, ethnic origin or religious beliefs last year – up from 12 per cent in 2012. It was the highest level since the survey began in 2007.

Experts attribute the rise in everyday racism to economic uncertainty, events like the surge in asylum seeker boat arrivals and the current political leadership that wants to weaken parts of the *Racial Discrimination Act*.

The government has sought to water down the Act after conservative commentator Andrew Bolt was found to have broken the law in an article about 'fair-skinned Aboriginals'.

When Attorney-General George Brandis defended the proposed changes by declaring in Parliament that 'people do have a right to be a bigot, you know' he gave the

30 per cent of Australians who feel uncomfortable with cultural diversity tacit approval to air their prejudices. His powerful assertion cut through the legalistic debate about scrapping section 18C of the Act, which makes it illegal to offend or intimidate someone because of their race, colour, or national or ethnic origin.

'Those off-the-cuff comments are more damaging than changing the legislation,' says Monash University Professor Andrew Markus, who tracks changing attitudes to immigrants and asylum seekers. 'The minutiae of the legislation is for the courts, but the way the issues are discussed in public can be of immense significance.'

Deakin University's Yin Paradies says that although the *Racial Discrimination Act* has not done much to stop racism, weakening it 'creates a kind of climate where people start to think it's okay to be racist'.

Writing for Fairfax Media, social commentator Waleed Aly has called the proposed changes to the *Racial Discrimination Act* 'the whitest piece of legislation' he had ever seen, because it would judge whether something was racial vilification 'by the standards of an ordinary reasonable member of the Australian community, not by the standards of any particular group within the Australian community'.

In other words, the standards of the privileged majority, not the affected minority, will determine whether something is racist. Aly's

argument struck a nerve on social media, getting 25 000 Facebook recommendations.

Fifteen years ago, immigrants said the best thing about Australia was its welcoming and hospitable people. In 2013, immigrants ranked that last out of 10 attributes, with lifestyle now topping the list.

Migrants say the worst things about Australia are the high taxes, cost of living, and the racism and discrimination.

Certain groups are bigger racial targets than others: the Social Cohesion survey found more than 40 per cent of people from Asian countries suffered from racism last year, with Malaysians the most affected, followed by Indians and Sri Lankans. Australians are most likely to be prejudiced against people of Middle Eastern background. Yet, given Australia has the largest immigration program per capita in the world with one of the most diverse cultural mixes, Markus says it is to Australia's credit that we do not have more ethnic tensions.

'We've done very well with a very difficult and challenging task,' he says.

Source: Cosima Marriner, *The Sydney Morning Herald*, 6 April 2014. This work has been licensed by Copyright Agency Limited (CAL).

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Broaden your understanding

Cultural shift

After reading the newspaper article reproduced opposite, discuss the following issues (hint: some of the answers can be found later in this chapter):

- 1 Although what was formally called overt racism is on the wane, there are still subtle forms of racism. What do you think these are and how could we address these?
- 2 Why are certain immigrant groups to Australia more subject to racism?
- 3 What are the barriers to improving attitudes to immigrants?
- 4 What is the difference between equal opportunity and affirmative action? Which approach might lead to greater success in reducing racism?

Causes of prejudice

We will look at a few of the reasons that have been put forward to account for prejudice.

Just-world phenomenon

As noted in Chapter 8, it is often assumed that people get what they deserve. When one group of people has more power, status and money than another group, there is a tendency for the 'haves' to consider that they are well-off due to their hard work and intelligence and that the 'have nots' are poorly off because they are lazy and ignorant. In this way, the 'haves' can justify the inequalities in their own minds.

Social categorisation

Simply categorising people into groups – us and them – is enough to trigger in-group favouritism and out-group rejection. Back in 1968, on the day after the assassination of Dr Martin Luther King Jr, Jane Elliot, a third-grade teacher, decided to teach her class about racism. She divided the class on the basis of their eye colour. She then gave favours to the blue-eyed children and criticised and belittled those with brown eyes, saying that blue-eyed people were better and smarter than those with brown eyes. She was amazed at how quickly the children joined in, with the blue-eyed children soon acting superior and out-doing her in their attacks on the brown-eyed children. The following day, she had the children change roles. Her 'experiment' was very controversial and received a lot of publicity, but former members of her class still say that it taught them a lot about how it felt to experience discrimination (Bloom, 2005).

All good people agree,
And all good people say
All nice people, like us, are We
And everyone else is They.
But if you cross over the sea
Instead of over the way
You may end by (think of it) looking on We
As only a sort of They!
Rudyard Kipling, 'We and They', 1926

Inter-group competition

In times of economic hardship, when it is hard to find food, housing or jobs, prejudice often arises against groups that are seen to be a threat. 'They are stealing our jobs' or 'They are taking food from our children's mouths' become the catchcries, where 'they' may be a migrant group, working women or some other group. We saw an example of inter-group competition in Chapter 8, when we discussed the classic study by Sherif et al. (1961).

Social influence

Attitudes towards others, including prejudiced attitudes, can be learned from important people in our lives – our family and friends. This is called **social influence**. However, research in the past decade has shown that the influence of parents and friends on children’s racial attitudes may not be as straightforward as originally thought. A study by Aboud and Doyle (1996) showed that children’s racial attitudes were not related to parents’ and friends’ actual attitudes, but to what the children believed these attitudes to be. So, if the children believed that their parents held prejudiced attitudes, they were likely to express these attitudes themselves, whether or not the parents reported having prejudiced attitudes.

Figure 9.4 Sustained contact between people with a common goal may reduce prejudice.



How can we reduce prejudice?

There are two main ways of reducing prejudice among people: inter-group contact and cognitive interventions.

Inter-group contact

Contact can break down barriers between people who hold negative stereotypes and the targets of the stereotyping, and result in more positive attitudes and behaviour. Research into ways to reduce prejudice has found that inter-group contact is most effective when it continues over a period of time and when the groups are working towards a common goal. Having shared goals encourages the opposing groups to see themselves as members of a larger group.

It is also helpful if the groups working together are of equal status and have to rely on each other to reach their target. This strategy was used by Sherif and his colleagues in the study described in Chapter 8.

Aronson et al. (1978) developed what are called jigsaw classrooms that emphasise cooperation rather than competition. In a jigsaw classroom, each child is

given a piece of the information that is needed to complete a class project. The children have to share their information for the group to complete the piece of work successfully. It has been found that children in this type of classroom like their classmates more, are less prejudiced and produce better classwork than children in traditional classrooms (Walker & Crogan, 1998).

Cognitive interventions

Cognitive interventions are strategies that try to change the way people think about members of out-groups, in other words, to change their attitudes. **Re-categorisation** is one such strategy. It emphasises categories that cut across basic in-group/out-group divisions; in other words, it does not recognise those groups you identify with as a member and those groups of which you are not a member. Seeing ourselves as Australian rather than as members of particular racial or cultural groups can help us see similarities and work towards common goals. **Individuation** is another strategy. It involves us seeking information about people as individuals, rather than accepting stereotypes about the group to which they may belong.

Broaden your understanding

Prejudices

Copy the table below into your workbook. Under the 'Prejudices' heading, note some examples of prejudice that you have seen in your school or in the media. In the other column, write down some possible ways of reducing this form of prejudice based on the examples given above or your own ideas.

Prejudices	Ways of reducing prejudice

Cultural influences on attitudes

Race is a much misunderstood term. The concept of race used to be thought of as biologically based. Recent genetic studies, however, have shown that there are greater genetic differences within racial groups than between them and that, genetically, we are very much alike, no matter what our race (Australian Psychological Society, 1997a). In everyday use, people think of race in terms of external, visible differences such as skin colour, and often link it to culture. Yet race and culture are not the same. **Culture** is the behaviours, beliefs, attitudes and traditions that are shared by a group of people and passed on from one generation to the next. People can be of the same racial group but belong to very different cultural groups.

If we live in a place where the majority of people belong to the same main cultural group, speak the same language and share the same traditions, we are not always aware of how culture affects our behaviour. In places where there are people from many different cultures, cultural differences are more obvious. In many Western Australian schools, there is huge cultural diversity. For example, in the Perth primary school of Gwynne Park, the students come from more than 25 different cultural backgrounds. Many speak languages other than English at home and different cultural traditions are practised.

Culture influences our everyday behaviour: how we raise our children, eat our food and bury our dead. It influences whether we wear clothes and, if so, what clothes we wear and how we wear them. It influences what festivals we celebrate and how we celebrate them. When we look at how we communicate, we note that there are cultural variations in how expressive we are and also in how much space we need between us and another person to feel comfortable.

Figure 9.5 Same race, different culture: families celebrate Christmas



You will remember that when we discussed social groups earlier on, we noted that one way in which they influence our behaviour is through social norms or rules about what behaviour is expected of us. Cultural groups are social groups, so they also have rules of behaviour. These rules form part of the tradition of a culture. They often had their origins in times long past and started for reasons of health or safety. Traditional Jews do not eat pork because pigs, unlike cows and sheep, do not have cloven feet nor chew the cud and are thus considered unclean, Muslims use their right hand to eat food because the left hand is regarded as doing the dirty work and Japanese people take off their street shoes before entering a house to avoid the floor getting dirty. Thus, many of these traditions are concerned with cleanliness and health. While most people do not think about how their traditional behaviours started, they continue them because they are valued within the culture and identify them as belonging to a particular cultural group.

Individualistic and collectivist cultures

Differences in values, relationships, self-concept and cognitive processes are all implicated in distinctions between **individualistic cultures** and **collectivist cultures** (Oyserman, 2011). They are typically studied together and in contrast to each other. In collectivist cultures, people give priority to the goals of their group and define themselves as part of a group: a son or daughter, a class member, an employee of a particular firm, or a member of a team. Those in individualistic cultures tend to think of themselves as separate entities – individuals – and are more concerned with their own needs and rights rather than those of the group. They are more likely to describe themselves in terms of individual characteristics: tall, athletic, tone-deaf, bad at maths, sincere or confident, for example. To test predictions about between-culture differences in individualistic and collectivistic cultures, researchers typically rely on cross-national contrasts. One option is simply to contrast the two countries and assume that any between-country differences are due to individualism and collectivism and are, therefore, generalisable to other individualistic or collectivistic countries. The other option is to use one scale to assess individualism and one for collectivism to obtain individual-level responses. Cross-cultural studies, therefore, let us look at the similarities and differences between cultures. Some researchers have grouped cultures into those that are collectivist and those that are individualistic.

The notion of individualistic versus collective cultures was developed by Hofstede (1980) as he worked with management in a world in which large organisations had to learn to deal with different cultural rules and expectations. Western societies like America and Australia are more individualist, as can be seen through observing people strive for individual goals and outcomes, while traditional Aboriginal communities (and people from countries like Venezuela, Peru and Pakistan) are more collectivist, regarding land as a group resource, emphasising sharing and interdependence, and defining themselves by the attributes of the group.

Table 9.1 Value differences between individualistic and collectivist cultures noted by Triandis (1994)

Area	Individualistic	Collectivist
Self	Independent – identity from own ability and personality	Interdependent – identity from belonging
Values	Competition, freedom, autonomy, fair exchange	Security, duty, obedience, in-group harmony
Focus in life	Me – my achievement, my freedom, rights, self-esteem	Us – group goals and solidarity, social responsibilities and relationships
Way of coping	Change the situation to fit the self	Change the self to fit the situation

These cultural values affect attitudes and behaviour. For example, relationships in individualistic cultures are based on different concerns from those in collectivist ones. In individualist cultures, individuals choose their own partners. Their relationship is their own business and lasts until either partner wants to end it. The choice of a partner is often based on factors such as personal compatibility. By contrast, in collectivist cultures, individuals often do not select their own partners; arranged marriages are common and the relationship is the business of the wider community. The partnership is also expected to last! Families tend to choose partners for their offspring based on socially valued characteristics, such as social status and financial resources.

Being less dependent on others, individualists usually feel more comfortable in making changes in their lives. They are happier to migrate, to change jobs, to make new friends and join new social groups. Collectivists are less comfortable with these types of change. They have deep, stable ties with families and social groups. Loyalty between an employer and employee is strong.

Culture is, however, not static; it does change. Culture is reasonably stable from one generation to the next, but attitudes and values do change, even if they occur very slowly. This is because culture is learned and is constructed as we go about our daily activities and experiences. Culture is also not necessarily applicable to everyone who carries the label. For example, the Scots are regarded as mean and reluctant to spend money, but there are many very generous Scotsmen and women. Andrew Carnegie was a wealthy Scot who migrated to America, made a fortune in the steel industry and became the richest man in the world. He then set up a charitable corporation to support a range of social and educational programs internationally.

Cultural differences can lead to misunderstandings and embarrassment when people of different cultures interact with one another and do not appreciate cultural differences. Navigating cultural differences is something we learn as we encounter people from many different cultures more frequently. Often, these customs and practices are the unwritten rules of cultures that govern daily life and can include attitudes, the displaying of emotions, how close we stand to one another and whether punctuality is expected. They, thus, require some learning and understanding of why they are important and why they should be respected.

Broaden your understanding

Migrant groups

Compare these two migrant groups – how have they benefited Australian culture? Are they collectivist or individualistic cultures? Can you think of any other major immigrant groups that have come to Australia and added to or changed the existing culture?

Most Croatians came to Australia after the First World War and after the Second World War. They left Croatia mainly because of dissatisfaction with the economic and political situation, and their dislike of communism. Croatians often started out working as labourers because their professional qualifications (like doctor or engineer) were not recognised in Australia. Since then, they have become established in the manufacturing and building industries, as well as service industries, including all levels of government.

Vietnamese migrants starting arriving in Australia about 50 years ago when the communist regime took over governing the country after the end of the Vietnam War. Many in the 1980s arrived as boat people, that is, refugees who had by-passed the formal immigration requirements to enter Australia. Over the past 30 years, most Vietnamese have arrived in Australia as part of family reunion programs and many have settled in Melbourne and Perth. A great number work in their own small businesses, while others work in white collar industries, particularly IT, transport and production.



Figure 9.6 Vietnamese migrants have introduced new foods to Australia.

CHAPTER SUMMARY

Culture and values

Attitude formation – tripartite model

- Behaviour – affect – cognition
- Social comparison

Tools for measuring attitudes

- Observational methods
 - Milgram’s lost letter study
 - The lost letter study – is it relevant today?
- Qualitative self-report methods
 - interviews
 - focus groups
- Quantitative self-report methods
 - rating scales
 - Likert scale

Prejudice

- Causes of prejudice
 - Just-world phenomenon
 - Social categorisation
 - Inter-group competition
 - Social influence

- How can we reduce prejudice?

- Inter-group contact
- Cognitive interventions
 - Re-categorisation
 - Individuation

Cultural influences on attitudes

- Individualistic and collectivist cultures
 - Value differences between individualistic and collective cultures
 - Cultural differences
 - Comparison of migrant groups in Australia

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

- 1 Attitude
- 2 Focus groups
- 3 Likert scale
- 4 Prejudice
- 5 Just-world phenomenon

Multiple-choice questions

- 1 Attitudes are predicted by:
 - A our hair colour.
 - B our experience and learning.
 - C the clothes we wear.
 - D the food we eat.
- 2 Attitudes are formed from:
 - A emotion, behaviour and cognition.
 - B smell, touch and looking.
 - C television advertisements.
 - D being part of a gang.
- 3 When people are unlikely to be honest about their attitude towards an issue, it is useful for researchers to use:
 - A focus groups.
 - B interviews.
 - C observational measures.
 - D rating scales.
- 4 Prejudice usually involves:
 - A stereotypes.
 - B a tendency to act in a discriminatory way.
 - C negative feelings.
 - D all of the above.
- 5 Jane Elliot's classroom study in which she divided her class into those with blue eyes and those with brown eyes demonstrated the power of:
 - A social categorisation.
 - B the just-world phenomenon.
 - C social influence.
 - D inter-group contact.
- 6 Inter-group contact is most successful in reducing prejudice when:
 - A the contact is brief.
 - B the groups are of different status.
 - C the groups have strong leaders.
 - D the groups work towards shared goals.
- 7 Culture is:
 - A based on race.
 - B the behaviours, beliefs and attitudes that are shared by a group of people.
 - C evident in the way people dress.
 - D based on nationality.
- 8 Cultural diversity in Australia means:
 - A talking to people from other countries.
 - B eating Chinese meals.
 - C people of different nationalities living together.
 - D rebelling against traditional family beliefs.
- 9 In collectivist cultures, people:
 - A value independence.
 - B seek their identity through belonging.
 - C consider personal freedom and rights to be more important than social responsibilities and relationships.
 - D cope with difficulties by trying to change the situation.

Apply and relate psychological understandings

Short-answer questions

- 1 Describe the tripartite model of attitudes.
- 2 Outline the ways the media can affect the development of stereotypes.
- 3 State why and when a focus group would be preferred over an interview.
- 4 Describe the characteristics of inter-group competition.
- 5 Discuss why there might be cultural differences in attitudes among migrants in Australia.
- 6 State two differences between marriages in individualistic cultures and those in collectivist cultures.

Complete the tables

- 1 Copy the table below and find out about the burial rituals and traditions of people from the following religions and indicate what beliefs underlie each of these different traditions.

Religion	Burial ritual	Underlying beliefs
Hindu		
Islam		
Russian Orthodox		
Protestant Christian		

- 2 In open-ended interviews, the researcher asks individuals to comment freely on a particular issue. Copy the table below and list up to three advantages and up to three disadvantages of using interviews to collect data for psychological studies.

Advantages	Disadvantages
1	1
2	2
3	3

CHAPTER 10

Research methods: Planning and conducting psychological research

Key knowledge and understanding

Research terminology

Ethics in psychological research

- Mandated behaviour
- Deception in research

Psychology as a science

Steps in the scientific method

Participant selection

- Differences between sample and population data
- Ensuring representative samples

Types of data

- Qualitative data
- Quantitative data

Experimental research methods

- Independent and dependent variables
- Operationalising variables
- Generating an operational hypothesis
- Controlled and uncontrolled variables
- Experimental and control groups
- Reliability and validity

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- Case studies
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Planning and conducting psychological research

Research terminology

In Chapter 1 we emphasised that psychology is a science, and so like other sciences such as physics, zoology and anatomy it uses **scientific methods** involving a systematic approach to planning and conducting research to provide empirical evidence for conclusions reached. Any conclusions about human thought, feelings and behaviours that do not follow the scientific method to reach conclusions should be considered **non-scientific**. You will often find unscientific claims in advertising and media reports. These frequently take the form of testimonials and opinion such as that of a former Australian cricket captain who stated: 'I take a number of X vitamins that keep me healthy and happy, and to tell you the truth, I wouldn't know life without them.' Conclusions based on common sense or faith are also unscientific.

Scientific approaches to research may use experimental or non-experimental methods. When using **non-experimental methods** researchers do not manipulate variables – the factors of interest. They observe and describe variables in the world around them and note their relationship to one another. For this reason, their methods are often referred to as descriptive research methods. For example, a researcher may observe preschool children in the playground to see if they select as play partners others from the same ethnic group. Interviews and focus groups are other tools that are used in non-experimental research. We will look at them in more detail later in this chapter. Non-experimental research is a basic tool in psychology and has been the starting point for many psychological theories. It is important to note that while non-experimental methods can help us see the association between variables, they cannot determine causation.

By contrast, when researchers use **experimental methods** they test whether changes in one variable or group of variables have an effect on another variable, such as whether hours of sleep deprivation influences performance on a memory task. Provided the research has been properly designed, use of experimental methods will enable the researchers to indicate, with a specified level of certainty, that sleep deprivation is causally related to performance on the memory test.

When we carry out experimental research we usually want to be able to apply our findings to more than just the participants in the study. We want to generalise our findings to a wider population. In research terminology, a **population** is the group to whom we want to apply our research findings. This might be secondary school students in the Perth metropolitan area, or secondary school students in WA. Almost certainly, it would not be secondary students in the world as a whole! Because it is usually impossible to test the whole population to whom our research relates, we have to obtain a subset, or **sample**. If our sample is representative of the population, we can apply our findings from this group to the population.

Ethics in psychological research

Whatever research method psychologists decide to use, they must carry out their research in an ethical and responsible manner. Ethics involves a way of thinking – not just how we behave.

Mandated behaviour: Informed consent, confidentiality, voluntary participation and withdrawal rights and other required behaviour

In 2007, the *National Statement on Ethical Conduct in Human Research* was developed jointly by the National Health and Medical Research Council, the Australian Research Council and the Australian Vice-Chancellors' Committee. The full document is updated from time to time and can be found by visiting NelsonNet and following the links.

Briefly stated, values promoted in this document include the following:

- *Research merit and integrity* – the research must have potential benefit, be soundly based and well-designed, and be conducted and supervised by competent people.
- *Justice* – participants must be fairly recruited and not exploited, and there should be fair access to the benefits of the research.
- *Beneficence* – likely benefits to the participant, the community or both must justify any risks or discomfort to the participants.
- *Respect* – researchers must have proper regard for the welfare, beliefs, customs and culture of participants.

These values underpin the research carried out by psychologists and are used by the ethics committees of institutions to decide whether approval should be given for the research to be conducted. When applying these values in the planning stage of research, psychologists must consider participants' rights carefully. These include the following:

- *Confidentiality* – any information collected about participants during the course of the research, such as test scores, health data and developmental history, must be kept confidential so that the individual's privacy is respected. This means that data must be securely stored and properly disposed of when finished with. In reporting the results of the study, individual participants must not be able to be identified unless they have given written permission for this to happen.
- *Informed consent* – all participants must be informed about the nature of the research, its benefits and risks, and what they will be expected to do, in language that they can understand. If the participants are young children or people with intellectual disabilities, parents or carers/guardians are informed about the research and are asked to give consent. Consent is usually given in written form. See Figure 10.1 for an example.
- *Voluntary participation* – participants must not be pressured or coerced to participate in any way. This means they cannot be required to participate in order to pass a course, for example. Likewise, the researcher cannot offer inducements, such as tickets to the movies, to encourage participation. The participant must simply be prepared to participate in the research for its own value.
- *Right to withdraw* – participants have the right to withdraw from the research at any stage and for any reason and they must be informed of this before they give consent.

Deception in research

Other ethical issues arise for the researcher in instances when giving the participant full information about the nature of the study might affect their behaviour during the study and affect the accuracy of the results. For example, we might want to investigate the effect of participants' belief about their success on a task on their prediction of future success on that type of task, so we decide to provide feedback to make the



Figure 10.1 A parental consent form

The Importance of Phonological and Orthographic Processing Skills to English Literacy Abilities

Parent/carer consent form

- I have read and understood the information letter about the project and any questions I have asked have been answered to my satisfaction.
- I understand what it means for me to participate in this project and that participation is entirely voluntary.
- I have discussed with my child what it means to participate in this project. He/she has explicitly indicated a willingness to take part, as indicated by his/her completion of the child consent form.
- I understand that both my child and I are free to withdraw from the project at any time without affecting the family's relationship with my child's teacher or my child's school.
- I give permission for our contributions to be published in a journal, provided that my child and I are not identified in any way.

Consent for my child to participate in the research project

I am willing to complete the Language Background Questionnaire and for my child to become involved in the project, as described.

Name of child (printed): _____

Name of parent/carer (printed): _____

Signature of parent/carer: _____

Date: _____

I would like information on my child's performance to be made available to me:
YES/NO
(please circle one)

[Final statement from the institution's Human Research Ethics Committee about who to contact and what to do if they have any complaint to make about the study.]

participants think they had done well or poorly, whether or not this was true. You can imagine how participants might behave if they were given full information about the nature of the study and they did not know whether or not to believe what they had been told about their performance. Certainly, we could not get an answer to our question because we would have no idea about their belief. Whenever the researcher does use deception, participants must be fully debriefed at the end of the study. This involves giving participants full information about the true purpose of the study and correcting any mistaken ideas they have about the study, themselves, or other participants.

Psychology as a science

As we noted in Chapter 1, psychology is the scientific study of how people think, feel and act. As a science, it is based on a scientific attitude, which means being curious and trying to understand issues and problems through the application of a variety of research tools. And, importantly, it uses scientific methods, seeking empirical evidence for conclusions reached. Any conclusions about human thought, feelings and behaviours that you may find reported in the media should be considered unscientific if they have not been based on the application of scientific method and produce evidence that goes beyond testimonials and opinion.

Steps in the scientific method

In carrying out research, psychologists usually go through the steps shown in Figure 10.2, which are then described more fully below.

- 1 At the start of a research project, researchers identify a research issue or problem to investigate. Researchers arrive at research issues in various ways. Some will want to test a theory; others will want to develop a theory or find answers to a practical problem or issue.
- 2 Once a research issue has been identified, researchers typically develop the exact research question if they are carrying out exploratory research or a specific hypothesis if testing a prediction.
- 3 The next step is a critical one. It involves choosing an appropriate research design and method for collecting the data. This involves such things as deciding who the participants will be, how many will be needed and what techniques will be used to gather data.
- 4 Once these decisions are made, data can be collected. This is often one of the most time-consuming parts of research.
- 5 When the data is collected it must be systematically organised and then analysed. This is frequently done using statistical procedures.
- 6 Researchers then come to the important stage of interpreting the results. What do the findings mean? Do they support hypotheses or answer the questions that were raised? Is it clear to whom the findings apply? Do they suggest directions for further research?
- 7 Finally, researchers communicate their findings. This can be done both through writing (reports, journal articles and so on) and by talking (talks at conferences or feedback to interested parties). This means that the theoretical implications and the practical applications of the research are known to others working in the same area.

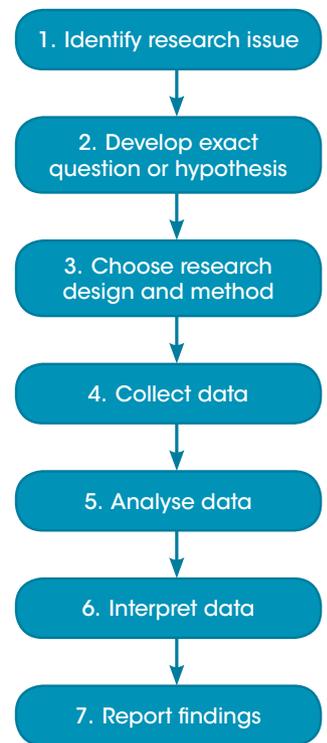


Figure 10.2 Steps in scientific research

Participant selection

Differences between sample and population data

The people who provide the data in psychological studies and experiments are known as **participants**. When psychologists carry out their research, they usually want to be able to apply their findings to people in general or at least to a particular group of people, not just participants in the study; however, it is very unlikely that they will be able to study or test all of the people in the group of interest. For example, if a psychologist wanted to investigate the relationship between watching violence on TV and aggressive playground behaviour in Western Australian children aged 8 to 11 years, it would be impossible to study all the children in Western Australia of this age. For this reason, the researcher has to obtain a **sample** of children from the larger group. Researchers refer to the larger group to whom research findings apply as the population; the smaller subset of the population is known as a sample.

Researchers may choose to use a **convenience sample**, which is one that is readily available. In our example above, all the children aged between 8 and 11 years in one WA school might be recruited as participants. However, while this type of sample is usually easy to obtain and the cost of carrying out the research is low, it has a major disadvantage: it is likely to be unrepresentative and hence may be biased. This could be the case if our school was situated in a very wealthy or very poor suburb, as children from different socioeconomic strata may have very different preferences for TV viewing and the number of hours they watch. In the investigations you do in this course, you will doubtless use a convenience sample – you and your classmates.

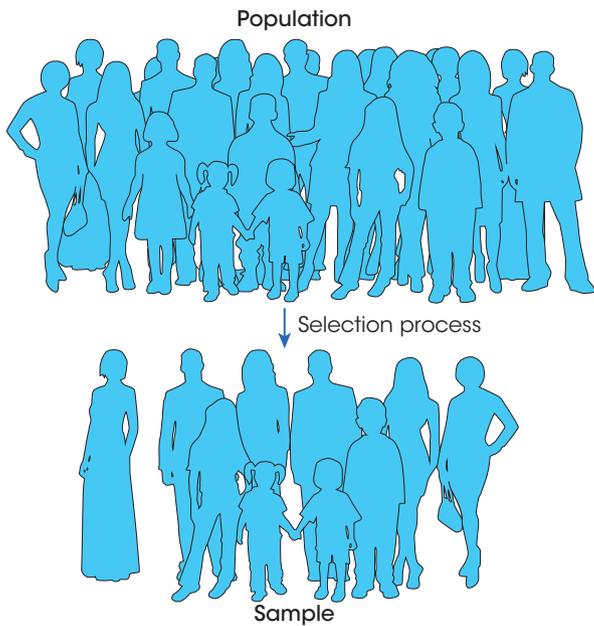


Figure 10.3 A sample is drawn from a population.

It is only if the participants in the sample are representative of the population that the findings from the sample can be confidently applied to the population. If the sample is biased (unrepresentative) then the findings cannot be generalised to the population.

Ensuring representative samples

There are two main techniques that researchers use to try to ensure that their sample is representative of the population: random sampling and stratification.

Random sampling means making sure that everyone in the population has an equal chance of being picked. If we wanted to take a random sample of the students in your year group we could put all your names in a hat and draw out the number of names we wanted for our sample. Another way we could achieve the same result would be by using technology. We could allocate each student a number, then, if there were 150 students in your year and we wanted a sample of 20, we could get a computer to randomly generate 20 numbers between 1 and 150 and select

those 20 students whose numbers had been generated to form the sample. While this technique does ensure that the sample is representative of the population and that results obtained from the sample data can be applied to the population, it is usually only practical when the population is relatively small. Trying to obtain a random sample of all Year 11 students in WA would be very difficult and expensive, since researchers would have to obtain a list of all students enrolled in Year 11, get permission for them to be participants and then gather data from a widely-dispersed group.

Researchers often try to avoid this problem by using a different technique for obtaining a representative sample: stratified sampling. **Stratified sampling** ensures that certain subgroups of the population, known as strata, are represented in the sample. If our researchers wanted a sample of WA Year 11 students because they wanted to investigate their attitudes towards compulsory voting, they would probably want to ensure that their sample contained city and country students, males and females, and students enrolled in private as well as government schools. They would then determine the proportion of the population of students falling into each of these strata. This is shown in Figure 10.4 below where we see that 58% of Year 11 students are enrolled in government schools and 42% are enrolled in non-government (private) schools with 76.3% of the government schools being in the city and 23.7% of them being located in the country.

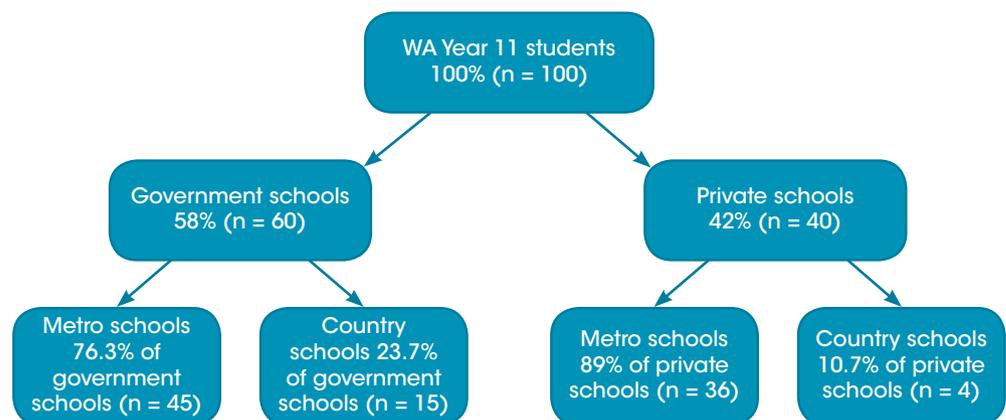


Figure 10.4 An example of stratified sampling showing the number (n) required from each stratum for a sample of 100

Note: The proportions are fabricated but based loosely on figures derived from the WA School Curriculum and Standards Authority website.

With our private school students, 89.3% of them attend city schools and 10.7% attend schools in country towns. Our researchers could then select schools that represent the strata selected and obtain participants in the proportion in which they occur within the population. Figure 10.4 shows the number of students from each stratum that would be selected using this technique if we wanted a sample of 100 students. Often participants are randomly selected within each stratum (group). This is known as **stratified random sampling**. Data obtained from such a sample could be confidently generalised to the population from which it was drawn.

Sampling technique	Description	Strengths	Limitations
Convenience sample	A sample that is readily available to the researcher	Fast Cheap Useful in pilot study to check whether hypotheses are on track and materials and techniques appropriate	Likely to be biased and hence not able to be generalised to the population
Random sample	A sample that ensures that everyone in the population has the same chance of being selected to participate in the study	Unbiased Results can be applied to population	May be difficult to obtain a complete list of all possible participants or to collect data from all selected Expensive process
Stratified random sample	This technique ensures that sub-groups (strata) whose data is of interest to the research question are represented in the sample in the same proportion as they appear in the population; participants within each stratum are randomly selected	Unbiased Results can be applied to the population Ensures representation of all groups whose data relates to the research question	Requires access to strata and participants within each stratum Random sampling carried out within strata to be representative Time-consuming

Table 10.1 Strengths and limitations of sampling techniques

Types of data

There are two main types of data that researchers can collect: quantitative and qualitative. Each has strengths and limitations.

Qualitative data

Qualitative data is information that is not expressed in numbers. This type of data is often collected in the early stages of a research project since it can provide rich information, suggest variables to include in research and so on. The researcher might record what someone said, how they looked and what they did. One qualitative method that a researcher might use to find out about a person's values, for example, is an interview.



Figure 10.5 Interviews are one way of collecting qualitative data.



Figure 10.6 Focus groups allow people in groups to express their opinions about a topic.

Interviews let the researcher get participants' responses to a series of questions. Interviews can be open-ended or fixed-response. In **open-ended interviews**, the researcher asks the participants in the study to comment on a statement or answer a question. They can answer in any way they like and the researcher records their responses. The researcher might ask participants what they thought about increasing government support for people with disabilities or what they thought about young boys playing with dolls. In **fixed-response interviews**, the participants' responses are restricted to a range of alternatives offered by the researcher. A researcher might ask: 'Do you think it is okay for men to cry in public?' and offer the alternatives of yes/no/undecided.

Another way of collecting qualitative data is through focus groups. A **focus group** is where a researcher asks group members about their ideas, perceptions, opinions and so on in a setting that is more natural than a one-on-one interview. It is often used by market researchers who want to gauge opinion about a product, but it is also a tool used as a first step in a research project. For example, Davies and Fletcher (2001) used focus groups as the first phase in a study on grade repetition. In their groups, teachers were asked why they would or would not recommend that a child in pre-primary repeat the grade. The main ideas generated by the teachers determined the child-related factors, such as language skills and social maturity, which were measured in children who were recommended for grade repetition in the second phase of study.

In focus groups, each discussion session is recorded and transcribed so it can be analysed to determine themes and

key issues. Usually, several groups are run until saturation point is reached, that is, no new themes or issues emerge. Group discussion produces information that might otherwise not be obtained if members were interviewed individually, because the comments of others often stimulate memories and ideas. While this is seen by some as a strength, others see it as a weakness since they consider that group members' comments might be affected by the desire to give socially acceptable answers, a tendency known as a **social desirability bias**.

Quantitative data

In contrast to qualitative data, **quantitative data** is information gathered in the form of numbers that can tell us the time taken to start responding to a stimulus and the frequency, strength, and speed of a response. Equipment such as heart-rate monitors and timers may be used. Another tool frequently used to gather quantitative data is the rating scale. A **rating scale** uses statements or questions that participants rate by selecting from a number of fixed responses. These responses are assigned numbers so the strength, frequency and so on of the response can be measured. It is often used to measure attitudes. For example, respondents may be asked to rate the strength of their agreement with a particular statement such as: 'Girls should pay their own way when they go out on dates with guys' by circling a number where 5 = strongly agree and 1 = strongly disagree. Rating scales can also be used to determine the frequency with which a behaviour happens, such as 'How often in a typical week do you have difficulty in falling asleep?' with responses ranging from 1 = not at all to 5 = every night. In Chapter 7 you will have seen a self-report questionnaire in the form of a rating scale (Table 7.5).

One common form of rating scale that is popular with researchers when measuring attitudes is the Likert scale. This typically uses about 20 statements or questions that participants rate on a 5-point scale. Half the questions are worded in a positive way and half in a negative way to ensure that respondents do not get into a response bias. So in a study on attitudes towards extended trading hours, respondents may be asked to indicate the extent of their agreement to statements such as: 'Extended trading hours provide a more vibrant environment' (a statement in favour of extended training hours), and 'Shops being open on Sundays is unfair to small shop owners' (a statement against extended trading hours). You will learn more about Likert scales in Year 12.

By gathering data as numbers, we can also use statistics to find out such things as whether something is happening more often than we would expect by chance or whether two groups really are different. For this reason, quantitative data is most frequently used in experimental research.

Sometimes researchers may start with qualitative data but then convert it to quantitative data. This can be done in simple ways, such as the activity in the 'Broaden your understanding' box below. Another way of converting qualitative to quantitative data is through thematic analysis. This may involve reading through interview transcripts or focus group transcripts to see if particular themes come through consistently. For example, if a number of parents had been interviewed about what they thought characterised good parenting, themes such as consistency, setting boundaries and showing affection might appear frequently. The percentage of interviews in which certain themes were expressed could then be calculated, providing quantitative data.

Broaden your understanding

How qualitative data can be converted to quantitative data

Select any magazine intended for adolescents or adults. Go through the magazine, checking all the advertisements other than those in which the product is designed specifically for a male or female. Advertisements such as those for holidays, cars or food would be appropriate. On a piece of paper, draw up a table as shown below. Add as many rows as you need. For each advertisement you find, fill in each column.

Product or activity	Sex of main character	What is the character doing?	Is this a gender-expected behaviour? (yes/no)

Now, using these qualitative data, change it to quantitative data.

- 1 How many advertisements did you find?
- 2 How many of these advertisements showed people in gender-expected activities? You will need to operationalise 'gender-expected'.
- 3 Divide the number of advertisements showing gender-expected activities by the total number of advertisements and multiply this number by 100. This will give you the percentage of advertisements in which gender-expected behaviour is shown.

If you can get hold of a similar type of magazine from about 20 years ago from a library, you can carry out the same exercise to see whether the nature of advertising is changing with regard to gender roles. If you find that the percentage of gender-expected behaviour is different, this could be interpreted as evidence that our social values relating to gender roles are changing.

The methods used in research studies vary depending on the issue being examined and the types of questions being asked. One major distinction in research methods is between experimental and non-experimental (descriptive) methods.

Experimental research methods

Independent and dependent variables

When using experimental methods, the researcher changes a variable or group of variables to see the effect on another variable. **Variables** are any factors that can change in amount or over time, such as stress, reading ability, happiness or fear of flying. The variable that is changed by the experimenter is known as the **independent variable (IV)**. The variable that is measured to determine its relationship to the changed variable is the **dependent variable (DV)**, because its change depends on the changes to the independent variable.



iStock.com/PeJu29

Figure 10.7 Stress can be measured using cortisol swabs.

Operationalising variables

Often a variable is broad or abstract, such as happiness or stress, and the researcher must decide how to **operationalise** it, that is, provide a working definition that will enable it to be measured. So, stress could be measured by a score on a well-known scale, by the participants' own rating of their stress on a 7-point scale, by a mouth swab to check cortisol levels, and so on. The researcher operationalises stress by indicating which of the possible measures will be used.

Generating an operational hypothesis

When carrying out experimental research, the researcher develops a **hypothesis**; that is, a tentative prediction of the relationship between the independent variable and the dependent variable – an educated guess. This relationship is usually stated in specific terms using the operational definitions of the variables. For this reason, the research hypothesis is often called an operational hypothesis. The experimental method is used to support or disprove a hypothesis.

Let us look at an example showing the steps in hypothesis generation.

Michael Diehl and Wolfgang Stroebe (1991) tried to explain the unexpected finding that people working in brainstorming groups did not come up with more ideas than the same number of people working independently for the same length of time. One hypothesis that they developed and tested was that this was due to individuals in the groups being effectively blocked from generating ideas by having to wait for others to state their ideas. Alternative hypotheses could be formulated. If we considered that groups in previous studies were less effective than individuals because the experimental situation was artificial and participants had no interest in working together, we could work through the steps in formulating our hypotheses in the following way:

- 1 *Develop general hypothesis* – the effectiveness of groups in generating ideas in brainstorming sessions is dependent on members having a genuine purpose for working together. Our dependent variable (DV) is effectiveness in generating ideas and our independent variable (IV) is genuineness of purpose.

- 2 *Operationalise variables* (state them in terms of how they will be measured) – effectiveness in generating ideas will be operationally defined as, and measured by, the number of different ideas generated in a 20-minute brainstorming session. Genuineness of purpose will be defined as being a purpose of importance to the participant. It will be measured through prior screening. Participants will be asked to rate the importance of various issues in the local community, such as recycling. A group of six will be formed from those who consider the same issue to be of high importance. This group, the ‘genuine purpose’ group, will be asked to generate ideas to solve this problem. A comparison brainstorming group of six, the ‘no purpose’ group, will be formed from those who did not consider this issue as being of importance to the community.
- 3 *State operational hypothesis* – the genuine purpose group will generate more ideas in a 20-minute brainstorming session than the no-purpose group.

Controlled and uncontrolled variables

When carrying out an experiment, the researcher wants to be able to attribute changes in the DV to changes made in the IV; however, there may be extraneous variables that have influenced the DV. For this reason, researchers try to be aware of possible extraneous variables and either eliminate them or control them before they undertake the research. If a researcher hypothesised that participating in an active group program, operationally defined as walking for 30 minutes per day for six weeks (IV), would reduce depression (DV), operationally defined as score on the Beck Depression Inventory, in a group of people diagnosed as mildly to moderately depressed, the composition of the group could be an extraneous variable. Walking with a group of friends might have a very different outcome from walking with a group of strangers. The researcher could control this variable by ensuring that all participants were assigned to groups of the same size with people they did not know. Group composition would thus become a **controlled variable**, that is, an extraneous variable whose possible confounding effect had been eliminated. If our researcher had not controlled for group composition it would have been an **uncontrolled variable** – an extraneous variable that could potentially impact on the dependent variable that had not been controlled or eliminated by the design of the study.

Experimental and control groups

However, in our walking experiment, even if participants’ depression decreased after the six-week program, we still could not be sure that any changes in depression were due to the walking program unless we had a group to compare them with, one that varied from our experimental group (here, our walking group) in only the IV. The reduction in depression could simply be due to spending regular time in a group. So we could set up a comparison group, which could, for example, spend the same amount of time together playing cards. This group that is as identical to the experimental group as possible on all variables other than the IV is known as a **control group**.

It is important to keep participants in experimental and control groups as similar as possible – for example, similar ages and similar numbers of males and females – because these extraneous variables might affect outcomes.



Figure 10.8 Does regular active exercise in a group reduce depression?

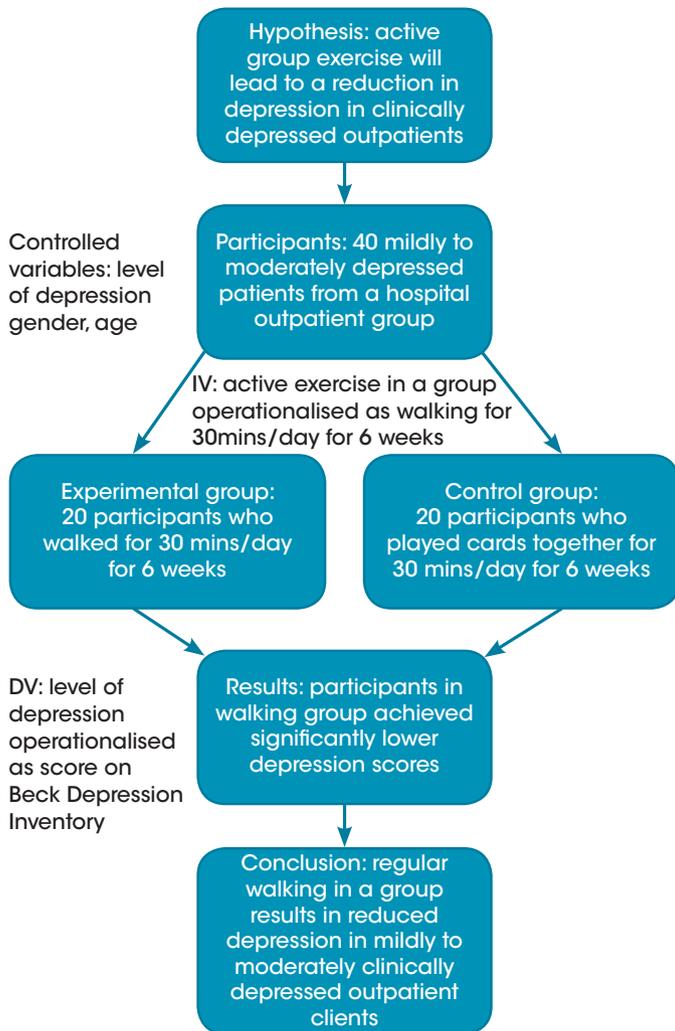


Figure 10.9 Flow chart of processes in experimental research

Older males, for example, might respond better to a walking program than young males. Getting comparable participants in experimental and control groups is sometimes done through matching, but more often it is achieved through random allocation to the two groups. Similarly, it is important to standardise procedures so that participants are treated in the same way. So, we could ask our participants in the experimental and control groups to take part in their activity at the same time of day.

By following these procedures, shown in the flow chart in Figure 10.9, if we find that our experimental group has significantly lower depression scores at the end of the six weeks' of walking, we can be confident in attributing the drop in depression to the active walking treatment rather than to simply being in a group.

Ensuring quality measures: Reliability and validity

Another factor that can affect our research findings and our confidence in reaching conclusions is the quality of our measures. To be able to evaluate research, we need to be sure that we can trust the measures we use. But how do we know what is a good measure? There are two important criteria for evaluating measures. Good measures must be **reliable** – they must be consistent within themselves and across time – and **valid** – they must measure what the researcher intends them to measure.

Reliability

There are two main ways that we determine reliability in experimental research:

- internal consistency
- test–retest reliability.

Internal consistency means that within a test, different questions or activities are measuring the same construct. Evidence for internal consistency is usually provided by the split-half method. If we have a 20-item scale that claims to be measuring depression, we should find that people's responses to the first 10 items should be consistent with their responses to the second 10 items. The scale would not have internal consistency if an individual looked depressed on the first 10 items, but not depressed on the second 10!

Test–retest reliability, as the name suggests, involves comparing how people performed on a test at one time with how they performed on it sometime later. We would expect that if our test-takers completed the scale and obtained a rating as being depressed, and then repeated it several weeks later, they should still look depressed. If we do not have consistent measures, we cannot be sure that what we are measuring is real.

Information about the reliability of published tests is usually provided in the test manual and can also be found in published research articles. The reliability of a test is expressed in terms of a correlation. If we look at the technical and interpretive manual for the WISC-V, we find reliability scores for each of the sub-tests and for the test as a whole that have been calculated using the data from the sample used in establishing norms for the test. The split-half correlation coefficient for Block Design, for example,

is 0.83 and the coefficient for the Full Scale IQ is 0.96. These are very high positive correlations (a score of 1 would mean perfect agreement between the two halves) and show that the sub-tests and test as a whole are very reliable.

Validity

There are several different ways we can think about whether a measurement is valid:

- *Face validity* – this is the most straightforward measure of validity. We ask, does the test appear to be measuring what it claims? For example, we expect questions on an intelligence test to relate to how we organise, remember and use information. If the test contained questions about our sporting ability or about our height and weight, we would be likely to question its face validity. By having experts in the field covered by the test examine it, we can judge whether the material is appropriate and can assess its face validity.
- *Construct validity* – when we judge construct validity, we examine whether the test items are in keeping with the constructs on which the test was based. For example, we would expect that Eysenck's personality test (in Chapter 7) would have items that relate to the three constructs that he believed made up personality – extraversion, neuroticism and psychoticism. We should not find items relating to constructs that are not part of his theory.
- *Concurrent validity* – in a test of concurrent validity, we compare people's performance on the scale we are interested in with their performance on one that we already know a lot about, and look at the strength of the relationship between them. This is frequently done when a new scale is being developed. When the WISC-V was being developed, those who constructed the test compared the performance of a sample of children with their performance on the earlier version of the test, the WISC-IV, and with other tests, such as the Kaufman Assessment Battery for Children, 2nd Edition (KABC-II), another intelligence scale. They found that the Full Scale IQ score on the WISC-V correlated 0.86 with the WISC-IV and 0.77 with the Mental Processing Index of the KABC-II.
- *Predictive validity* – the predictive validity of a test is the extent to which it can predict other attributes or behaviours thought to be related to the constructs tested. People are usually interested in the sort of constructs that we find in personality tests, because they want to use them to predict how a person will behave. Employers might ask prospective employees to undertake a personality test because they are looking for someone who would be highly dependable. This would be a reasonable thing to do, if, for example, the test contained the trait of conscientiousness and this was shown to correlate highly with, and hence be good at predicting, dependable behaviour. A test with good predictive validity can be very useful.

Test manuals usually provide these estimates of validity. By examining the reliability and validity of tests, psychologists can judge whether they are sound tests. This, of course, does not guarantee that they will be suitable for use with the psychologists' clients, but if the test is not reliable and valid, it is not suitable for use with anyone.

Non-experimental (descriptive) research methods

When using non-experimental methods, researchers do not manipulate variables. They observe and describe variables in the world around them and note their relationship to one another. Descriptive research has been a basic tool in psychology and has been the starting point for many psychological theories.

Non-experimental methods can help us see the association between variables, but they cannot determine causation. There is a variety of non-experimental methods. We will look at some of the most common.

Case studies

A case study is an in-depth, direct behavioural observation of a single person. Its most frequent uses have been in developing hypotheses for further research, and in clinical studies, where rare phenomena or unusual behaviour is observed and recorded. In Chapter 2 we looked at the case of Phineas Gage, whose brain injury helped us see the relationship between parts of the brain and behaviour. More recently, case studies to increase our understanding of rare phenomena such as synesthesia have been reported. Synesthesia involves sensory stimuli triggering unusual additional experiences as in a case, reported by a group of Japanese researchers, of a young female undergraduate student who reported seeing coloured letters and digits when they were actually not coloured. Different colours were related to particular letters and digits. The researchers carried out a series of experiments with her, some of which included neuroimaging, to try to gain a better understanding of the condition (Yokoyama et al., 2014).

Figure 10.10 Careful systematic observation can lead to theory development.



However, case studies have also been used to observe normal development. Jean Piaget's theories on children's cognitive development (Chapter 6) started with close observation of his own daughter during her preschool years.

While case studies have the advantage of providing an in-depth look at phenomena that might not be possible to examine by other means for practical or ethical reasons, there are limitations due to the very fact that the sample size is so small, usually only one person. For this reason, they only provide a very weak basis for drawing conclusions. They are also more susceptible to bias from the researcher or the person being studied.

Surveys

In surveys, the researcher gathers self-reported data from participants who, ideally, have been randomly selected. Surveys usually take the form of a questionnaire in which pre-determined answers are provided as alternatives. The percentage of people endorsing each answer can then be calculated. As surveys are often administered to different groups of people, this allows comparisons to be made across the groups. If we wanted to find out whether Western Australian secondary school students adhered to national dietary and physical activity recommendations, we might draw up a questionnaire such as the following.

How many serves of vegetables do you have per day?

- Four or more
- Two to three
- One or fewer

How many minutes of moderate-to-vigorous physical activity do you engage in per day?

- More than 60 minutes
- 30 to 60 minutes
- Less than 30 minutes

If participants in the survey also answered questions about their age, gender and place of residence, and we administered the survey to a stratified random sample of Western Australian secondary students, we could see whether males or females were more active, what percentage of students met recommended guidelines for diet and exercise, whether this changed with age, whether country students had healthier lifestyles than city students, and so on.

Correlational studies

In a correlational study researchers use the statistical technique of correlation to determine whether there is a relationship between variables and how strong this relationship is. For example, there have been studies since the 1970s showing that adults' parenting style is related to the subsequent social and emotional development of their children (e.g. Baumrind, 1991). But can we assume that the parenting style has *caused* children to develop in particular ways? To answer this question, we must look at all possible explanations for the data.

There is an association, known as a correlation, between parenting and children's social and emotional development, but we need to consider the full range of possible explanations for this relationship:

- Parenting style causes the child's behaviour. Parenting that is authoritative: warm with firm boundaries set results in well-adjusted socially competent children, whereas parenting that is authoritarian: little warmth shown and obedience demanded and punitively enforced, results in poorly adjusted children.
- The child's behaviour causes the parenting style. Perhaps easygoing children who are socially mature elicit a warm, reasoned approach from their parents.
- A third variable causes both the parenting style and the child's social and emotional behaviour. As noted by Myers (2007), it is possible that some other factor may lead to both a particular parenting style and well-adjusted children. A happy marriage or shared genes that predispose children to social competence are two possibilities.

So we can see that correlation does not mean causation! Failure to consider all the alternatives can lead to incorrect conclusions. Further research is needed to determine which of these possibilities is correct. A major value of many correlational studies is that they raise alternative hypotheses that can then be tested in research using an experimental design that can allow cause to be examined.

Archival research

Psychologists sometimes use **archival research**. This is information that has previously been collected by others, but is in a form that allows systematic study.

Jones (2010) noted that there are many different sources of archived data that can be used by researchers, such as:

- public documents and official records, such as those held by hospitals, universities and police departments
- private documents, such as diaries and letters; Jacobs (1967), for example, looked at what we could learn from suicide notes
- mass media, such as magazines, YouTube videos and so on
- physical, non-verbal materials, such as art and tombstones
- social science data archives.

Many universities and public institutions house archival records and while people often think of descriptive data when they think of archives, there is a wealth of quantitative data that can be used experimentally. Terman's study of genius and the Berkeley Growth Study are two such data sources that have been analysed by many researchers.

The use of archival data has both advantages and disadvantages for the researcher. On the positive side, it is usually cheaper to use archival data than to collect new data. It allows the examination of data gathered over a long period of time without it taking the researcher's lifetime and it allows access to very large-scale, representative samples. Negatives involve the time needed to identify appropriate datasets and obtain permission to use the data; the effort required to understand all the factors involved with the data, such as the sample, population, measures and data collection procedures; and, finally, the knowledge and skill required to analyse such large and complex datasets.

Researchers may also have access to several datasets that can be combined. This tends to increase both the positives and negatives of archival research. In Western Australia, the Telethon Kids Institute provides the opportunity for linking survey data from the Raine study (the WA Pregnancy Cohort of children born between 1989 and 1992 who were surveyed at regular intervals) and population data, such as that held in the Mental Health Information System. Such linkages provide a rich source of data and allow important questions to be addressed, but the difficulties associated with getting approvals to use the data, meeting ethical requirements, and understanding and analysing the data are huge.

Archival data can also be extended if researchers can gain permission to contact past participants and collect new data. An example that has received some publicity is Snowden's 'Nun Study'. Snowden and his colleagues (1996) convinced nuns for whom there were archival records to donate their brains for forensic analysis after they had died. This enabled an examination of the relationship between linguistic ability in early life and cognitive function and Alzheimer's disease (determined from brain examination) in later life.

CHAPTER SUMMARY

Planning and conducting psychological research

Research terminology

- Scientific
- Non-scientific
- Non-experimental methods
- Experimental methods
- Population
- Sample

Ethics in psychological research

- Mandated behaviour
 - Research merit and integrity
 - Justice
 - Beneficence
 - Respect
 - Confidentiality
 - Informed consent
 - Voluntary participation and withdrawal rights
- Deception in research

Psychology as a science

Steps in the scientific method

- Identify issue
- Develop research question or hypothesis
- Choose research design and method
- Collect data
- Analyse data
- Interpret data
- Report findings

Participant selection

- Differences between sample and population data
- Ensuring representative samples
 - Convenience sample
 - Random sample
 - Stratified random sample

Types of data

- Qualitative data – not expressed in numbers
 - Interviews
 - Focus groups
- Quantitative data – expressed in numbers
 - Rating scales

Experimental research methods

- Independent and dependent variables
- Operationalising variables
- Generating an operational hypothesis
 - Develop general hypothesis
 - Operationalise variables
 - State operational hypothesis
- Controlled and uncontrolled variables
- Experimental and control groups
- Ensuring quality measures
 - Reliability
 - Internal consistency
 - Test-retest reliability
 - Validity
 - Face validity
 - Construct validity
 - Concurrent validity
 - Predictive validity

Non-experimental (descriptive) research methods

- Case studies
- Surveys
- Correlational studies
- Archival research

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

- 1 Focus group
- 2 Convenience sample
- 3 Predictive validity
- 4 Reliability
- 5 Qualitative data
- 6 Control group
- 7 Operational hypothesis
- 8 Dependent variable

Multiple-choice questions

- 1 A sample in psychological research:
 - A is bigger than the population.
 - B is representative of the population.
 - C allows generalisation of findings to the population.
 - D both B and C.
- 2 Concurrent validity:
 - A determines the extent to which we can predict other attributes or behaviours thought to be related to what we are attempting to measure.
 - B is determined by the extent that the test appears to measure what we claim it measures.
 - C is determined by the extent to which the test measures the same thing as other similar tests.
 - D is judged by how well the test is in keeping with the constructs on which the test is based.
- 3 Archival data:
 - A are data collected about elderly people.
 - B are purely descriptive.
 - C use data previously collected by others.
 - D are more expensive than other forms of data collection.
- 4 Debriefing at the end of a study involves:
 - A giving feedback on how the participant performed.
 - B thanking the participant for helping with the research.
 - C offering the participant a reward, such as a movie pass, to thank them for participating.
 - D giving participants full information about the purposes of the study and correcting mistaken ideas.

- 5 In an open-ended interview, participants:
 - A answer yes/no/undecided in response to questions.
 - B answer the question in any way they want.
 - C complete a rating scale to indicate how strongly they agree or disagree.
 - D can talk about any topic they want.

Apply and relate psychological understandings

Short-answer questions

- 1 Outline the major advantages of using archival research.
- 2 Compare qualitative and quantitative means of gathering data on attitudes. Provide examples of each.
- 3 Compare two ways by which we determine the reliability of a measure.
- 4 Outline some ways we can keep information about participants in research confidential.
- 5 Indicate how you would handle the requirement to obtain informed consent if your study involved children with an intellectual disability.
- 6 You intend to conduct research to test the general hypothesis that sleep deprivation has a negative impact on memory. Complete the following:
 - a The independent variable (IV) in this study is
 - b The dependent variable (DV) in this study is
 - c The hypothesis could be operationalised as
 - d Four extraneous variables that may need to be controlled are

Complete the table

Copy and complete the table below indicating the strengths and weaknesses of each of the methods of sampling.

Sampling method	Strengths	Weaknesses
Convenience		
Random		
Stratified random		

CHAPTER 11

Research methods: Processing and evaluating psychological research

Key knowledge and understanding

Methods of displaying quantitative data

- Tables
- Graphs

Diagrams

Making sense of data using statistics

- Descriptive statistics
- Associations between variables: Use of correlations

Sources of error in data

- Participant sources of error
- Experimenter sources of error

Evidence-based conclusions

Role of probability

Processing and evaluating psychological research

Methods of displaying quantitative data

To share what we have found through our research with other interested people, we need to be able to organise our data and present it effectively. The major tools that researchers use to summarise, organise and display data are tables, graphs and diagrams.

Tables

David Hill and his colleagues (1993) were interested in finding out the pattern of alcohol consumption in adolescents in Australia: How much alcohol was consumed? Were there differences between girls and boys? At what age did children start drinking alcohol? Where did they drink it? When did they drink it? How did they get it? To answer these questions they carried out a survey of 24 892 adolescents from across Australia. The raw data would have consisted of the questionnaires completed by all the participants in the study. No reader could wade through all of that, so the researchers organised much of their data into tables that let us answer some of their questions.

Table 11.1 Adolescent alcohol consumption, 1990

Adolescent alcohol consumption, 1990						
	Never drank		Current drinker (drank in last week)		Average number of drinks per week (a)	
Age	Boys (%)	Girls (%)	Boys (%)	Girls (%)	Boys (number)	Girls (number)
12	22	24	13	8	3.2	2.5
13	18	17	20	17	3.7	2.5
14	11	11	28	25	4.2	3.9
15	7	6	38	34	6.1	5.1
16	6	4	44	43	8.0	5.2
17	5	3	51	46	8.9	5.7

(a) Average number of standard drinks consumed by current drinkers. Cans and bottles were converted to standard drinks. Each standard drink contains approximately 10g of alcohol.

By looking at this table, we can see that the majority of children, both boys and girls, have consumed alcohol by the age of 12, although only a small percentage had drunk alcohol in the previous week. However, by the age of 17, approximately half were drinking on a regular basis (had drunk alcohol in the previous week). The reason that we are able to draw these conclusions so easily is that the researchers have followed the rules for good tables, which are stated below.

- *Use clear headings* – in the above table, there might have been some ambiguity in the use of terms – for example, ‘current drinker’ – so the researchers have explained their term.
- *Use headings and subheadings that highlight the research questions* – age differences, gender differences, frequency of drinking, amount of alcohol consumed.
- *Specify what the numbers represent* – percentage of boys and girls, number of standard drinks.

Graphs

Another way of summarising, organising and presenting data is through the use of **graphs**. Graphs present data in pictorial form that many of us find easier to read than tables. There are many different types of graph. Some of the most commonly used ones are:

- line graphs
- histograms or bar graphs
- frequency polygons
- pie charts.

Just as with tables, graphs must be clearly labelled in order for them to be effective ways of communicating information.

Line graphs show us the relationship between two variables, things that can vary (change) in some way, such as the amount. If we look at Figure 11.1 (fictional data), we can see changes over the years (one variable) in the percentage of senior high school students who report using drugs (second variable). The horizontal, or x, axis of the graph is used for the continuous variable. A continuous variable is one that may take any value within a given range. So, weight, height and time are continuous variables. This contrasts with a discrete variable, such as family size, where intermediate values are not possible. We cannot have a family with 2.5 children! In this case, the continuous variable indicates the year in which the measurement was taken. The vertical, or y, axis, shows what we are measuring in relationship to the continuous variable. In Figure 11.1, the vertical axis shows the percentage of students at each measurement point. This graph shows us that marijuana usage was at its highest in the early 1990s, that ecstasy usage was at its highest in the early 2000s, that alcohol usage has always been much higher than marijuana or ecstasy usage, that the majority of senior high school students consume alcohol and so on.

When we want to show a variable on the x axis that is not continuous but is discrete, we use a **bar graph** and leave a space between the bars. In Figure 11.2, we have a bar graph that shows the relationship between the phase of a woman's menstrual cycle (on the x axis) and her score on a measure of negative mood (on the y axis). In this interesting study, Cathy McFarland and her colleagues (1989) found that although women thought that their moods were worse just before and during menstruation, when they kept a daily record of their moods there was no actual change across the menstrual cycle. Differences in measures taken during the cycle (actual), as compared with those remembered at a later time (recalled), are indicated by different colours of the bars.

Histograms look like bar graphs in that they use bars to represent how one variable changes in relation to another; however, because the variable on the x axis is continuous (as in a line graph), the bars are drawn touching each other. Figure 11.3 shows a histogram of continuous data.

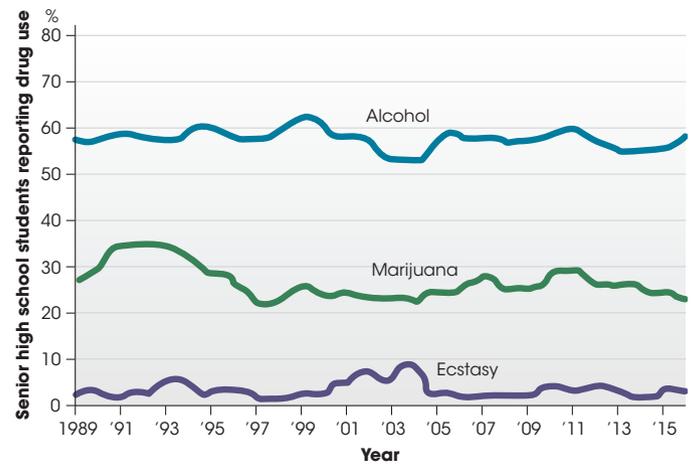


Figure 11.1 Trends in drug use by senior high school students

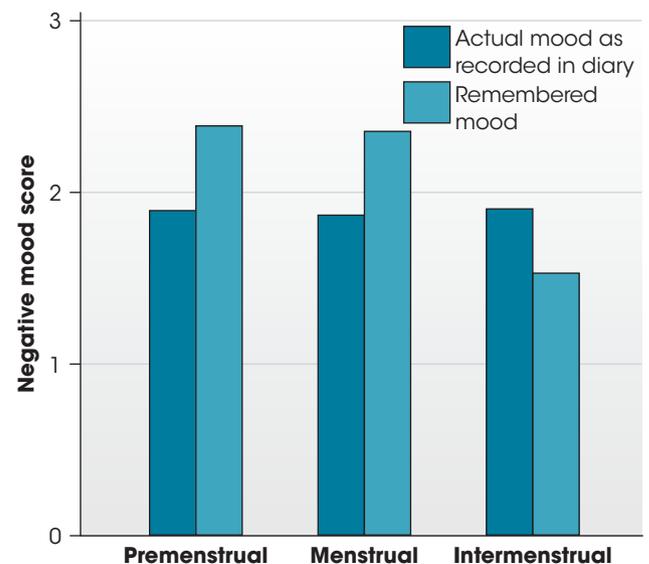


Figure 11.2 Bar graph showing the relationship of a woman's menstrual cycle to a measure of negative mood

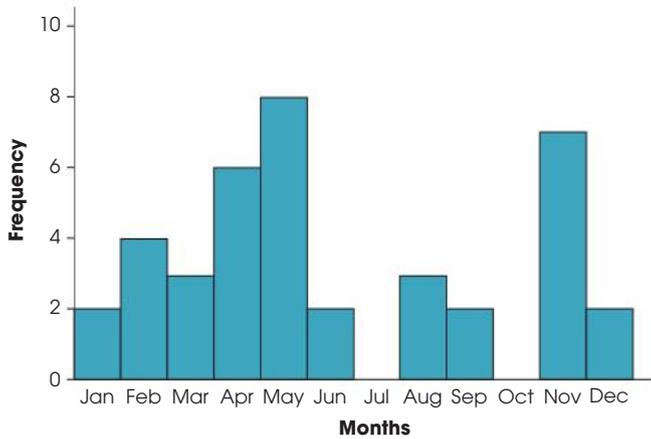


Figure 11.3 A histogram looks like a bar graph, but represents continuous data like a line graph.

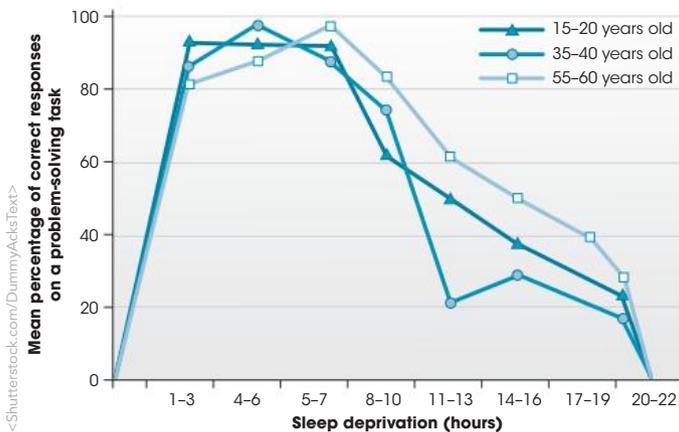


Figure 11.4 A frequency polygon lets us compare groups.

A **frequency polygon** looks rather like a line graph, but while line graphs can be used to show a relationship between any two variables of interest, a frequency polygon is only used to show information about frequency – how often something occurs. For example, a frequency polygon could be used to display the shape of the distribution of NAPLAN mathematics scores for children in Year 5 in a particular school district. By using a frequency polygon we can see whether the majority of scores were at the midpoint and increasingly fewer scores were better or worse the further we moved from the average. This would give us a normal distribution – a bell-shaped curve.

In a frequency polygon, if scores on the x axis are shown as a range rather than a single score, only the midpoint of the range is shown. The frequency of scores for each range is then plotted as a dot on the graph at this midpoint at the appropriate level on the y axis to show the frequency. This can be seen in Figure 11.4 where the dot representing the mean percentage of correct responses is plotted at the midpoint for each 3-hour range. Lines are drawn to connect the dots, with the line brought down to zero on the x axis at each end to form a polygon.

One advantage of frequency polygons over histograms is that several sets of data can be used in the one graph, allowing comparisons to be made. If we take our example of using a frequency polygon to display NAPLAN results, schools may want to compare the performance of their students over a number of years. This would be important if the schools had implemented a program to develop students' skills in areas where students were weak and wanted to find out whether their interventions were effective.

In Figure 11.4, the age groups are shown by different lines. The legend shows what each line represents. The graph allows us to see the differences between participants of different ages regarding the effects of sleep deprivation on responses to a problem-solving task.

Pie charts or pie graphs show the proportions of data. As the name suggests, the graph looks like a pie. Each slice represents a category of the variable we are looking at. If we were looking at coffee consumption among the students in your class, we might have the following categories:

- no consumption – never drinks coffee
- low consumption – two or fewer cups per day
- moderate consumption – three to four cups per day
- high consumption – more than four cups per day.

The size of each slice would show the proportion of your class that was in each category. Categories are usually shown by colour or shading, and a legend is provided with the graph so that you know which group is which. You would calculate the proportion of the pie for each category by dividing the number of people in a category by the number in the class and multiplying by 100. You might end up with a pie chart like the one in Figure 11.5.

When psychologists publish their research in journals, they must follow the guidelines of the journal to which they are submitting their work when they decide how to structure their content, use headings, and present tables and graphs. Most psychological journals use the formatting guidelines provided in the *Publication Manual of the American Psychological Association*.

In reading this section on graphs, you will have noted that there is some overlap in the function of various graph types, such as line graphs and histograms, and to some extent researchers will choose from possible alternatives on the basis of which they think more clearly shows their data. Nevertheless, they all have some limitations that must be kept in mind when deciding on how to represent data. These are indicated in the summary of graph types outlined in Table 11.2.

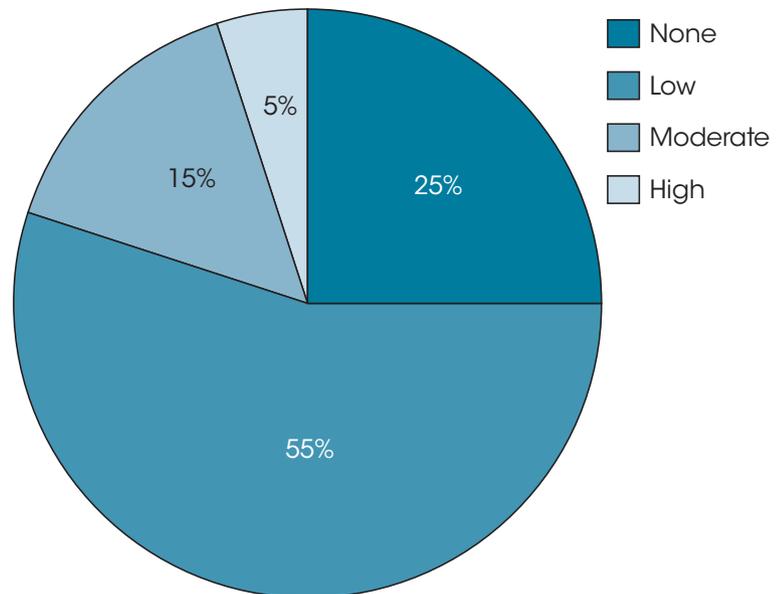


Figure 11.5 An example of a pie chart showing coffee consumption of students in a Year 11 class

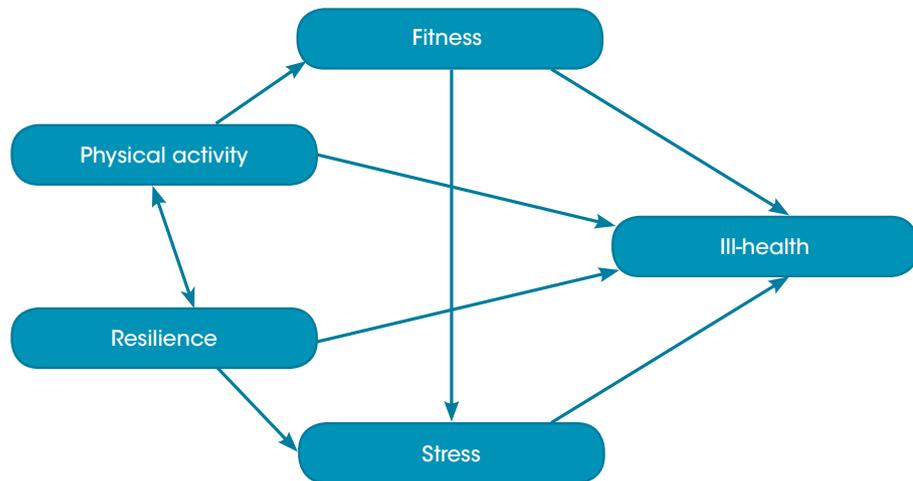
Type of graph	Description and purpose	Limitation
Line graph	Shows the relationship between two variables when variable on the x axis is continuous. Information on the x axis takes the form of a continuous line.	Can only be used with <i>continuous</i> variable on x axis.
Bar graph	Shows the relationship between two variables when that on x axis is discrete. Takes the form of bars with spaces between.	Can only be used with a <i>discrete</i> variable on x axis.
Histogram	Shows the relationship between two variables when variable on the x axis is continuous using bars that touch.	Can only be used with a <i>continuous</i> variable on x axis.
Frequency polygon	Shows the frequency of the variable on the x axis by means of a line. Often used when comparing multiple datasets. Can depict the shape of distributions.	Can only be used to depict <i>frequency</i> of the variable on the x axis.
Pie chart	Shows proportions of a variable as slices of the whole (the pie).	Can only be used to depict <i>proportion</i> of parts making up a whole.

Table 11.2 Summary of graph types

Diagrams

In psychological research, diagrams that are not graphs are often used to show processes that have been followed as part of the research method and take the form of a flow chart. Diagrams, in the form of a model, can also be used to depict the hypothesised relationship between variables. An example of this can be seen in Figure 11.6, which shows a possible model of factors influencing ill health.

Figure 11.6 Using a diagram to depict a model of causes of ill health



In this diagram, the lines joining the boxes show hypothesised relationships between variables. The variables would be operationally defined and the relationship between each tested. Advanced statistical procedures would then be used to test whether the direction of the proposed relationships was supported, how strong the relationships were and how well they explained which people suffered ill health. The diagram would normally be shown again in the results section with the strength of the relationship between variables and their impact on the dependent variable – ill health – shown.

Making sense of data using statistics

Descriptive statistics

Psychologists gather data. But what do they do with the data to help us make sense of it? Raw data can be very confusing. One step researchers usually take is to summarise the data using three measures of 'central tendency': the mode, mean and median. These statistics are known as **descriptive statistics**, because they describe and summarise the data. The **mode** is the most frequently occurring of a group of scores. The **mean**, which is the most frequently reported measure, is the average score – the sum of all the scores divided by the number of scores. The **median** is the middle score. If you put all the scores in order from the highest to the lowest, half the scores will be above the median and half below it.

Often the mean, median and mode give us similar information, but the mean can give us a distorted picture if we have a few extreme scores. For example, if a billionaire sat down for a coffee in a small café, the mean (average) income of the café patrons would suddenly be in the millions!

Broaden your understanding

Descriptive statistics

In the table below you will see the number of goals per game by 10 AFL players in the first 10 games of the 2014 season. See if you can work out who averaged the highest number of goals, that is, had the highest mean score. Did the mean number of goals for this player differ from the mode or median of his number of goals?

Player	Round									
	1	2	3	4	5	6	7	8	9	10
Hayden Ballantyne	3	0	1	1	2	–	2	0	3	–
Chad Wingard	0	4	2	–	1	3	3	5	–	3
Josh Kennedy	0	0	0	0	1	1	2	0	1	–
Lance Franklin	1	2	4	0	4	1	–	2	5	–
Travis Cloke	0	2	0	0	4	0	2	–	1	1
James Podsiadly	0	1	1	3	1	3	2	–	1	0
Jack Riewoldt	1	1	4	2	4	2	2	–	1	11
Tom Hawkins	1	2	4	3	5	3	0	–	3	4
Jarryd Roughead	5	1	2	4	0	1	4	3	–	–
Nick Riewoldt	3	5	2	2	5	1	0	4	2	–

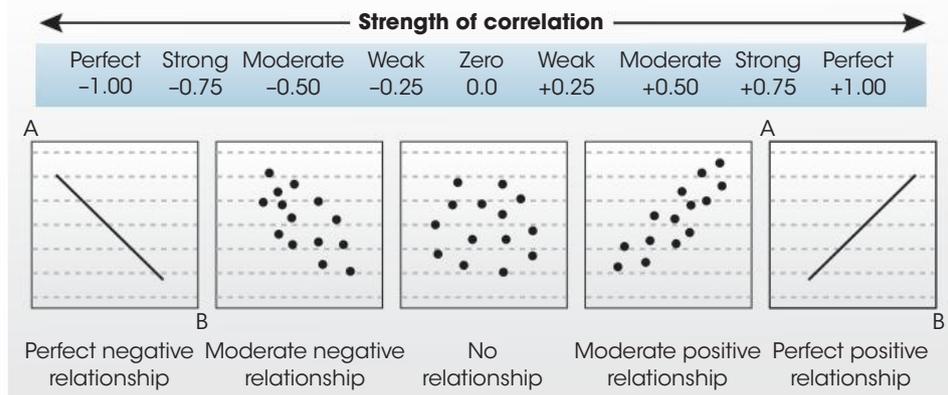
What are the statistics on these goal scorers? (Check your answers online at NelsonNet.)

If you were interested in the spread of data, one of the measures you could use is the range. The **range** of data is the difference between the highest and lowest score. In our example above, if you wanted to know how consistent the goal kicker was, then you would look at the range. Check out the data. Was the player with the highest mean number of goals also the most consistent – the one with the lowest range?

Associations between variables: Use of correlations

Another way that researchers try to make sense of data is by looking at the relationships between variables; that is, how they correlate. Correlation is a statistical term that tells us about the relationship between two measures. A **correlation coefficient** is a number that describes the strength and direction of this relationship. This relationship can be positive (+) or negative (–). Correlation coefficients range from –1 to +1. A coefficient of –1 indicates a perfect negative relationship between variables, which means that people scoring high on one variable score low on the other variable. A coefficient of +1 is a perfect positive correlation. High scores on one variable will be accompanied by a high score on the other, while low scores on one will be associated with low scores on the other. If there is no relationship between the two measures, the correlation coefficient is 0. Correlation coefficients can be expressed anywhere along this continuum from –1 to +1; for example, +0.3, –0.6 and so on. You would be unlikely to find perfect correlations, either positive or negative between variables measured by psychologists, but strong through weak correlations are common. You may well find a moderately strong to very strong positive correlation between scores on reading accuracy and spelling, a zero correlation between hair length and intelligence test scores and a moderately weak to very weak correlation between distance from the centre of Perth and house price.

Figure 11.7 The correlation coefficient tells us the direction and strength of the relationship between variables A and B.



What is important to remember is that a strong correlation between variables does not necessarily mean that one causes the other. A strong positive correlation of +0.7 between children's height and their scores on a maths test does not mean that being tall caused children to be better at solving maths problems. The relationship is likely to be due to the fact that both variables are related to age and that older children are likely to be both taller and better at doing maths than younger children.

It is easy to find examples in the media when associations (correlations) between variables are reported as if there is an established cause-and-effect relationship. This is particularly common in the reporting of health issues – a high level of 'x' behaviour is found to be associated with a high level of 'y' health issue. Readers and listeners then often assume that 'x' is the cause of 'y' but, as we noted earlier, correlation does *not* mean causation. There is often another factor that has caused both.

TRY THIS

Correlations

Google 'red meat and cancer', or 'vaccinations and autism'. See what you can find out about the reported association and what has been discovered since about the associations. Was there evidence of a causal relationship or has another explanation been found?

Sources of error in data

As we have just seen, data can be misinterpreted. There are also times when the data can be in error due to a variety of factors, and a good researcher must always look out for these errors. We will look at two major sources of error, one relating to participants and the other relating to experimenters.

Participant sources of error

A major and often reported source of participant error is what has come to be known as the **Hawthorne effect**. This refers to the finding that simply knowing that the participants are part of a study can lead them to change their behaviour. The name 'Hawthorne effect' came from a series of well-known experiments by Roethlisberger and Dickson (1939) designed to improve productivity among employees at the Hawthorne plant of the Western Electric Company. At different times, employees were subjected to a range of different work conditions: shorter working hours, longer working hours, shorter rest periods, longer rest periods and so on. Under most of these conditions productivity seemed to increase, which led the researchers to conclude that the participants' performance improved simply because they knew they were part of an experimental group.

A similar type of participant error can occur in experiments designed to evaluate the effectiveness of drugs, if care is not taken in the experimental design. If researchers simply gave the experimental group a drug and the control group no drug, the researchers would not know if any changes in behaviour in members of the experimental group were actually due to the drug or to the *expectation* of drug effects. Researchers overcome this sort of problem by testing the drug against a placebo. A **placebo** is a neutral substance that is presented in such a way that it looks like the 'real thing'. For example, they might place the drug and the placebo into capsules that are identical in colour and shape. Half of the participants in the study will be given the drug and half the placebo. Participants will not know which one they received; that is, they will be 'blind' to the group they are in. This is known as a **single-blind procedure**. Any differences in the effects of the drug should then be due to the drug itself, rather than to beliefs about the treatment.

Participants may react in different ways to being in a study. Most are cooperative and try to do what is asked of them; however, in their efforts to please, they may behave in a way that is different from what they would normally do. Other participants may actually try to outwit the experimenter by behaving in a way that is the opposite of what they think is expected. For these sorts of reasons, it is not only in drug trials that researchers use a single-blind procedure. In these procedures participants are allocated to either the experimental or control group without being aware of which group they are in.

Experimenter sources of error

Participants are not the only source of error. Experimenters may also influence participants' behaviour. An **experimenter effect** is a change in behaviour by the participant that is due to the behaviour of the researcher. An experimenter effect can occur when the experimenter's actions, such as smiling or shaking hands, affect how the participants respond, especially if one group is treated differently from the other. Experimenter bias can also creep in when the person measuring the dependent variable knows which group the participant is in. Research has shown that this may lead to verbal responses being interpreted in a particular way, assistance given on tests and so on, without there being any deliberate attempt to do so. Differential treatment of groups can lead to the dependent variable being affected by factors other than the independent variables, and incorrect conclusions being reached.

For this reason, experimenters may use what is known as a **double-blind procedure**, where neither the participant nor the person collecting the data knows which group the participant is in. Both are 'blind' to group membership. This requires an independent person to allocate the participants to the experimental or control group. Only after the data has been collected is the researcher made aware of which group each participant was in. So if a researcher was trying to determine whether a new drug, *Calma*, improved the classroom behaviour of children diagnosed as having Attention Deficit Hyperactivity Disorder, not only would half the children have to be randomly assigned a placebo, while the other half were administered the drug, but the research assistants carrying out the behavioural observations in the classroom would have to be unaware of which group the children were in; that is, they would have to be blind to group allocation.

Evidence-based conclusions

When psychologists carry out experiments, they usually want to do more than describe and summarise data. They want to be able to determine whether their hypotheses have been supported by the data. To do this, they use **inferential statistics**, statistics that let them draw inferences and make conclusions from the data.

There are many different types of inferential statistics but they are beyond the scope of this course. The specific type used depends on the type of data being collected, the type of study being done, and what the researcher wants to know about the results.

Researchers typically want to draw conclusions about the larger population from which their sample of participants was drawn. The researchers' ability to come to conclusions about the population will depend on all the factors we have considered including:

- selection of a representative sample
- appropriate allocation of participants to experimental and control groups
- ensuring participants are unaware of which group they have been allocated to
- eliminating the possibility of experimenter bias.

Role of probability

Even if a researcher takes all of these steps, no research can ever *prove* that a hypothesis is correct. It can only let us know how likely, or probable, it is that the hypothesis is correct. It indicates the expected relative frequency of an outcome. We might hypothesise that eating excessive amounts of food will make people fat. Our research is likely to confirm the hypothesis with a high degree of **probability**, but we cannot say that this is definitely always true. There might always be exceptions. In this instance, people with tapeworms or bulimia might eat excessively, but not get fat.

Probability can be calculated by dividing the number of possible successful outcomes by the number of all possible outcomes. When an umpire tosses the coin for the start of a cricket or footy match, what is the probability that it will come up heads or tails? With a coin there is one of two possible outcomes (getting heads or getting tails), so the probability of getting one or the other is $\frac{1}{2}$ or 0.5. With a die, on the other hand, there is a one in six chance of getting a two, or a 0.17 probability. The probability gets smaller as the number of possible outcomes increases. Think about winning Lotto – the probability of getting all six numbers is very small indeed.

One interesting fact about probabilities is that they do not change. To go back to our coin toss, there is always a 0.5 chance that it will land heads up however many times the coin is tossed. Probabilities always range from 0 to 1. A probability below 0.05 means that the event would be highly unlikely to occur, whereas a probability of 0.9 means that it would be very likely. When calculating the probability of an outcome in psychology, researchers usually calculate it statistically when analysing data. If you read journal articles reporting on psychological studies, you will find that differences between measures are often reported as being significant with $p < 0.05$ (or $p < 0.01$). This means that the probability of the differences occurring by chance is less than 5 in 100 (or 1 in 100). You will learn more about probability and significant results in Year 12.

In psychological research, it is common to find that a value of p of less than 0.05 is accepted as indicating that any changes in the dependent variable (DV) are likely a result of changes to the independent variable (IV) and not chance, thus supporting the hypothesis.

Figure 11.8 What is the probability of both dice landing with a six on top?



CHAPTER SUMMARY

Processing and evaluating psychological research

Methods of displaying quantitative data

- Tables
- Graphs
 - Line graphs
 - Histograms and bar graphs
 - Frequency polygons
 - Pie charts

Diagrams

- Flow charts
- Models

Making sense of data using statistics

- Descriptive statistics
 - Mean
 - Median
 - Mode
 - Range
- Association between variables
 - Correlations

Sources of error in data

- Participant sources of error
 - Hawthorne effect
 - Reducing error
 - Placebos
 - Single-blind procedure
- Experimenter sources of error
 - Experimenter effect
 - Reducing error
 - Double-blind procedure

Evidence-based conclusions

- Inferential statistics

Role of probability

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

- 1 Placebo
- 2 Pie-chart
- 3 Median
- 4 Frequency polygon
- 5 Double-blind procedure
- 6 Hawthorne effect

Multiple-choice questions

- 1 In graphs, when we want to show a variable on the x axis that is not continuous we use:
A pie charts.
B a bar graph with spaces between the bars.
C frequency polygons.
D line graphs.
- 2 A frequency polygon:
A is only used to show information about frequency.
B looks like a line graph.
C is useful in showing multiple datasets.
D all of the above.
- 3 The mode is:
A the average score.
B the middle score.
C the most frequently occurring score.
D none of the above.
- 4 A correlation of -0.6 is a:
A high negative correlation.
B moderate positive correlation.
C low negative correlation.
D moderate negative correlation.
- 5 A single-blind procedure means:
A ensuring neither participants nor experimenters know which participants have the real treatment.
B testing participants who are visually impaired.
C ensuring that participants do not know whether they are in the treatment or control group.
D ensuring that participants do not know the real reason for the experiment.
- 6 A high positive correlation indicates that a person who scores moderately on one variable will score:
A high on the other.
B moderately on the other.
C low on the other.
D a score that is impossible to predict.

Apply and relate psychological understandings

Short-answer questions

- 1 On 26–27 July 2006, a Morgan Poll was carried out to investigate Australians' reactions to the conflict between Israel and Hezbollah in Lebanon. They surveyed 644 men and women aged 14 and over. They asked the question: 'Do you believe Israel should continue to negotiate a ceasefire or continue to use military force in Lebanon so that they can disarm Hezbollah?' The following data was obtained.

	Age group				
Response	14–17	18–24	25–34	35–49	50+
Negotiate ceasefire	85 %	78%	78%	81%	79%
Continue with force	4%	13%	13%	11%	14%
Don't know/can't say	11%	9%	9%	8%	7%

Source: Adapted from Morgan Poll Finding No. 4058, August 1, 2006

Use this data for the following activities:

- a Draw a histogram to indicate the difference in percentage of respondents in favour of a ceasefire for each age group.
 - b Indicate, by circling your response, which age group was most in favour of continued force.
i 14–17-year-olds ii 25–34-year-olds
iii those aged 50+ iv 35–49-year-olds
 - c Indicate, by circling your response, which age group was the most indecisive.
i 14–17-year-olds ii 25–34-year-olds
iii those aged 50+ iv 18–24-year-olds
- 2 Three graphs are shown below. Describe the nature of the relationship shown in each.



- 3 Researchers have found a high correlation between children's scores on measures of language and social skills. Children with good language skills have been rated more highly by their teacher on a social skills scale. Indicate how you would interpret this finding.

Extended-answer question

A new drug, *Stabilo*, has been developed to reduce the hyperactivity symptoms of ADHD. Outline the method you would follow to ensure that any changes observed could be attributed to the drug.

Answers

Chapter 2 review, p. 27

Terminology

- 1 Neuron: type of cell specialised to receive, transmit and process information.
- 2 Dendrites: fine branches stretching from the cell body; they receive information from other neurons and transmit them to the cell body.
- 3 Case study: intensive study of an individual.
- 4 Hallucinogen: substance that changes our perceptions and gives us sensory images without input from the senses.
- 5 Disinhibition: loss of normal inhibitions, which can lead to changes in normal behaviour.

Multiple-choice questions

- 1 B
- 2 C
- 3 C
- 4 A
- 5 D

Short-answer questions

- 1 The behaviour of people who have had brain injury or disease usually changes. By looking at what aspect of behaviour is affected, we can associate that behaviour with the part of the brain that has been affected. For example, Phineas Gage had the front part of his brain damaged by an iron rod and his behaviour changed

- completely. He went from being polite, pleasant and hard-working to being loud, impulsive and dishonest. From this we can learn that the front part of the brain is important for planning, self-control and personality.
- 2 An EEG measures brain waves, the electrical activity of the brain. The brain waves vary in both frequency and intensity. Different brain wave patterns are associated with different states of consciousness. The CT scan, in contrast, is a type of X-ray that sends a series of narrow beams through the head. When the information from these scans is fed into a computer, a cross-sectional picture of the brain is produced. While an EEG is used when we want information about the brain as a whole, a CT scan is used to detect tumours, strokes, etc. that affect specific parts of the brain.
 - 3 We are still some way from having a definitive answer on why people feel better after exercise. Some mechanisms that have been suggested include exercise: strengthens the heart, lowering blood pressure; increases the production of mood-boosting neurotransmitters; provides mastery experiences that help promote perceived capacity to cope.
 - 4 Severing the corpus callosum stops communication between the two hemispheres of the brain.

Complete the table

Four scanning techniques used to provide information about the brain's structure and function, including one use and one limitation of each technique.

Scanning technique	Use	Limitation
1 CAT	Used in research to look at possible abnormalities in brain structure associated with mental illness	Images inferior in quality to MRI
2 MRI	Used in detection of tumours and other abnormalities	Cannot be used if patient's body contains any magnetic objects; e.g. pacemakers
3 fMRI	Observation and measurement of changes in the brain during activity	No major limitations; neuroimaging technique of choice
4 PET	Used in research to show specific brain areas activated during activities such as reading	Images not as detailed as those from fMRI yet are more expensive

Chapter 3 review, p. 50

Terminology

- Galvanic skin response: changes in electrical conductivity of the skin in response to arousal.
- Daydreams: shift of attention from external to internal stimuli.
- Divided attention: attention that is divided between two or more stimuli.
- Habituation: a decrease in attention when a stimulus is repeated.
- Perceptual expectancy: a readiness to respond in a particular way because previous experience has prepared us to do so.

Multiple-choice questions

- | | |
|-----|-----|
| 1 D | 5 D |
| 2 C | 6 C |
| 3 B | 7 C |
| 4 D | |

Short-answer questions

- Wechsler's idea of intelligence was based on observation rather than theory. He considered that intelligence was the global capacity to act purposefully, think rationally and deal effectively with the environment. Spearman's idea of intelligence was based on his finding that measures of different abilities correlated modestly, suggesting that to some extent they were measuring the same thing: general intelligence. However, he thought that the reason that they did not correlate perfectly was that they each also measured a specific ability. This led him to develop a two-factor theory of intelligence.
- Psychologists have to be specially trained to use individual intelligence tests because they must be able to put their client at ease while exactly following detailed instructions on how to administer the test. They must also learn how to correctly score and interpret the test.

- Sensation involves our sense organs, our ears, eyes, etc, receiving physical stimuli such as light and sound waves. These stimuli are transmitted to the brain for processing. When stimuli are selected, organised and given meaning by the brain, perception has occurred. This means that two people can have the same sensations (i.e. receive the same stimuli), but because of past experiences or different motivation, they may perceive things quite differently.
- Habituation is the decrease in attention shown by people when they have been exposed repeatedly to the same stimulus. Researchers have used habituation to study infant perception as they have found that infants show less attention to a toy or picture after they have been shown it several times in a row. They measure attention by the infant's heart rate, how long they will look at an object and so on. Using this technique, they have found that infants can discriminate different colours and shapes, as they will habituate to a repeated shape or colour but renew attention when shown a different shape or colour.
- Divided attention occurs when our attention is not fully focused on one thing and we divide our attention between two sources of information. Research that examines what factors affect how effectively we can do this has been important in understanding causes of accidents. To date, we know that successful divided attention depends a lot on the amount of mental effort needed for each. For example, most experienced drivers have no difficulty holding a conversation while they drive if they are driving a familiar route, if the driving conditions are good and if there are no unexpected changes. Often conditions change and there is a delay in switching attention to focus on important new information. This delay can lead to accidents.

Complete the table

- The three steps of sensation and perception and what happens at each step.

	Step	Describe what happens at each step
Sensation	1 Reception 2 Transduction 3 Transmission	Physical stimuli are detected by sensory neurons in sense organs. Different forms of stimuli are converted into electrochemical energy. This energy is transmitted to the brain for processing.
Perception	1 Selection 2 Organisation 3 Interpretation	The brain filters the stimuli selecting important features for future processing. Selected features are organised to form a whole. This is done by specialised neurons – feature detectors. The brain interprets the whole, giving it meaning. Past experience and motivation can affect this.

2 Major features and limitations of group and individual intelligence tests.

	List five features of a well-conducted assessment	List three limitations of each assessment type
Individual intelligence tests	<ol style="list-style-type: none"> 1 Administration and scoring practised prior to testing 2 Rapport established with client 3 Administered according to manual 4 Client monitored for signs of fatigue, etc 5 Scores calculated accurately 	<ol style="list-style-type: none"> 1 Need for experienced clinician 2 Only one person at a time can be assessed 3 Time-consuming
Group intelligence tests	<ol style="list-style-type: none"> 1 Ensure enough materials for whole group 2 Check re-usable booklets for notes left by previous users 3 Inform clients of what will be required during testing 4 Assure clients of confidentiality 5 Ensure accurate timing 	<ol style="list-style-type: none"> 1 Since pen and paper test literacy, difficulties can result in poor results, hence misinterpretation of intelligence 2 Time limits can result in individual with slow information-processing achieving poor results, hence misinterpretation of intelligence 3 Cannot be used for clinical purposes

Chapter 4 review, p. 67

Terminology

- 1 Social conformity: adherence to the attitudes and behaviour of the social group to which the individual belongs.
- 2 Cost-benefit ratio (according to Thibaut and Kelley): the ratio of what an action will cost the individual relative to what will be gained from that action.
- 3 Bullying: negative behaviour intended to hurt the recipient. It can be physical or verbal.
- 4 Bystander effect: the tendency for a person who is present in an emergency to be less likely to try to help if other people are present.
- 5 Pro-social behaviour: voluntary, intentional helping behaviour or acts of kindness that are meant to benefit others.

Multiple-choice questions

- | | |
|-----|-----|
| 1 A | 4 D |
| 2 D | 5 B |
| 3 C | 6 C |

Short-answer questions

- 1 Pro-social behaviour is voluntary, intentional helping behaviour or acts of kindness that benefit others. It is not paid for and is done in one's own time. This is also termed altruistic behaviour because it is unselfish and, not done for self-benefit. Empathy is an important component of pro-social behaviour. By adopting the perspective of people in distress we can feel their need for assistance. Helping others is valued in Australian society and many people engage in activities that are pro-social.

- 2 Three main theories have been put forward to account for pro-social behaviour:
 - (i) Pro-social behaviour is inherited. There is a biological or evolutionary value to it since survival of the species depends on humans helping each other. So the tendency to help each other is inborn in much the same way as human tendencies to eat, drink and have babies.
 - (ii) Pro-social behaviour is learned, particularly during childhood. This position derives from learning theories in general which propose that we learn through the rewarding of pro-social behaviour, through instruction, through observation, etc.
 - (iii) Pro-social behaviour is empathetic and its two components – the affective and the cognitive – provide an explanation of how pro-social behaviour develops. The affective component is biologically based and develops in infancy. The cognitive component is learned through our interactions with others.
- 3 The generation gap is a term that has been used to refer to the proposed gap between the values and beliefs of adolescents and their parents. Most current research suggests that this divide is not as great as is often suggested in the media. Conflicts that do occur reflect the adolescent's need for increased autonomy and increased cognitive skills that provide the ability to reason abstractly and argue logically. Research suggests that these conflicts are most frequently about issues such as dress, music, dating, etc., rather than about core beliefs and values.

- 4 Overt aggression is aggression that can be easily observed, such as name-calling or bullying. Relational aggression is less obvious. It is used in relationships as a source of control and as a way to hurt others. Relational aggression may be indirect such as gossiping about another or may be direct as when someone is excluded from a group unless they behave as directed by the bully. Crick and Grotpeter (1995) considered that boys were more likely to use overt aggression, whereas girls were more likely to use relational aggression. WA research indicated that as children moved from primary to secondary school, they were less likely to use both forms of aggression and to move to these more gender-specialised forms of aggression.
- 5 Reciprocity is the principle that we give what we receive or expect to receive. In the theory of social relationships proposed by Thibaut and Kelley (1959), whether we like another person or not is determined by whether what we invest in the relationship is reciprocated. Thibaut and Kelley use the term cost-benefit ratio and claim that we seek to minimise costs while maximising rewards or benefits in a relationship. This theory is an economic theory applied to social relationships.

Chapter 5 review, p.88

Terminology

- 1 Assertive communication: involves honestly expressing opinions and feelings in a way that does not infringe on the rights of others.
- 2 Effective communication: exists when the listener receives, interprets and understands the message as intended by the receiver.
- 3 Active listening: occurs when the listener is actively engaged in the conversation and genuinely tries to understand what the speaker is thinking, feeling or wanting before replying.
- 4 Conductive hearing loss: is caused by problems in the outer or middle ear that prevent sounds being conducted to the inner ear and auditory nerves.
- 5 Specific language impairment: a term used to describe language impairment that is not due to neurological, intellectual, emotional or sensory deficits such as hearing loss.

Multiple-choice questions

- | | |
|-----|-----|
| 1 A | 4 A |
| 2 D | 5 D |
| 3 C | 6 A |

Short-answer questions

- 1 Gestures can have different meanings in different countries, so in order to be sure that you will not cause offence, it is wise to make sure that you understand the meaning of different gestures. One example of this is raising the second and middle fingers of the hand with the palm towards yourself. In some places this is the V for victory sign, but not in Australia.
- 2 If you wanted to be seen in an interview as an approachable person, there should not be any barrier, such as a table, between yourself and the interviewee. Chairs should be of a similar height so you are not looking down on the interviewee and you should smile. These non-verbal behaviours signal friendliness and approachability.
- 3 Unless the school principal had indicated otherwise, it would be appropriate to use their title: Mr/Ms/Dr and their surname. This form of address acknowledges their role as the head of the school and shows respect. It would also be considered appropriate to use effective listening by facing the principal and giving eye contact, paying attention, not interrupting, etc.
- 4 The two types of hearing loss are conductive hearing loss and sensorineural hearing loss. Conductive hearing loss is caused by problems in the outer or middle ear, which prevent sounds from being conducted to the inner ear and nerves. Sensorineural hearing loss is due to a problem in the sensory part of the ear, the cochlea or in the hearing nerve.
- 5 Hearing-impaired children of hearing-impaired adults are usually identified early and taught a sign language as a means of communication. However, 95 per cent of hearing-impaired children have normally hearing parents. To help them learn to communicate effectively, they need to be identified early and an appropriate intervention put in place. Some children will be fitted with cochlear implants, which stimulate nerves in the inner ear to produce the sensation of hearing. With appropriate support they can learn to communicate normally using speech. Other children may be fitted with hearing aids to help improve hearing. In Australia, the majority of these children will learn to communicate using the sign language, Auslan, and speech. This is taught through the process of total communication – where both languages are used together – or bilingualism – where both languages are taught separately.

- 6 Comfort distance is the distance from another person at which we feel comfortable. This varies from culture to culture. People of southern European origin usually are comfortable standing closer to another person than people with an Anglo-Saxon background. Other factors that affect comfort distance are how well we know the person and how much space is available. In a crowded train, we are likely to be reasonably comfortable with strangers standing close to us, but we are likely to feel uncomfortable if a stranger sits down beside us in a half-empty movie theatre.

Chapter 6 review, p. 110

Terminology

- 1 Infancy: the period between birth and two years of age.
- 2 Pre-operational stage: Piaget's stage where children between the ages of two and six years learn language. They are also egocentric.
- 3 Cross-sectional research design: used to study groups of people of different ages at the same point in time.
- 4 Unstructured play: preschool play with sand, water or play dough.

Multiple-choice questions

- 1 A
- 2 B
- 3 D
- 4 B
- 5 D
- 6 D
- 7 i C
ii B
iii A

Short-answer questions

- 1 Social cognition refers to understanding the world around us through watching, interpreting and remembering social information and then using it to assess ourselves and others. As we develop and our social experiences widen, these processes become more automatic. Social cognition refers to something that occurs as a result of interaction with others, taking advantage of their different perspectives and experiences.
- 2 One way to measure developmental change is to follow the development of a group of individuals across their lifespan, testing them at regular intervals. This is known as longitudinal research. For example, we could follow a group of children who are age five in 2015 and test them every five years on whatever aspect of development interests us – their memory or their general knowledge. This would enable us

to see what is normal for people of different ages and also look at differences between individuals. Because of problems associated with longitudinal studies, researchers have looked at groups of people of different ages at the same point in time; that is, they have used a cross-sectional design to look at changes with age. These groups of people are chosen to be like each other in aspects of their lives other than age, so the differences between them on whatever we are measuring is assumed to be due to age differences.

- 3 Two techniques used by psychologists to try to understand the roles of nature and nurture in development are twin studies and adoption studies. Psychologists have looked at whether identical twins are more alike in characteristics such as intelligence and personality than fraternal twins. If identical twins are found to be more alike in some traits than fraternal twins, then heredity is considered to play an important role in the development of that characteristic, since both fraternal and identical twins are thought to share similar environments, while only identical twins have the same genetic make-up. Adoption provides another real-life study of the roles of heredity and environment in development. We can see whether adopted children are more like their adopting parents who provide their home environment or more like their biological parents who provided their genes.
- 4 The three stages of play described by Piaget are:
 - Mastery play – play that involves enjoyment of movements for their own sake and the child learns to master and coordinate motor skills. The play is mainly repetitive and exploratory.
 - Symbolic or make-believe play – children begin to make use of symbols in play, to learn language and to engage in pretend play whereby children transform themselves into something or someone else.
 - Play with rules – as children's thinking becomes more logical, around the age of seven years, games start to incorporate rules; at first with made-up rules and then later standard rules laid down for all players.

Physical development covers changes in size, proportion, appearance, motor skills and coordination. Social and emotional development include changes in self-knowledge and understanding of other people, skills in making and maintaining friendships, reasoning about social and ethical matters, and behaviour. Physical development can be seen in play and Parten's classic study shows how children's changing physical skills leads to variations in the types of social interaction with their peers.

Complete the table

Four strengths and four weaknesses of cross-sectional and longitudinal designs for the study of human development.

Design	Strengths	Weaknesses
Cross-sectional	<ol style="list-style-type: none"> 1 Quick and easy to get results 2 Can make comparisons between groups such as between boys and girls 3 Can describe differences between groups 4 Can describe norms for different groups such as boys and girls 	<ol style="list-style-type: none"> 1 No attempt to set up different groups of participants 2 Cannot follow changes over time 3 Difficult to tell if the different age groups or cohorts are the same apart from age 4 Choice of participants can influence results
Longitudinal	<ol style="list-style-type: none"> 1 Can study what is normal for people of different ages 2 Can look at differences between individuals. 3 Takes repeated measures over time 4 Results avoid cohort or groups effects 	<ol style="list-style-type: none"> 1 Expensive 2 Loss of participants 3 Have to wait a long time for results 4 Participants can become 'test-wise'

Chapter 7 review, p. 129

Terminology

- 1 Superego: the voice of conscience that focuses on how we ought to behave. The superego is the perfectionist part of us, leading to positive feelings of pride or negative feelings of guilt. Appears at about four or five years of age.
- 2 Repression: the prevention of unacceptable thoughts from becoming conscious in order to prevent anxiety.
- 3 Projective test: a projective test presents an ambiguous stimulus, one that can be interpreted in different ways.
- 4 Rating scale: standard ways of recording behaviour and listing personality traits that the psychologist looks for.

Multiple-choice questions

- | | |
|-----|-----|
| 1 A | 5 B |
| 2 C | 6 D |
| 3 C | 7 A |
| 4 C | 8 A |

Short-answer questions

- 1 In psychological terms, personality means the characteristic ways of thinking, feeling and acting that make the person an individual. Psychologists are interested in finding out how personality develops, how it influences our behaviour and how we can measure it. In general, personality is made up of the characteristic patterns of thoughts, feelings, and behaviours that make a person unique. It arises from within the individual and remains fairly consistent throughout life. Because it is complex, it cannot be defined simply. It also has a popular use in describing outgoing celebrities or friends who have 'loads of personality'.

- 2 Defence mechanisms are unconscious psychological mechanisms that deny, distort or falsify reality. The ego interprets events or actions in such a way as to deny or re-represent reality to reduce or remove the feeling of anxiety. These processes are unconscious but act as self-protection. They are regarded as normal ways of dealing with psychological conflict and maintaining stability. Overuse, however, of any of the defence mechanisms is regarded as abnormal. Defence mechanisms include reaction formation, repression and denial.
- 3 Personality can be measured by interviews, which obtain information, usually personal, from people although they can be used to obtain information about a person's psychological state (how they are thinking or feeling at the time) or their psychological history, observation, which is simply looking at behaviour and is used in interviews to watch for behaviours, traits or mannerisms that can provide clues or cues to what the person's personality is like, rating scales, which are standard ways of recording behaviour and listing personality traits that the psychologist looks for or through questionnaires, which are paper and pencil or online tests containing questions that reveal personality.
- 4 In Maslow's hierarchy of needs we try to satisfy higher-level needs once our basic ones are satisfied. There are three levels of needs, in the hierarchy. At the base are basic physiological needs, which are those of food, water, warmth, sleep and safety, which we need to make sure we are safe and secure. The intermediary psychological needs are belongingness and love, characterised by the establishment of friendships and then of intimate relationships and esteem, which are those needs that are achieved through accomplishment and recognition of success. Finally, self-fulfilment needs are those achieved when

a person reaches self-actualisation, the full use of one's talents, capacities and potential.

- Interviews can be structured or unstructured. Interviews allow psychologists to take into account things like the way people present themselves though observing the way they are dressed, their tone of voice, their use of hand gestures and their facial expressions. These complement the answers to the questions and are important because they can provide clues as to what the person is actually feeling, even if they are saying something else. Interviews, however, often mean that impressions are formed of a person's personality (or any other characteristic) that may be based solely on a subjective first impression.
- Forensic psychologists are interested in the criminal mind and work across mental health and prison settings. The scientific study of personality has found most use in forensic psychology, specifically the study of criminal behaviour. The assessment of personality can provide clues as to why criminals act, think and feel in certain ways, usually regarded as anti-social in the way they act. Criminals are often assessed as having personality characteristics that are abnormal. That is, they have personality traits that can be considered dysfunctional or normal everyday interaction and living.

Chapter 8 review, p. 149

Terminology

- Social norms: standards that govern what is expected in society and in social situations. Sometimes these rules are stated or written down.
- Social identity: part of an individual's self-concept that is derived from perceived membership in a particular social group. Can be as seen bumper stickers and footy club colours and dress.
- Competition: rivals trying to outdo one another to achieve a goal.
- Social loafing: the practice of putting in less effort when in a group.
- Stereotype: a form of social categorisation based on what others think of as shared features, such as clothes or racial features.

Multiple-choice questions

- | | |
|-----|------|
| 1 B | 7 A |
| 2 D | 8 D |
| 3 D | 9 D |
| 4 D | 10 B |
| 5 B | 11 C |
| 6 D | 12 A |

Short-answer questions

- Groups are characterised by two or more people who come together and interact with one another over an extended period of time and who perceive themselves as being part of that group. The characteristics of a group are extended interaction, stability and endurance. Other characteristics include the sharing of common goals, the undertaking of similar tasks each time they meet (meeting regularly in and of itself is a sign of a group) and the perception that the group is composed of its membership. Members recognise and value these characteristics.
- Roles within a group enable you to define yourself and build your self-concept and self-esteem. Groups can help the development of leadership. Leaders frequently emerge in a group, rather than be assigned that role. They show qualities that mean they rise above the others. Another role of the group is to set norms or expected behaviours of its members. These may be determined by external expectations or they may be established by the group itself about how it should to behave. These are called implicit and explicit rules, respectively. Norms also set rules about how group members ought to behave or act (prescriptive rules) or how they ought not to behave (proscriptive rules). A third role is the establishment of group cohesion, which refers to the extent to which group members want to remain members of that group. Such cohesion is reflected in proximity-seeking behaviours such as meeting frequently, sitting together as a group and performing activities together. Cohesion is generally regarded as good for a group. Finally, members of a group may hold negative attitudes to non-group members. At its extreme, this can be regarded as prejudice, but is generally considered to be a differentiation of those members of the group (the in-group) from those in groups other than the one to which individuals see themselves as belonging (the out-group).
- The effectiveness of communication networks depends on the number of members of the group and the number of communication links that have to be crossed to communicate with another person. When psychologists study networks, they tend to look at groups of three, four or five people. Networks can be highly centralised, decentralised or completely connected. When groups work together on simple tasks, centralised networks are best as the central person can give and receive information and knowledge, while the peripheral group members get on with doing the activities. For more complicated

tasks, a less centralised network structure is better because the volume of the information flow and the complexity of the information required are too much for one single person. Such an inability for the central person to assimilate, integrate and pass on the necessary information quickly and accurately would mean that the peripheral group members would be less efficient. So, a more decentralised network can pay off. However, in complex activities, a centralised network can work well.

- 4 The theory of reasoned action explains how social norms and values are translated into the way people behave. This theory proposes that our intention to behave in a certain way is influenced by our social values and by our own personal attitudes towards the behaviour and evaluation of the costs and benefits of engaging in the behaviour. These behavioural intentions then lead us to our actions.
- 5 Abandoning the usual restraints of an individual to join in crowds or group behaviour is known as deindividuation. The presence of others leads to heightened arousal and it can also lead to a diminished sense of responsibility. In some instances, being in a group can lead to both heightened arousal and diminished responsibility at the same time. The result can be immature behaviour such as abusing a referee or more seriously negative behaviour such as vandalism and rioting. Being in a large group, especially a group dressed in uniforms or similar outfits like the Barmy Army, can certainly lead to a sense of anonymity and attention is often focused on external events and not on internal thoughts or evaluation of the situation.
- 6 Social loafing is used to describe the practice of putting in less effort when in a group. The decrement in performance is usually attributed to a loss of motivation rather than coordination loss. It is believed that individuals feel less accountable when part of a group. Individuals may also feel that their efforts are not as important – that their contribution is dispensable – and so slack off. In group projects, if everyone is not highly motivated to achieve the task, some may try to take a free ride, considering that their lack of effort will not make much difference. Social psychologists agree that less social loafing occurs if the task to be completed by the group is interesting; when members are highly motivated; when individual contributions are essential for success; if individuals' performance is monitored, and if individuals identify strongly with the group. Improving any of these would help a group work together on a project.

- 7 Competition refers to rivals trying to outdo one another to achieve a goal. While competition within groups reduces group cohesion and hinders efforts to achieve group goals, competition between groups increases group solidarity. Unfortunately, it also leads to inter-group hostility. Realistic conflict theory has been proposed as a way of accounting for this. This theory proposes that inter-group hostility arises because of competition between groups for scarce but valued resources. This sets up the conditions for reduced productivity in a work group.

Fact checker

All of these are myths but require some thought and explanation (for example, hearing does decline with age, but it does not mean older people are deaf).

Chapter 9 review, p. 165

Terminology

- 1 Attitude: long-lasting evaluations we hold about ourselves, other people, objects and issues.
- 2 Focus groups: specific type of open-ended group interview.
- 3 Likert scale: measures responses to a series of statements about an issue where each statement represents a positive or negative position with respect to the issue reflecting various strengths of attitude.
- 4 Prejudice: means pre-judgement. It is usually a negative, attitude towards a group and its members. The most common forms of prejudice are based on visible differences between people.
- 5 Just-world phenomenon: assumes that people get what they deserve.

Multiple-choice questions

- | | |
|-----|-----|
| 1 B | 6 D |
| 2 A | 7 B |
| 3 D | 8 C |
| 4 D | 9 B |
| 5 A | |

Short-answer questions

- 1 The tripartite model of attitudes, represented by a triangle, defines attitude. Attitudes are learned through personal experience and many attitudes can be learned quite early in life. While direct experience is an important way that attitudes are formed, they also depend heavily on the lives we live and our social experiences. This is termed 'social learning' and involves interaction with others, watching the behaviour of others and through traditional processes

of learning, including the reinforcement of positive and negative behaviours and the modelling or copying of the behaviours of others around us.

- 2 The media can affect the development of stereotypes through the presentation of oversimplified beliefs, such as ‘Italians all like spaghetti, talk fast and loudly, and wave their hands around a lot’. Stereotypes tend to put people in boxes and make us think that characteristics of some members of the group apply to all members of the group. Television, radio, newspapers, magazines plus advertising often use negative behaviours to characterise different social groups leading to the creation of stereotypes.
- 3 Focus groups are a specific type of open-ended group interview. There is a moderator who asks the members of the group a small number (hence the term ‘focus’) of open-ended questions. Participants are encouraged by the moderator to share their opinions, ask questions and expand on other people’s responses. This differs from an interview in which participants are individually asked questions. It is assumed that the interaction helps people to explore, clarify and articulate their attitudes. A focus group usually has six to eight members. The group’s discussion may be recorded for later analysis. It is commonly used in market research and politics to gauge the acceptability of new products in the market and of proposed government policies respectively.
- 4 Inter-group competition typically occurs between different groups in times of economic hardship, when it is hard to find food, housing or jobs. In these circumstances, prejudice often arises against groups that are seen to be a threat. ‘They are stealing our jobs’ or ‘They are taking food from our children’s mouths’ become the catchcry, where ‘they’ may be a migrant group, working women or some other group.

- 5 Culture is a broad term and underpins basic attitudes, values, beliefs and behaviours. These are shared between members of a particular culture and distinguish it from other cultures or groups. It is learned and subsequently influences the way you see and understand the world. Who you are, or your identity, comes from the cultural environment in which you grow up, and this in turn is influenced by historical events and experiences. Cultural rules, often unwritten, are passed down from generation to generation, through traditions. Cultural rules include such things as the food you eat, the clothes you wear, your family structures, the social activities you participate in, and even the person you will marry. All of these things represent different aspects of culture and can be seen in the different attitudes of migrants in Australia since they have come from countries in Europe, Africa and Asia.
- 6 Relationships in individualistic cultures are based on different concerns than those in collectivist ones. In individualist cultures, individuals choose their own partners. Their relationship is their own business and lasts until either partner wants to end it. Choice of a partner is often based on factors such as personal compatibility. By contrast, in collectivist cultures, individuals often do not select their own partners; arranged marriages are common and the relationship is the business of the wider community. The partnership is also expected to last. Families tend to choose partners for their offspring based on socially valued characteristics, such as social status and financial resources.

Complete the table

- 1 Burial rituals and traditions of people from different religions and what beliefs underlie of these different traditions. The following is only a guide to what students might discover.

Religion	Burial ritual	Underlying beliefs
Hindu	Always cremation	The soul is reincarnated since God is everywhere and transcends everyone.
Islam	Burial to take place as soon as possible after death, with the head facing Mecca	In accordance with Sharia law, the corpse is washed and clothed, then prayers are offered.
Russian Orthodox	There are a number of prayer services for the dead, beginning with the departure of the soul from the body; cremation is forbidden.	The prayer services are to assure those mourning are given a hope of the future resurrection, and to help the souls of the departed, so that they may be granted eternal rest.
Protestant Christian	Rituals vary, such as burial in sacred ground, as well as cremation.	Based on faith in Jesus Christ and attainment of eternal life with God

- 2 Three advantages and three disadvantages of using open-ended interviews to collect data for psychological studies.

Advantages	Disadvantages
1 Flexible way of obtaining information	1 Time-consuming to undertake
2 Can assess non-verbal cues	2 Time-consuming to transcribe tapes and code information
3 Makes great use of language through self-report	3 Not standardised so may lack reliability

Chapter 10 review, p. 184

Terminology

- 1 Focus group: a group in which a researcher asks group members about their ideas, perceptions, opinions, etc. in a setting more natural than an interview.
- 2 Convenience sample: a sample of the population that is readily available. It is unlikely to be representative.
- 3 Predictive validity: the extent to which a measure can predict other attributes or behaviours thought to be related to the construct.
- 4 Reliability: an indication of the stability of a measure, both within the measure and over time.
- 5 Qualitative data: information that is not represented in numbers.
- 6 Control group: a group that is as similar as possible to the experimental group on all variables other than the independent variable.
- 7 Operational hypothesis: a prediction of the relationship between the independent and dependent variable, in which the variables have been operationally defined (i.e. stated in terms of how they will be measured).
- 8 Dependent variable: the variable that is measured to determine its relationship to the changed independent variable.

Multiple-choice questions

- 1 D
- 2 C
- 3 C
- 4 D
- 5 B

Short-answer questions

- 1 Advantages of archival data include: it is usually cheaper than gathering fresh data; it allows the examination of data gathered over a long period of time without it taking the researcher's lifetime; it allows access to very large-scale, representative data. Additionally, large-scale datasets can be combined for analysis.

- 2 Qualitative data is information that is not expressed in numbers. Qualitative data on attitudes can be obtained through focus groups or through open-ended or fixed response interviews. The first two of these methods allow the collection of rich data that is not limited by the researcher's alternatives to questions. Quantitative data is data collected in numerical form. Using this method to gather information about attitudes allows the researcher to determine how strongly the attitude is held.
- 3 Reliability can be determined by looking at internal consistency or test-retest reliability. In the former, consistency is usually determined by the split-half method. If we have a 20-item scale measuring one construct, such as depression, we would expect people's responses to the first half of the scale to be consistent with their responses to the second half of the scale. Test-retest reliability, on the other hand, involves comparing how people perform on a test at one time with how they perform on it some time later. If the test is reliable, we would expect people with a high score at time 1 would also have a high score at time 2.
- 4 Keeping information about research participants confidential so their privacy is respected is an ethical requirement of all researchers. At the very least, this involves secure storage of all data, reporting findings in such a way that individual participants cannot be identified and properly disposing of data when it is finished with.
- 5 Informed consent from participants is an ethical requirement for research. Children with an intellectual disability clearly are unlikely to understand the nature of research or what will be required of them. For this reason, their parents or guardians are asked to read the information provided and give consent on their behalf.

Strengths and weaknesses of each of the methods of sampling:

Sampling method	Strengths	Weaknesses
Convenience	Readily available group; cheap and quick to gather data	Unlikely to be representative and hence not generalisable to the population
Random	Unbiased; results can be applied to the population	May be difficult to get a complete list of possible participants; expensive
Stratified random	Unbiased; results can be generalised; ensures data on groups of interest to the research question are obtained.	Researcher access to strata and participants within them may be difficult; expensive

- 6 a Sleep deprivation
 b Memory
 c Measured by the number of hours less than eight hours of sleep, has a negative impact on participants' performance on the [Wechsler] Memory Scale
 d Age, gender, usual number of hours' sleep, difficulty of memory task

Chapter 11 review, p. 196

Terminology

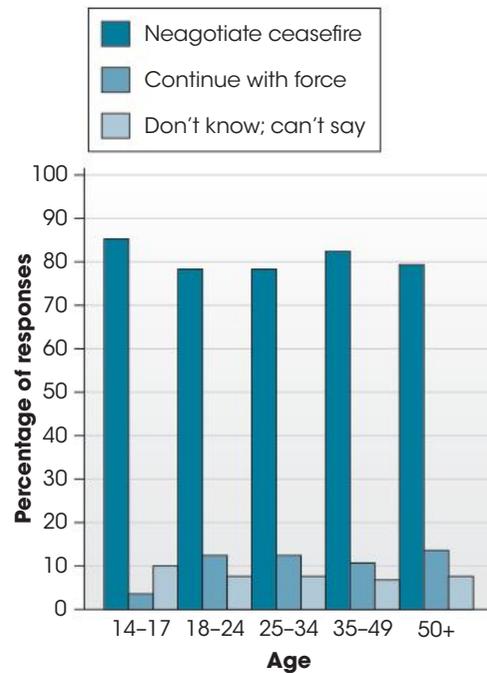
- 1 Placebo: a neutral substance that looks like the real substance that is being evaluated, and is delivered in a similar way
- 2 Pie-chart: a type of graph that looks like a pie, with each slice showing the proportion of data being represented.
- 3 Median: the middle score. If all the scores in a set of data are put in order from highest to lowest, half the scores will be above the median and half below..
- 4 Frequency polygon: a type of graph that looks like a line graph but is only used to show information about frequency.
- 5 Double-blind procedure: an experimental procedure in which neither the participants nor the person collecting the data know whether the participants are in the experimental or control group; they are all 'blind' to group membership.
- 6 Hawthorne effect: a behaviour change brought about by participants' expectations when they know they are involved in a study.

Multiple-choice questions

- | | |
|-----|-----|
| 1 B | 4 D |
| 2 D | 5 C |
| 3 C | 6 B |

Short-answer questions

- 1 a Insert histogram:



- b iii those aged 50+
 c i 14–17-year-olds
- 2 The first graph shows a strong positive correlation. The relationship is such that an increase on scores on the variable plotted on the x axis will be accompanied by an increase in the scores on the variable plotted on the y axis and a decrease in scores of the variable plotted on the x axis will be accompanied accompanied by a decrease in scores of the variable plotted on the y axis. The second graph shows zero correlation. There is no relationship between the variables whose scores are plotted on the x and y axes. The third graph shows a moderate negative correlation. The relationship is such that when the scores on the variable on the x axis increases the scores on the variable on the y axis decreases and vice versa. This relationship is moderately strong.

Glossary

This glossary contains definitions of technical terms used in psychology. Some of them you may recognise as everyday words and as having commonly understood meanings. Where this is the case, we have explained their use and meaning specifically in psychological research and practice.

accommodation

changing our schemas to include new experiences and information that cannot fit into existing schemas

active listening

active involvement by the listener in the conversation, shown to the speaker through such means as nodding head, responding, asking questions

altruistic behaviour

doing something for someone else without any expectation of gain or reward

anti-social behaviour

voluntary, intentional behaviour designed to hurt or cause distress to another person, physically or psychologically

assertive communication

the honest expression of opinions and feelings in a way that does not infringe on the rights of others

assimilation

a process by which individuals include new experiences and information in their current schemas

association areas

all areas of the cortex that do not have specific motor or sensory functions but integrate information from other brain structures

attitude formation

the development of attitudes through experience and observing others

attitudes

long-lasting evaluations we hold about ourselves, other people, objects and issues that involve affect, cognition and behaviour

average

normal; most representative

axon

part of a nerve cell that transmits information from the cell body to other neurons or to cells in glands and muscles

bar graph

a graph that shows scores on the x axis for a variable on the y axis that is discrete (not continuous) using a series of bars next to, but not touching, one another

barrier to effective listening

a behaviour that stops a message from being received as intended

bell curve

a bell-shaped graph that is representative of the distribution of values, probabilities and frequencies of a set of data (*see also* normal distribution)

bilingualism

the teaching and learning of two languages separately; in deaf education, this involves teaching a gestural language such as Auslan and a spoken language such as English

body language

communication using bodily movement, posture and facial expression

brainstorming

group problem-solving in which members are encouraged to be uninhibited in generating ideas

bullying

behaviour intended to harm the recipient (e.g. hitting, offensive gestures, intimidation, verbal insults)

bystander effect

the tendency for a person who is present in an emergency to be less likely to try to help if other people are present

cardinal traits

basic building blocks for personality development

case study

an intensive study of an individual

cell body

the part of a cell that contains the nucleus; controls the maintenance and metabolic function of the cell

central traits

building blocks of personality more commonly recognised than cardinal traits

cerebellum

part of the hindbrain that receives information from sensory organs, spinal cord and other parts of the brain to regulate posture and balance and coordinate fine movement

cerebral cortex

see cortex

cerebrum

comprises most of the forebrain; it is located above and in front of the cerebellum

clinical neuropsychology

an area of psychology concerned with how brain injuries or illness affect a person's thinking, emotions and behaviour

clinical psychology

an area of psychology concerned with the assessment and treatment of mental disorders and psychological problems in adults and children

cognition

thinking and reasoning

cognitive development

changes in abilities, such as thinking and reasoning, memory, attention, imagination and language

cohort

a group of people who have some aspect of their lives, such as age, in common

collectivist culture

a culture in which priority is given to the needs and goals of the group rather than the individual

common traits

traits that are common within a culture

communication

when a message is sent by one person and received by another

community psychology

an area of psychology concerned with helping to improve the wellbeing of people who are members of communities

competitiveness

rivalry and the desire to win

computed axial tomography (CAT)

a type of X-ray that provides cross-sectional pictures of the brain

computed tomography (CT)

see CAT

conductive hearing loss

a form of hearing impairment resulting from problems in the middle or outer ear; it is often surgically treatable

consciousness

awareness of the existence of ourselves and of objects and events in the external world

construct

a hypothetical concept that is created to explain a phenomenon that is believed to exist but cannot be directly observed or measured

control group

the group of participants in an experiment that is not exposed to the independent variable; used to provide a comparison with the experimental group

controlled variable

a variable that is the same for the control and experimental groups throughout an experiment so that the changes observed are the result of the independent variable

convenience sample

a subset of the population that is easily obtainable as participants for a study but which may not be representative of the population

corpus callosum

a thick band of fibres in the middle of the brain that allows messages to be sent from one hemisphere to the other

correlation

a statistical term that describes the relationship between two sets of numbers

correlation coefficient

a number describing the strength and direction of a correlation

cortex

the outer layer of the forebrain; it has two halves or hemispheres

cost-benefit ratio

a calculation of what it will cost to be rewarded by another person; this is thought to determine how much we like the other person

counselling psychology

an area of psychology concerned with assisting individuals, groups and organisations in areas such as personal wellbeing, relationships, health and crises

cross-sectional design

a research design comparing groups of people of different ages at one point in time to investigate developmental changes

culture

the behaviours, beliefs, attitudes and traditions that are shared by a group of people and passed on from one generation to the next

daydream

a state of consciousness in which we focus on internal thoughts, feelings and activities

defence mechanism

unconscious psychological mechanisms that deny, distort or falsify reality

deindividuation

abandoning usual restraints to join in group behaviour

dendrites

fine branches that stretch from the cell body; they receive incoming information from other neurons and transmit it to the cell body

dependent variable (DV)

in an experiment, the variable that is measured in response to changes in another variable (independent variable) that has been manipulated by the experimenter

depressant

a drug that slows the activity of the nervous system and slows bodily functions

descriptive statistics

a means of describing, organising and summarising data (information) to assist in interpretation and reporting

diffusion of responsibility

the assumed reduction in responsibility to provide assistance in an emergency if other people are present

dishabituation

a change in events or activities that causes us to become aware of them

disinhibition

the loss of inhibition; leads to some normally placid people becoming aggressive, even when unprovoked

divided attention

attending to and undertaking two different activities simultaneously

double-blind procedure

an experimental procedure in which neither the participants nor the person collecting the data know whether the participants are in the experimental or control group; they are all 'blind' to group membership

educational and developmental psychology

an area of psychology concerned with understanding and supporting the development and learning of people throughout their lives

effective communication

when the listener receives, interprets and understands the message as intended by the speaker

ego

in Freud's theories, the subconscious part of us that acts as the regulator and setter of standards

egocentric

inability to see things from another person's point of view; also known as egocentric viewpoint

electroencephalograph (EEG)

an external recording technique used to measure brain waves or electrical activity in the brain

emotional development

changes with age in the recognition and expression of emotions (strong feelings)

emotional intelligence (EQ)

a term coined by Salovey and Mayer (1990) and defined as the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions

empathy

the ability to identify with and understand the feelings of others

erogenous zones

pleasure-sensitive areas of the body

evidence

data collected from research studies

experimental methods

methods used to test whether changes in one variable or group of variables have an effect on another variable

experimenter effect

the effect observed when an experimenter's actions affect how the participants in a research study respond; most likely to occur if the members of the experimental and control groups are treated differently

extraversion

personality trait defined by being more outgoing, talkative and energetic

facial expression

a form of non-verbal communication using the face; e.g. frowning, smiling

factor analysis

a statistical technique used to determine groupings of variables

fixation

an emotional 'hang-up' caused by the psychosexual issue at a particular stage of development not being resolved satisfactorily

fixed-response interview

an interview in which participants' responses are restricted to a range of alternatives offered by the interviewer

focus group

a small group discussion, limited in scope (i.e. with a specific focus) in which the interviewer asks group members a series of open-ended questions

forebrain

the largest and most highly-developed part of the brain

forensic psychology

an area of psychology concerned with applying psychological understandings to the legal and criminal justice systems

forms of address

the terms used to initiate contact with another person

frequency polygon

a type of graph that looks like a line graph but is only used to show information about frequency; the line is brought down to zero on the x axis at each end to form a polygon

frontal lobes

the front part of the brain's cortex, associated with motor activity and higher mental ability

functional magnetic resonance imaging (fMRI)

a technique that measures brain activity by means of the oxygen consumed by the neurons

galvanic skin response (GSR)

changes in the electrical conductivity of the skin

general intelligence

the notion that intelligence is a general ability that showed itself in different ways

generation gap

the social and cultural differences between young people and older adults

gesture

a form of non-verbal communication involving hand movements but not touch (e.g. fist closed but thumb up, indicating 'good')

graph

a visual representation of data

group

collections of individuals who relate to one another in such a way that there is interdependence between them

group norms

unwritten and often unspoken informal rules that govern individual behaviours in a group

habituation

learning not to respond to events or activities that occur repeatedly or do not grab our attention

hallucinogen

a drug that changes perceptions and gives sensory images without input from the senses

halo effect

a biased judgement of a person based on one favourable impression (also termed cognitive bias)

Hawthorne effect

a behaviour change in an experiment brought about by participants' expectations when they know they are involved in a study; can lead to incorrect conclusions about the effect of changes in the independent variable(s)

health psychology

an area of psychology focusing on understanding processes that are relevant to health and illness and in improving health at an individual and a societal level

hearing impairment

total or partial hearing loss

hemispheres

the two halves of the cerebral cortex that are separated by a deep groove

hindbrain

part of the brain at the back of the skull that is made up of the medulla and the cerebellum

histogram

a graph that uses bars to represent how one variable changes in relation to another; because the variable on the x axis is continuous, the bars are drawn touching each other

human development

changes in people that begin at conception and continue throughout the lifespan

hypnosis

a way of inducing a deep state of relaxation through suggestion; may be used in clinical practice

hypothalamus

part of the brain located just below the thalamus; it regulates the release of hormones

hypothesis

a tentative prediction of the relationship between an independent variable and a dependent variable

id

in Freud's theories, the primitive, pleasure-maximising part of the make-up of our personality

independent variable (IV)

in an experiment, the variable that is changed by the experimenter to determine its impact on another (dependent) variable

individualistic culture

a culture in which the needs and goals of the individual have higher priority than those of the group

individuation

seeking information about people as individuals rather than accepting stereotypes about the group to which they may belong

inferential statistics

mathematical procedures that allow a researcher to draw inferences and conclusions from a set of data

intelligence quotient (IQ)

a numerical score on an intelligence test in comparison with other people the same age

internal consistency

exists when different questions or activities within a test are measuring the same thing

inter-observer agreement

a means of testing inter-rater reliability through correlation

interpretation

final stage in perception in which the brain interprets information and giving meaning to it

interview

a technique used to obtain information about people through questions

introversion

personality trait defined by being more reserved and solitary

just-world phenomenon

the widespread belief that the world is just and fair

liberalism

open-mindedness

Likert scale

a rating scale that measures responses to a series of statements about an issue; each statement presents a positive or negative position with respect to the issue

line graph

a pictorial representation that uses lines to show the relationship between two variables

lip read

understanding speech by interpreting the movements of the face, lips and tongue

lobes

areas of the brain that have different functions and are defined by grooves (or fissures) in the cortex

longitudinal research

research that follows the development of one group of people over time to make claims about developmental changes

magnetic resonance imaging (MRI)

a technique used to produce a three-dimensional or cross-section image of the brain

mean

the average score; the sum of all scores in a set of data divided by the number of scores

mean deviation

a measure of central tendency

median

the middle score; if all the scores in a set of data are put in order from highest to lowest, half the scores will be above the median and half below

meditation

a way of deliberately inducing a state of consciousness of very deep relaxation

medulla

part of the brain located at the top of the hindbrain; it controls vital functions such as heart rate and breathing

menopause

major biological change in women (typically between the late 40s and 50s) when menstruation and the ability to have children naturally ceases

mental age (MA)

a term proposed by Binet for use in intelligence testing; in a properly constructed intelligence test, a child of average ability would pass the number of items typically passed by children of his/her chronological age and would be said to have an average mental age

midbrain

a part of the brain that sits on top of the brainstem and under the cerebral hemispheres; acts as the brain's sensory switchboard

mixed hearing loss

refers to a combination of conductive hearing loss and sensorineural hearing loss

mode

the most frequently occurring score in a set of data

myelin sheath

a layer that protects the axon and assists with a speedy transmission of nerve impulses

nature/nurture debate

discussion about how much of human development is caused by what people inherit genetically from their parents (nature) and how much is learned as the result of environmental influences, both physical and social, in the world (nurture)

neuron

type of cell that is specialised to receive, transmit and process information

neuroticism

emotional instability

neurotransmitter

chemicals that affect the way messages are passed from one neuron to another

non-experimental methods

research methods, such as interviews and observation, that do not involve manipulation of the independent variable

non-scientific approach

predicting and describing human behaviour using non-scientific methods

non-verbal communication

conveying a message without words, through gesture, facial expression and so on

norm

something that is considered normal (average) for a particular group

normal distribution

used in statistics to represent the distribution of random variables in the form of a bell-shaped graph

observation

the study of people by observing them in natural situations

occipital lobes

the back part of the cortex, associated with vision and seeing

open-ended interview

an interview in which interviewees can answer questions in any way they want

operationalise

provide a working definition of a variable that will enable it to be measured

organisation

second stage in perception that involves grouping of selected features of stimuli to form a whole

organisational psychology

an area of psychology concerned with understanding complex relationships in workplaces so as to improve an organisation's effectiveness and productivity

parietal lobes

the lobes located on the top of the cortex that are associated with sensory information, such as touch and temperature, as well as about the body's position in space

participant

a person who participates in research and provides the data used to test hypotheses

participant observation

a research strategy that requires the observer to become part of the group they are studying

peer group

a group made up of people who interact on fairly equal terms; group members have a similar status and age and usually have similar interests

perception

organising and interpreting what the sense organs take in

perceptual expectancy

a bias or readiness to respond to an event or activity because of expectations or preconceptions

perceptual illusion

a mismatch between physical reality and our perception of it

personality

the characteristic ways of thinking, feeling and acting that make a person an individual

physical appearance

non-verbal communication that involves how you present yourself physically; the way you dress, do your hair, use make-up, etc.

physical development

changes with age in size, proportion, appearance, motor skills and coordination

physical distance

a form of non-verbal communication in which a message is transmitted by the proximity to, or distance from, another person

pie chart

a type of graph that shows proportions of data as slices of a pie

placebo

a neutral substance or procedure that looks like the real substance or procedure that is being evaluated, and is delivered in a similar way

politeness

behaviour that is considered courteous and considerate

population

the group of people to whom the findings from a research study apply

positron emission tomography (PET)

a technique to measure brain activity by means of the glucose (sugar) consumption of the brain

prejudice

unjustifiable and usually negative attitudes towards a group and its members

probability

the degree of likelihood of an event happening; the expected frequency of an event relative to chance

projective test

a personality test that attempts to reveal people's unconscious desires, motivations and conflicts by asking them to describe what they see in ambiguous stimuli such as inkblots

pro-social behaviour

voluntary helping behaviour intended to benefit others

psychoanalysis

a technique designed to investigate unconscious motives in the individual

psychosexual stages

in Freud's theories, the early development of personality during which the id's energies are focused on distinct pleasure-sensitive (erogenous) areas of the body

psychoticism

the term used to describe individuals who are unstable and reckless

puberty

the time of sexual maturation

qualitative data

information that is not expressed in numbers

quantitative data

information that is gathered in the form of numbers

questionnaire

a paper-and-pencil or online survey used to obtain information about people

racism

a form of prejudice based on assumed racial differences

random sampling

a way of selecting participants for a study that makes sure every member of the study population has an equal chance of being selected to participate

range

the difference between the highest and lowest value in a group of scores

rating scale

a self-report measure providing a series of questions or statements to which respondents indicate the strength of their opinion; they provide quantitative data

re-categorisation

a way in which conflicting groups can be helped to see similarities and work towards common goals

reception

the first stage of sensation when physical stimuli, such as sound waves and light, are detected by sensory neurons

referential communication task

a communication task involving two people – a speaker and a listener – separated by a barrier such as a screen; each has a set of objects and the listener must determine the object being spoken about from the speaker's description

reliability

the extent to which one would get the same result if the same measure were to be given to the same person again under the same circumstances

reliable

a measure that is consistent within itself and across time

reticular formation

a network of nerves that runs through the centre of the brain; its main function is to screen incoming information

sample

in a study or experiment, a group that is a subset of the population (a larger group) being studied for research purposes

schema

an idea or understanding about what something is and how to deal with it

science

seeks empirical evidence for any conclusions reached; it requires a scientific attitude and uses scientific methods

scientific attitude

a questioning approach that involves looking for evidence to back up all conclusions

scientific method

a systematic approach to planning and conducting research; it starts with developing a testable hypothesis and progresses through data collection and data analysis to drawing conclusions

scientist-practitioners

professional psychologists who base their practice on research evidence rather than fads

secondary traits

preferences and attitudes that can change according to a particular situation

secular growth trends

generational changes in growth rate

selection

the first step in perception in which the brain filters stimuli for further processing

selective attention

paying attention to some events and activities (stimuli) while ignoring others

self-actualisation

living up to one's potential

self-concept

our definition of ourselves; who we consider ourselves to be

self-fulfilling prophecy

a prediction that directly or indirectly becomes true, by the conditions of the prophecy itself

self-report

spoken or written answers provided in response to questions asked by a researcher

self-report inventory

a form of test in which individuals respond to questions about how they think, feel or behave

sensation

the initial step in perception involving filtering stimuli to select important features for further processing

sensorineural hearing loss

a form of hearing impairment where there is damage to the cochlea or auditory nerve

shaking hands

communication involving two people standing face-to-face, grasping hands with thumbs pointing upwards and moving them up and down

single-blind procedure

an experimental procedure in which the person collecting the data knows whether the participants are in the experimental or control group, but the participants do not; the participants are 'blind' to group membership

sleep

the deepest, most relaxed stage of consciousness

smell

a form of non-verbal communication in which a message is transmitted by how an individual smells, brought about by cleanliness, perfume and so on; in non-human animals, smell is a major form of communication

social categorisation

the process of identifying a person as a member of a group because of the features they share

social comparison

making oneself acceptable to a social group by holding similar attitudes

social conformity

adherence to the attitudes and behaviour of the social group to which the individual belongs

social desirability bias

people's tendency to behave in a way they consider socially acceptable, even if this is not how they would normally behave

social development

changes in self-knowledge and understanding of other people, skills in making and maintaining friendships, and reasoning about behaviour

social identity

part of our self-concept that is based on our membership in particular groups

social influence

the impact of others on us that leads us to change our thoughts, feelings or behaviour

social loafing

putting less effort into an activity when in a group than when functioning alone

social norms

shared rules or expectations of a group about how to behave

social roles

roles taken on by individuals for the benefit of the group; for each role, a set of social norms or rules determine the expected behaviour of the person in that role

social status

the level of prestige or importance of a person within a group

socially dependent

the reliance of people on each other for emotional outcomes, feelings of belonging and social identity

source traits

fundamental or basic personality traits; determined by factor analysis

specific language impairment (SLI)

difficulty in speaking or understanding spoken language; not due to neurological, intellectual, emotional or sensory impairments

sport and exercise psychology

an area of psychology that deals with the things that affect a person's participation and performance level in sport and physical exercise

standard deviation (SD)

the square root of the variance, used by psychologists to describe the spread of measures around the mean

state of consciousness

the level of awareness we have at any time of our internal state and external events

stereotype

a form of social categorisation based on what others presume to be shared features

stimulant

a drug that excites the nervous system and arouses the body's functions

stratified random sampling

a form of stratified sampling in which participants are randomly selected within each stratum

stratified sampling

a way of selecting participants for a study that involves dividing the population into groups, or strata, where each group has a particular characteristic; e.g. males and females

superego

in Freud's theories, the voice of conscience

task dependent

behaviour based on the aim of working together to complete a task successfully

temporal lobes

the lobes located on both sides of the cortex; they receive auditory information and are responsible for speech, hearing and mental processes

test-retest reliability

consistency in scores when the same test is given again at a later time

thalamus

a section of the brain that is located near its middle; it filters information from all senses except smell and acts as a relay system

theory

a system for describing what we know, explaining what we observe and providing testable predictions

theory of reasoned action

an explanation of how social norms and values are translated into the way people behave

total communication

a system of communication used by some in the deaf community; it involves the use of formal signs, such as Auslan, and fingerspelling alongside spoken language
Insert two definitions:

Touch

physical contact as a form of communication

Trait

a stable form of behaviour displayed in any and every situation

transduction

second step in sensation that involves different forms of energy being converted into electrochemical energy for the human nervous system to process

transmission

the third step in sensation involving the transfer of electrochemical energy to the brain for processing

two-factor theory of intelligence

a theory of intelligence that states that intelligence is made up of a general factor, *g*, that affects performance on all intellectual tasks, and specific factors, *s*, that affect performance in specific areas of functioning

uncontrolled variable

a variable that is allowed to stay random because it is predicted to have no effect on the outcome of an experiment but could potentially impact the dependent variable

valid

the extent to which the results of a study reflect what the measuring instrument says it is measuring

variable

a factor that can vary (change) in some way, e.g. amount

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OVERVIEW

- Two student books divided into Units 1 and 2 and Units 3 and 4 covering the course content from the Psychology ATAR course in Western Australia
- Each unit is divided into chapters based on the key areas of Self and Others
- Key knowledge and understanding sections are provided at the start of each chapter
- Broaden Your Understanding boxes engage students in doing and thinking about psychology in a broader context
- End of chapter review questions allow students to consolidate learning and prepare for assessment
- Answers to chapter review questions provided in the back of the book
- Fully updated workbooks for each year level are available to support students and comprehensively address the syllabus outcomes.