PSYCHOLOGY WA ATAR

Self and others

UNITS 3&4

Janet Fletcher & Alison Garton

3rd Edition

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Contents

About this series

Psychology WA ATAR: Self and Others Units 3 & 4 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 3 & 4 in an engaging and accessible manner.

The outstanding resources within 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 3 and 4 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 3 & 4* 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.
- 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:

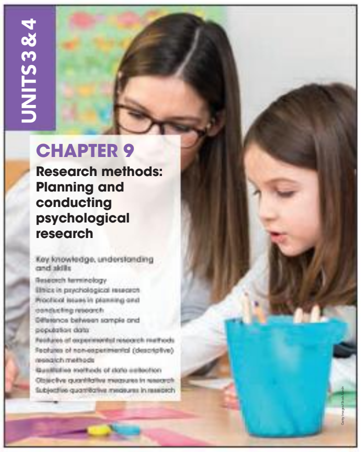
- review questions: including multiple-choice, labelling, matching, fill-in-the-blanks questions and short-answer questions for revising chapter content
- weblinks: a list of reviewed websites that support research and exploration.

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.

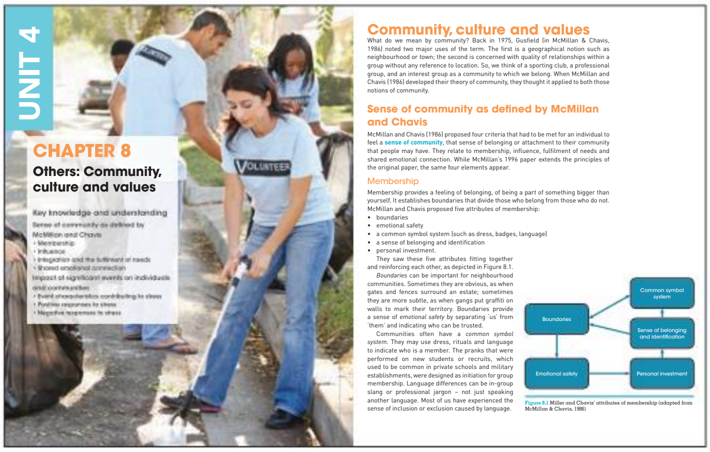
How to use this book



Psychology WA ATAR: Self and Others Units 3 & 4 has been written to meet the requirements of the Psychology ATAR course in Western Australia.

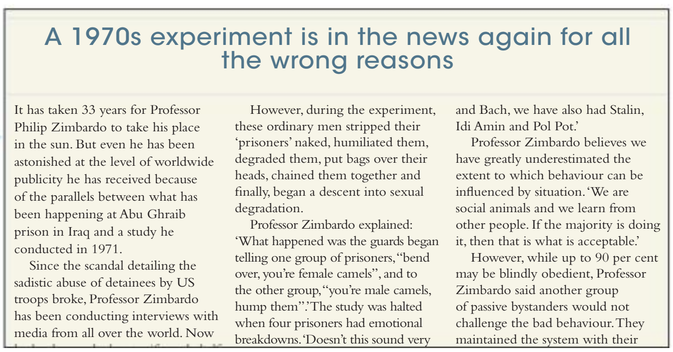
The structure of each Student Book draws on the Psychology course to produce a cohesive suite of resources that will allow teachers and students to meet the demands of this course.

- 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.



A 1970s experiment is in the news again for all the wrong reasons

It has taken 33 years for Professor Philip Zimbardo to take his place in the sun. But even he has been astonished at the level of worldwide publicity he has received because of the parallels between what has been happening at Abu Ghraib prison in Iraq and a study he conducted in 1971.

Since the scandal detailing the sadistic abuse of detainees by US troops broke, Professor Zimbardo has been conducting interviews with media from all over the world. Now

However, during the experiment, these ordinary men stripped their 'prisoners' naked, humiliated them, degraded them, put bags over their heads, chained them together and finally, began a descent into sexual degradation.

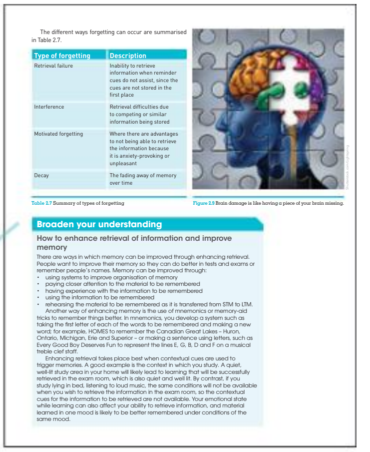
Professor Zimbardo explained: 'What happened was the guards began telling one group of prisoners, "bend over, you're female camels", and to the other group, "you're male camels, hump them". The study was halted when four prisoners had emotional breakdowns. 'Doesn't this sound very

and Bach, we have also had Stalin, Idi Amin and Pol Pot.'

Professor Zimbardo believes we have greatly underestimated the extent to which behaviour can be influenced by situation. 'We are social animals and we learn from other people. If the majority is doing it, then that is what is acceptable.'

However, while up to 90 per cent may be blindly obedient, Professor Zimbardo said another group of passive bystanders would not challenge the bad behaviour. They maintained the system with their

- ‘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
How to enhance retrieval of information and improve memory

Broaden your understanding

How to enhance retrieval of information and improve memory

There are ways in which memory can be improved through enhancing retrieval. People want to improve their memory so they can do better in tests and exams or remember people’s names. Memory can be improved through:

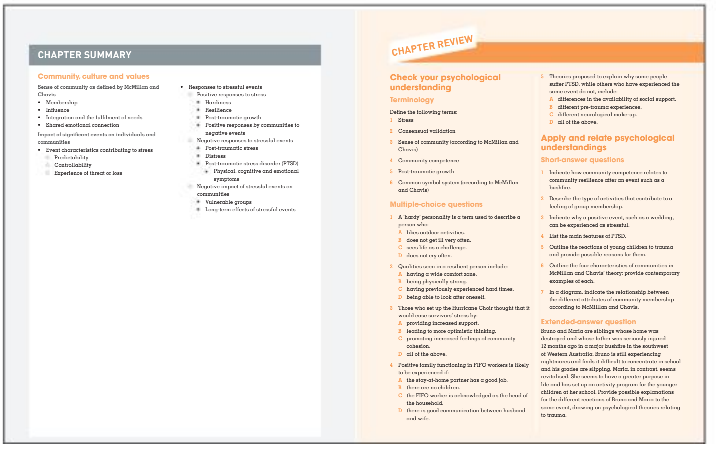
- using systems to improve organisation of memory
- paying closer attention to the material to be remembered
- having experience with the information to be remembered
- using the information to be remembered
- rehearsing the material to be remembered as it is transferred from STM to LTM.

Another way of enhancing memory is the use of mnemonics or memory-aid tricks to remember things better. In mnemonics, you develop a system such as taking the first letter of each of the words to be remembered and making a new word; for example, HOMES to remember the Canadian Great Lakes – Huron, Ontario, Michigan, Erie and Superior – or making a sentence using letters, such as Every Good Boy Deserves Fun to represent the lines E, G, B, D and F on a musical treble clef staff.

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


Features of persuasive communication

- 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 at the back of this book and on the NelsonNet teacher website.


CHAPTER SUMMARY
Community, culture and values
CHAPTER REVIEW
Check your psychological understanding
Terminology
Multiple-choice questions
Apply and relate psychological understandings
Short-answer questions
Extended-answer question

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.

Author acknowledgements

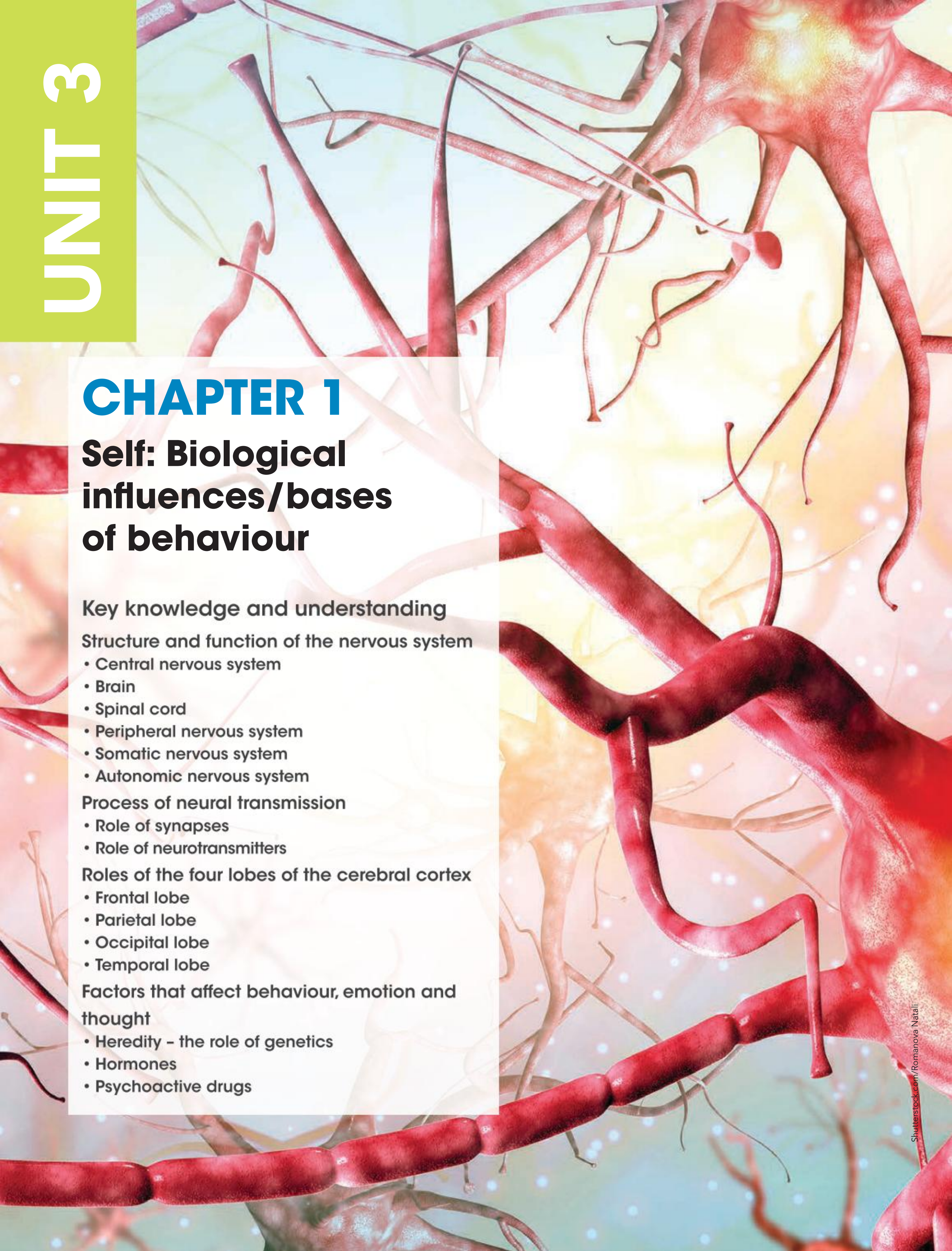
The authors would like to thank Greg White for his thoughtful feedback at the draft stage of *Psychology WA ATAR: Self and Others, Units 1 & 2* and *Units 3 & 4*. As a Western Australian teacher of psychology, Greg was able to give us valuable input on how users of the text would be likely to react to the material, and let us know where clarification of content was needed and where expansion or examples of material would be helpful.

UNIT 3

UNIT 3

CHAPTER 1

Self: Biological influences/bases of behaviour



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Key knowledge and understanding

Structure and function of the nervous system
- Central nervous system
- Brain
- Spinal cord
- Peripheral nervous system
- Somatic nervous system
- Autonomic nervous system

Process of neural transmission
- Role of synapses
- Role of neurotransmitters

Roles of the four lobes of the cerebral cortex
- Frontal lobe
- Parietal lobe
- Occipital lobe
- Temporal lobe

Factors that affect behaviour, emotion and thought
- Heredity – the role of genetics
- Hormones
- Psychoactive drugs

Biological influences/bases of behaviour

Structure and function of the nervous system

Central nervous system

The human nervous system is divided into two parts: the **central nervous system** (usually abbreviated to **CNS**) and the **peripheral nervous system** (usually abbreviated to PNS). The CNS is the brain and spinal column. The CNS processes information from the outside world through the various senses and activates necessary actions. The CNS is located in the middle of the body and is also central to the way we think, feel and act (hence its name). The peripheral nervous system is everything else that is outside the brain and spinal column and it links the central nervous system to all parts of our body. It takes messages from the CNS to the rest of the body and from the sense organs to the CNS. It is called peripheral not because it is less important but because much of it is on the edge of the CNS.

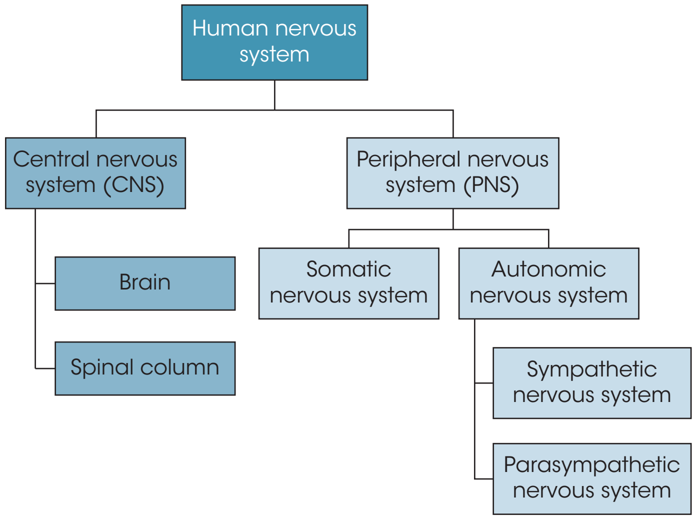


Figure 1.1 The organisation of the human nervous system

The organisation of the human nervous system can be seen in Figure 1.1.

The various components of the nervous system have different functions, as shown in Table 1.1. We will discuss each of these in turn in this chapter.

Table 1.1 Functions of the components of the nervous system

Nervous system component	Function
Central nervous system (CNS)	Receives and transmits information to and from the peripheral nervous system
Peripheral nervous system (PNS)	Transmits messages to and from the central nervous system
Brain	The largest part of the CNS and is the command and control centre of humans
Spinal cord	Receives information from the peripheral nervous system and transmits it to the CNS Receives information from the brain and sends it to other parts of the body via the peripheral nervous system
Autonomic nervous system	A network of neurons that transmit messages between the brain and the smooth muscles found in the heart, lungs, blood vessels and glands via the spinal cord; it is self-regulatory
Somatic nervous system	Receives sensory information from organs such as the skin, ears and eyes, and communicates information via the sensory nerves to the CNS and motor messages from the CNS to skeletal muscles
Sympathetic nervous system	Arouses the body to perform, act or react
Parasympathetic nervous system	Calms the body down to conserve energy

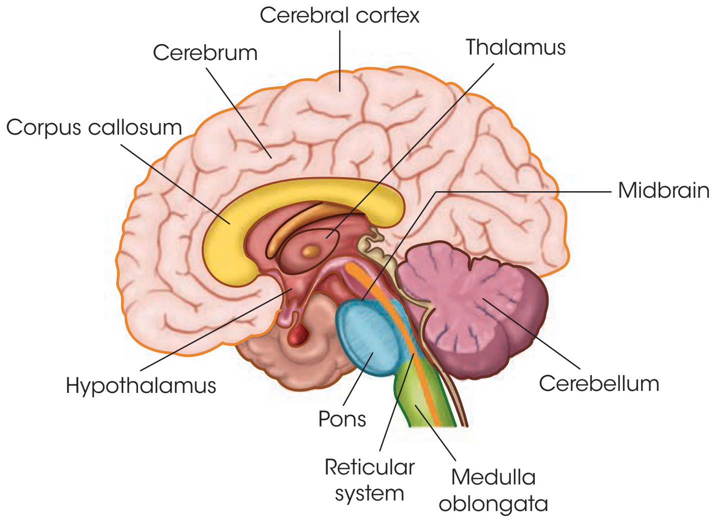


Figure 1.2 Components of the brain

Brain

The brain is a particularly vital organ since it is involved in almost every action we undertake and in our ability to think and feel. It is composed of millions of nerve cells that transmit electrical and chemical signals throughout the body. It is the largest part of the CNS.

The brain is broadly divided into the **forebrain**, the **midbrain** and the **hindbrain**. The forebrain is the uppermost part of the brain and consists of the cerebrum, the thalamus and hypothalamus plus the limbic system. In general, the outer brain areas are involved in perception, learning, motor and conceptual activities, while those areas near the centre of the brain are involved in internal and automatic bodily functions such as body temperature, reproductive functions, eating, sleeping and emotions.

The cerebrum (part of the forebrain) is associated mainly with the cerebral cortex, which controls motor and mental activity. It develops rapidly during early childhood and becomes more convoluted and thicker. It can also be divided into the left and right hemispheres, which, although physically alike, control different processes. The right hemisphere is associated with visual imagery and emotions, while the left is associated with language processes. Interestingly, each hemisphere controls motor movements on the opposite side of the body, so, for example, damage to the left side of the brain may lead to difficulties with movements in the right arm and leg. These effects on the opposite side of the body are termed **contralateral**, which is contrasted with **ipsilateral**, referring to being situated in or affecting the same side of the body.

Deep in the forebrain are the **thalamus** and the **hypothalamus**. The thalamus acts as a filter from sensory organs (except the nose) to the appropriate area of the brain, such as from the eyes to the vision control centres in the brain. The hypothalamus, which is the size of a raisin, controls the internal environment of the body through the regulation of various hormones and influences basic needs behaviours such as thirst, hunger and sleep. The hypothalamus is part of the **limbic system**, an interconnected group of forebrain structures, and it controls emotions and motivation.

The cerebellum ('little brain') lies below the cerebrum and is responsible for motor control and body balance. It has nerve connections that go to most of the sense organs and to the motor cortex, and may be involved in such things as language and attention. The cerebellum contributes to making movements and actions coordinated and precise. It integrates input from the sensory systems of other parts of the brain, and monitors performance with intention through making sure a particular movement is at the right speed, in the right direction, and with correct force. It also makes sure our movements are smooth rather than fast and jerky. Damage to the cerebellum can result in ataxia, which is a loss of control of voluntary movement seen as unsteady walking or shaky movements.

In the hindbrain lies the brainstem, which has three parts – the pons, the reticular system and the medulla oblongata. The midbrain is at the top of the brainstem and relays messages, via the thalamus, to the rest of the forebrain. It is important in vision and hearing, as well as in muscular movement. In Parkinson's disease, part of the midbrain has degenerated, resulting in the tremor characteristic of this condition. The pons is at the front of the brainstem and is responsible for eye movements, chewing and facial expressions. The reticular system involves neurons that extend from the top to the bottom of the brainstem and leads into the thalamus. It is important in sleep as well as in arousal and attention.

Epilepsy may involve abnormality of the reticular system, since signs of epilepsy are convulsions and seizures due to reverberations in the reticular system. The medulla oblongata is the lower half of the brainstem continuous with the spinal cord. It also links with the pons. The medulla oblongata controls vital body functions such as heart rate, breathing and blood pressure.

Overall, the functions that the brainstem takes responsibility for include breathing, sleep patterns, hunger and thirst, blood pressure, heart rhythms and body temperature. In addition, it helps to regulate the central nervous system. The cranial nerves, which are located at the brainstem, send the main motor and sensory feeling to the face and neck.

Table 1.2 Summary of parts of the brain and their functions

Area of the brain	Component of the brain	Function(s)
Forebrain		The outer brain areas are involved in perception, learning, motor and conceptual activities, while those areas near the centre of the brain are involved in internal and automatic bodily functions such as body temperature, reproductive functions, eating, sleeping and emotions
	Cerebrum	Controls motor and mental activity
	Thalamus	Acts as a filter from sensory organs (except the nose) to the appropriate area of the brain
	Hypothalamus	Regulates various hormones and influences basic needs behaviours, such as thirst, hunger and sleep
	Limbic system	Controls emotions and motivation
Midbrain		Relays messages to the forebrain; important in vision and hearing, as well as in muscular movement
Cerebellum		Responsible for motor control and body balance
Hindbrain	Brainstem	Connects the brain with the spinal cord and is responsible for breathing, sleep patterns, hunger and thirst, blood pressure, heart rhythms and body temperature; it also helps to regulate the central nervous system
	Pons	Responsible for eye movements, chewing and facial expressions
	Reticular system	Important in sleep as well as in arousal and attention
	Medulla oblongata	Deals with heart rate, breathing and blood pressure

Broaden your understanding

Studying the functions of the brain

Much of what we know about the relationship between the brain and behaviour has been derived from work with animals – monkeys, cats, rats and mice are common experimental animals. This is for ethical reasons, because you cannot send electrical impulses, for example, to the brain of a human without a good reason. In particular, our knowledge about the visual system, sensory receptors, sleep, attention, temperature regulation, reproductive behaviour, avoidance behaviour and stress has been achieved through the use of animals. However, the human brain has advanced corticalisation (or enlargement of the cerebral cortex) compared to animals and has more areas of specialisation. Furthermore, humans have cortical localisation, which means that there are specific behavioural functions that are located in specific areas of the human brain.

Research into healthy brains provides more accurate details about how behaviour is linked to activity in the brain. Researchers can use various scanning techniques to gain an understanding of how the brain works. Researchers also study people who have sustained damage to their brain, through either accident or disease. The same scanning techniques are used to examine suspected brain damage or injury, or disease. Psychologists also use specialised neuropsychological tests that study complex cognitive functioning to see what behaviours have been affected by such things as a stroke or a head injury sustained in a car accident. They also examine brain activity while people are engaged in everyday activities, such as reading, speaking, eating, walking, shopping, cooking and bathing. Techniques used to study normal brains and the relationship between neural activity and behaviour have given us important insights into patients in clinical settings who have suffered a brain injury or accident. Observations of behavioural changes can provide clues to the areas of the brain that have been injured or damaged, and, conversely, scans that show brain damage can lead to hypotheses about the likely behavioural effects.

In case studies – frequently used in studies of brain function – patients who have suffered a brain injury are observed and studied in detail, in-depth and over time, so that a comprehensive picture can be built up of their behaviours immediately after an accident or being affected by the disease through to longer term consequences. Such studies lead to researchers developing hypotheses and theories about how the brain functions and how these are related to the presence or absence of particular behaviours.

The main drawback of case studies is that because they are based on one person, they cannot be generalised to others. The consequences of the brain injury may be idiosyncratic and may not necessarily be a true reflection of a more general relationship between brain activity and behaviour. Furthermore, the brain is reasonably plastic and can change and adapt through reorganisation and formation of new connections. Sometimes a nearby brain area can take over the functions of a damaged area; this may have the effect of masking the behavioural consequences of the injury.

All of this work on human brains has led to the development of a new field of research called cognitive neuroscience, which combines psychology, neuroscience and computer science. Cognitive neuroscientists are interested in using behavioural, psychophysical, electrophysiological and brain imaging techniques to investigate the links between the brain, cognition and behaviour.

Spinal cord

The spinal cord runs down from the brainstem and is a major thoroughfare for messages between the brain and the rest of the body. There are neurons that transmit information via impulses away from the brain (efferent or motor neurons) and those that transmit towards the brain (afferent or sensory neurons). The spinal cord is organised into 31 segments, with sensory nerves leading into the dorsal (back) side of each segment and motor nerves exiting from the ventral (abdominal) sides.

Between the two sides is grey matter. If you were to slice the brain in half downwards from side to side, you would see dark and light areas of tissue. The dark areas are the grey matter and are largely nerve cells. There is a concentration of them on the outer edges of the cerebral cortex. The light area is called white matter – because of a fatty coating – and it is composed largely of neural connections.

The peripheral nervous system originates in the 31 pairs of spinal nerves and the 12 pairs of cranial nerves that leave the brainstem at the top of the spinal cord. Most of these nerves combine both sensory and motor functions, leading both to and from the brain, although there are functional differences in spinal nerves when they meet the cord. At this point, they split into a dorsal root that has sensory functions and a ventral root that has only motor functions. The discovery of this split, nearly 200 years ago, prompted much work into spinal reflexes.

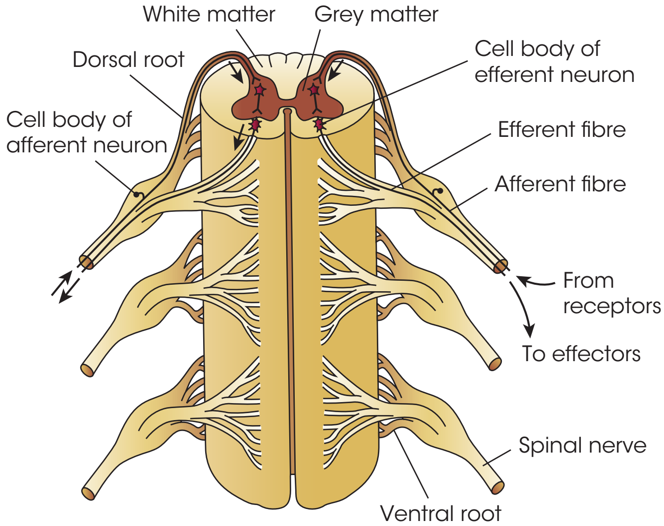


Figure 1.3 Spinal cord nerves

The operation of spinal and cranial nerves is both complex and sophisticated. Cranial nerves carry sensory input from the skin or motor output to the muscles of the head or face. They also carry sensory information for vision, hearing, smell and balance. The effect of injury to the spinal cord depends on where the damage occurs. In paraplegia, the lower part of the cord is damaged, resulting in the lower limbs being paralysed; in quadriplegia, the upper part of the spinal cord is damaged, resulting in the arms and legs being paralysed.

Peripheral nervous system

Peripheral means 'on the edge'. The peripheral nervous system consists of the nerves outside the brain and spinal cord – in other words, outside the CNS. Its main function is to connect the CNS to the rest of the body, specifically the limbs, skin, muscles and organs, serving as a communication pathway that goes back and forth between the brain and the extremities.

Communication functions are handled by different parts of the peripheral nervous system, which is further subdivided into the somatic and autonomic areas. The somatic nervous system is the network of nerves that communicate information from the sense organs to the CNS and motor messages from the CNS to the muscles. The autonomic nervous system is the system of nerves connected to the heart, glands and smooth muscles such as the digestive and reproductive organs, and tells the brain what is going on in these largely involuntary systems. The autonomic nervous system is further subdivided into the sympathetic and parasympathetic systems. The sympathetic system manages the body in times of stress or threat, while the parasympathetic system takes over for normal day-to-day living and maintains normal bodily functions.

Somatic nervous system

The somatic nervous system is important for monitoring bodily functions. It receives sensory information from organs such as the skin, ears and eyes, and communicates information via the sensory nerves to the CNS. It also carries messages from the CNS along nerves to enable the muscles to move voluntarily.

All the different sensations you are experiencing now, such as birds singing, wind blowing or a light being switched on, are being communicated by your somatic nervous system through your spinal cord to your brain. On the other hand, typing on your laptop, sending a text message or taking a selfie, that is, performing a task voluntarily, is the result of messages that were sent from your brain, down the spinal cord, to the muscles that perform these tasks, such as those in your arms, fingers and face.

Autonomic nervous system

The autonomic nervous system refers to neurons that transmit messages via the spinal cord between the brain and the smooth muscles found in the heart, lungs, blood vessels and glands. It regulates involuntary functions. It has two systems – the sympathetic and the parasympathetic nervous systems – which sometimes seem to work in opposite directions in relation to the same body organs.

The **sympathetic nervous system** generally arouses the body to perform, act and react, while the **parasympathetic nervous system** works to maintain and conserve energy. In an emergency, the sympathetic nervous system activates bodily systems to react to the threat, crisis or disaster. The feelings you have include rapid heartbeat, faster breathing and expanded lung capacity. These reactions enable you to increase the amount of oxygen to the brain and muscles. In addition, your mouth may go dry as salivation stops and your pupils dilate to increase your field of vision. These bodily changes are referred to as the 'fight or flight' response and are designed to help you prepare physically to face a danger or an emergency. We will return to the fight or flight response in relation to hormones later in this chapter.

The anxiety you feel when you are required to make a class presentation or the discomfort you feel when you are being disciplined by a parent or teacher are also types of arousal that involve the sympathetic nervous system. Extreme or heightened arousal can lead to impaired performance. Similarly, long-term arousal (for example, in a situation of prolonged danger) can lead to mental problems such as anxiety as well as exhaustion.

The parasympathetic nervous system, by contrast, calms the body down to maintain and conserve energy. It slowly returns your body to normal functioning – your heart rate goes down, you start to breathe normally and you start to salivate again. On other occasions, the parasympathetic nervous system assists with the eating of a meal, because it controls the processes of digestion such as salivation and stomach contractions. In general, it produces the opposite effects to the sympathetic nervous system. However, these two systems work together to make sure that both behaviours are carried out (that is, arousal of the body to perform, and for it to maintain and conserve energy).

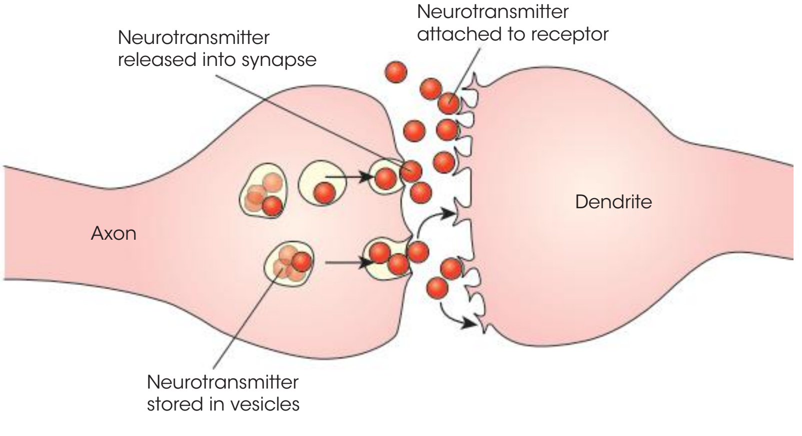
Process of neural transmission

Role of synapses

Most of what we currently know about the nervous system and neural transmission has been due to advances in microscopy. With the development of the electron microscope, scientists were able to differentiate individual cells and the connections between them. It was historically believed that neural transmission occurred when an electrical impulse from one neuron triggered an impulse in another neuron through physical contact. This we now know is incorrect. Models of **synaptic transmission** rely on chemical balances in the cell and electrical transmission of impulses through the neuron.

Synapses work by sending information between one neuron and another. Neurons are individual nerve cells that carry information in the form of an impulse throughout the

Figure 1.4 The synapse and neurotransmitters



nervous system. Neurons have specialised functions, with some sending information from sense organs, glands or muscles to the CNS, while others send information from the CNS to these organs or carry information between neurons.

While neurons appear in many forms, they all have a cell body from which protrude dendrites and an axon. These are all tiny, measured in microns (or micra), and can be as short as 1/1000 mm and as long as up to several millimetres. They also have different shapes depending on their functions. Motor neurons that control muscle contractions have a cell body on one end, a long axon in the middle and dendrites on the other end. Sensory neurons have dendrites on both ends and are connected by a long axon with a cell body in the middle. The branches of the axon reach out to the dendrites on the next neuron, across what is known as the synaptic gap where information is sent.

Role of neurotransmitters

Neurotransmitters are those chemicals which enable activity across the synaptic gap between neurons. A common neurotransmitter is dopamine, which is involved in learning, attention and pleasurable sensations. The degeneration of the neurons that produce dopamine in one area of the brain causes Parkinson's disease, characterised by tremors, rigid movements and poor balance. Other neurotransmitters include serotonin and noradrenaline. Serotonin transmits information as impulses between and along nerves. It is also thought to be important in constricting smooth muscles and regulating bodily processes as well as being involved in sleep and mood, and a deficiency in serotonin levels has been linked to depression.

Noradrenaline functions in the brain and body as a hormone and neurotransmitter. It helps the body deal with stress, danger and threats as well as being important in memory retrieval. It does this by increasing heart rate and blood pressure, by widening the air passages in the lungs and by narrowing blood vessels. Noradrenaline dysfunction is associated with mental disorders, especially depression.

Endorphins are also neurotransmitters that regulate our feelings and perceptions of pain. They are the body's natural pain-killing drugs and are manufactured and released when the body is stressed. Endorphins are also released when you experience a positive mood. The 'high' experienced by athletes when they run is caused by a rush of endorphin.

Roles of the four lobes of the cerebral cortex

The human brain is characterised by a large surface area called the cerebral cortex. The cortex is divided into a number of lobes, each associated with different functions or behaviours. Anatomists have identified and named a large number of brain structures, basing their knowledge on the evolution of the human brain from a simple neural tube structure. The posterior end of the brain has evolved into the spinal cord and the hindbrain. The forebrain has shown the greatest amount of development and differentiation. The dorsal and ventral brain areas are composed of the cortex, divided into four main parts: the frontal (associated with higher mental abilities and movement), parietal (associated with body sensations), temporal (associated with hearing and language) and occipital (the primary visual area) lobes. These are summarised and discussed in Table 1.3 (on the next page).

Figure 1.5 Lobes of the brain

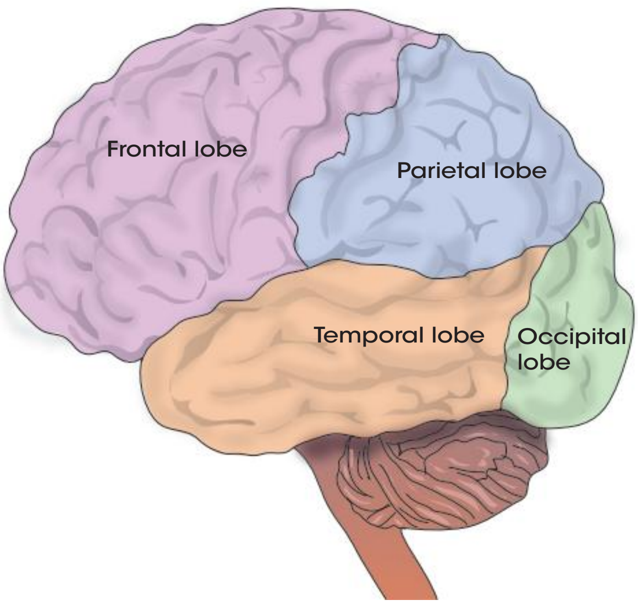


Table 1.3 Summary of the roles of the four lobes of the cerebral cortex

Lobe of the cerebral cortex	Specialised area	Function
Frontal lobe		Concerned with higher mental abilities such as thinking and decision-making, and movement
	Primary motor cortex	Involved in the control of voluntary body movements through control of skeletal muscles
	Broca's area	Linked to the production of speech and is found in the left frontal lobe
Parietal lobe		Associated with body sensations such as touch
	Primary sensory cortex	Responsible for bodily sensations, mainly touch and other skin sensations such as temperature and pain, and processing these bodily functions
Occipital lobe		Associated with vision
	Primary visual cortex	Responsible for visual functions of the eyes; involved in both visual perception and colour recognition
Temporal lobe		Associated with hearing (on the right side of the cortex) and language (on the left side of the cortex)
	Wernicke's area	Located inside the temporal lobe and is linked to Broca's area, since both are involved in speech production
	Primary auditory cortex	Involved in auditory perception such as hearing, as well as language and speech production and memory

Frontal lobe

The frontal lobe is associated with thinking, decision-making, feeling and behaviour. It also performs a coordinating role, since it is the final place for a lot of sensory information that is received and processed elsewhere in the brain. It also coordinates many of the functions of other lobes and determines the behavioural response. The frontal lobe comprises the primary motor cortex and Broca's area.

The primary motor cortex is a strip of neural tissue at the rear of the frontal lobe. It is involved in the control of voluntary movements through control of skeletal muscles. Skeletal muscles are those attached to our arms, legs, back and face, and are involved, one way or another, in all our movements. The primary motor cortex in the left frontal lobe controls the right side of the body and vice versa for the right frontal lobe. It is not the only area involved in movement, but planning and controlling movement are its primary roles.

At the rear of the frontal lobe there is a strip of neural tissue called the primary motor cortex, which is involved in the control of voluntary body movements through control of skeletal muscles. Skeletal muscles are those attached to our arms, legs, back and face, and are involved, one way or another, in all of our movements. The primary motor cortex in the left frontal lobe controls the right side of the body and the right frontal lobe controls the left side of the body.

Broca's area in the frontal lobe is linked to the production of speech and is usually found in the left frontal lobe. In the late 1800s, Paul Broca described two patients who had lost their speech and whose brains he examined after their deaths. He found both patients had a common area of damage to the third frontal convolution of the left hemisphere. He thus concluded that this brain area controlled speech. This has been confirmed by subsequent studies, and the area became known as Broca's area, and correspondingly, a deficit in language production is known as Broca's aphasia. The reasons for the language loss are not completely clear and may be different in different patients.

Parietal lobe

The parietal lobe sits behind the frontal lobe, on the top of the cortex, and is responsible for bodily sensations, mainly touch and other skin sensations such as temperature and pain. It also processes these bodily functions. In addition, the parietal lobe is involved in spatial awareness and some aspects of speech. The parietal-associated cortex enables individuals to read, write and solve mathematical problems. Damage to the right hemisphere of this lobe results in the loss of imagery and visualisation, of spatial relationships, and the neglect of left-side space and the left side of the body. Damage to the left hemisphere of this lobe results in problems in maths, reading and writing. The sensory inputs from the right side of the body go to the left side of the brain, while sensory inputs from the left side of the body go to the right side of the brain, as with other neural and sensory systems.

Occipital lobe

The occipital lobe sits directly behind and below the parietal lobe and is primarily responsible for visual functions of the eyes. It provides quick responses to the visual environment. The primary visual cortex is located in the occipital lobe, and this region of the brain receives visual input from the retinas of the eyes. The occipital lobe is involved in both visual perception and colour recognition. Damage to the occipital lobe can lead to different types of visual problems – for example, full or partial blindness, or word blindness (a loss of the ability to understand written language, experienced in conditions known as alexia and agraphia). Because of its location, the occipital lobe is not prone to accidental damage, such as knocks to the head.

Temporal lobe

The temporal lobe is located at the base of the cortex and is important in hearing, as well as language and speech production and memory. It receives information from the ears and interprets the different sounds the ears hear. Structures such as the limbic system, the amygdala and the hippocampus are located inside the temporal lobe. Wernicke's area is inside the temporal lobe and is linked to Broca's area, since both are involved in speech production. It is named after Carl Wernicke, who proposed a link between the left upper temporal lobe and the mimicking of words and syllables associated with the images of spoken words. Wernicke's aphasia describes a condition in which language comprehension is impaired, while speech production remains relatively normal. In other words, receptive language is impaired.

Factors that affect behaviour, emotion and thought

Heredity – the role of genetics

Are you going to be tall enough to become an A-grade basketballer? Is your hair likely to go grey early? How long can you generally expect to live? Knowing about your parents and grandparents can increase your chance of making a good guess. This is because the heredity through our genes plays a big role in the areas of physical growth and development, and in behaviour, emotion and thought, as well as in intelligence.

The genes that we inherit from our parents guide how we develop physically. They ensure that some of our cells become brain cells, others become skin cells, and still others become bone cells and so on. They regulate the production of pigment in our bodies, resulting in some of us having blue eyes and some brown, and some of us having dark skin and others fair skin. They also regulate the pace and timing of development, governing such things as the age at which teeth first appear, when we experience growth spurts and the timing of puberty and menopause.

We can think of our genes as providing the 'recipe' for our development, but our environment affects the outcome. A child who inherits genes for being tall may not turn out to be tall if he or she has inadequate nutrition for a prolonged period early in life. Heredity sets limits, but environment determines how things turn out within those limits.

How do our genes affect our behaviour? Epigenetics is the study of the transmission of information from one generation to the next through genetic inheritance that affects the traits of the offspring without alteration of the DNA or alteration that occurs from environmental factors. In other words, genes are able to express our inherited traits without altering the DNA. Changes to DNA expression have been found to result from disease and traumatic events. There is a complex scientific reason for suggesting that molecular changes to DNA can result in cellular changes that cause such things as cancer. Since the 1970s, researchers have found that epigenetic changes can pass between generations. Early work on mice showed that diets containing certain organic molecules could alter the fur pigment of future generations of mice. This is rather like a change that occurs with gene mutation, but in that case there is no change to the inherited DNA.

This finding has spawned much research into behavioural epigenetics, whereby experiences like child neglect or drug use are examined to see if they, or other stressors, can create epigenetic changes to the brain's neurons without altering the DNA. Recent studies into cognitive epidemiology, a related field of inquiry looking at the heritability of intelligence, have shown, as an example, that semen quality and intelligence are related (Arden et al., 2009). This study examined the important evolutionary question of whether intelligence is a health- or fitness-related trait. The researchers hypothesised that if the correlations among cognitive abilities are part of larger associations among fitness-related traits, then intelligence ought to correlate with seemingly unrelated traits that affect fitness – such as semen quality. This they found was a positive relationship. Another study found that genetics can influence children's drawing, which in turn was related to intelligence 10 years later (Arden et al., 2014). In this way, we can begin to learn how genetics affects behaviour, thought and feeling.

Hormones

One way in which our genes affect how we behave, think and feel is through their role in regulating the production of hormones. **Hormones** are chemical messengers produced by the endocrine glands. They travel through the bloodstream and affect other parts of the body, such as the brain. When they act on the brain, they influence our interest in food and sex, influence our moods and affect our growth. Messages sent by our nervous system work quickly, such as when you touch something hot and recoil your hand. They are also short-lived. Hormone messages are slower because the hormones must first be produced, carried to their target cell, and then enter the cell, but they are longer lasting. How hormones affect our behaviour is discussed below.

If you have ever tried bungy jumping or been on a scary ride at the Royal Show, you will probably remember the way that your heart races and the surge of energy that lingers after you have finished the jump or the ride. That feeling is due to hormones produced by your **adrenal glands**. The hormones help prepare us to deal with emergency situations and trigger what is known as the 'fight or flight' response. Some people enjoy the 'adrenaline rush' to such an extent that they seek out extreme sports to give themselves a natural high. Others try to avoid the sensation.

Two important adrenal hormones are adrenaline and noradreneline (also known as epinephrine and norepinephrine), which work in conjunction with the sympathetic nervous system to speed up the bodily reactions to danger such as that we described earlier. These reactions include muscle contraction, increased respiration, increased heart rate, deeper and faster breathing and pupil dilation. Even after the emergency has passed, you may continue to feel some sensation due to the hormones still in the bloodstream. Adrenaline is a stress hormone that is involved in the fight or flight response. When you are in danger or threatened, a message is sent to the adrenal glands to release adrenaline into the bloodstream. The hormone is then circulated throughout the body to trigger the various reactions. Increased heart rate and blood pressure enable blood to be pumped faster in the body, enlargement of the pupils in the eyes lets you see better, and expansion of the airways in the lungs lets you take in more oxygen. The fight or flight response requires energy from the muscles either to flee from the danger or to stay and fight it. Adrenaline triggers the increase in energy. Adrenaline is released when we experience an exhilarating event and is also heightened in exercise.

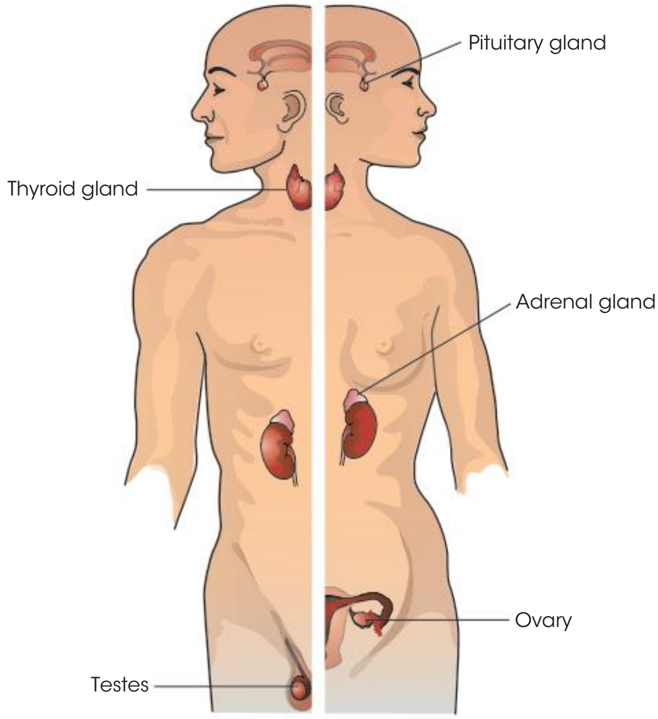


Figure 1.6 The major endocrine glands

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Figure 1.7 The adrenal glands start working when we are in dangerous situations.

Adrenaline has a role to play in learning and memory. Activation of bodily responses to threats includes increased attention and thus our memory should be improved. Similarly, the release of adrenaline when we perceive a threat allows us to make a quick decision to flee or fight. You are also likely to make the same decision if equivalent danger is experienced in the future.

Noradrenaline serves a vigilance function, keeping us alert. Both of these hormones also act as neurotransmitters in the nervous system, but they have a localised transmission function. Noradrenaline also has an arousal effect and increases blood pressure, heart rate, breathing and pulse. It is important in memory and learning as well as hunger, wakefulness and emotions. A deficit has been implicated in depression (Delgado & Moreno, 2000).

Broaden your understanding

Other glands

Figure 1.6 shows that there are a number of other glands. Our **thyroid gland** has formed and started to produce the hormone thyroxin by the fourth month after conception. This hormone is necessary for the brain and nervous system to develop properly. If babies are born with a thyroxin deficiency that is not noticed and quickly treated, they will become intellectually impaired. Those who develop thyroxin deficiency after the brain has developed do not suffer in the same way, but they grow more slowly.

The tiny, pea-sized **pituitary gland** is usually considered to be our most important gland, because it triggers the release of hormones from all the other glands. In addition to this, it also produces a growth hormone that stimulates the growth and development of body cells. This hormone is necessary for normal development. Children lacking this hormone will grow and are usually properly proportioned, but by adulthood they reach only about 130 cm in height (Tanner, 1990). The growth hormone is usually released into the bloodstream about 60 to 90 minutes after a child falls asleep, so there is some truth in parents saying 'you need to get a good night's sleep if you want to grow up big and strong'.

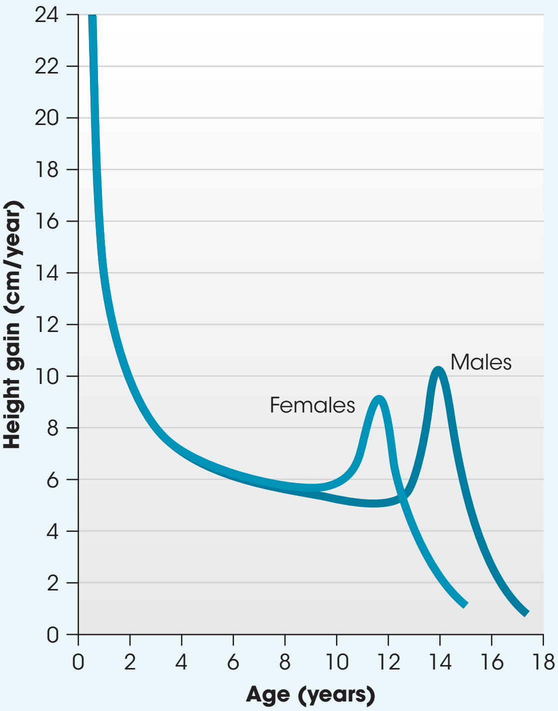


Figure 1.8 The growth spurt at puberty occurs about two years earlier, on average, in girls than in boys.

The pituitary gland also plays a role in the changes that occur at **puberty**, the time of sexual maturation. Well before there are any obvious physical changes, the pituitary gland stimulates a girl's ovaries to produce more oestrogen and a boy's testes to produce more testosterone. Once these sex hormones reach a critical level, the pituitary gland releases growth hormone. In girls, this results in a growth spurt, changes in breasts and the uterus, and in the growth of underarm and pubic hair. Testosterone is responsible for growth of the penis and prostate, voice changes, and the development of facial and body hair in boys. It also plays a role in the growth spurt in boys, and affects the growth of muscles and the broadening of the back.

The sex glands of girls are the ovaries, while for boys, they are the testes. The sex glands of males and females are affected differently by age. Girls' sex glands usually become active about two years before those of boys. Women usually experience menopause sometime in their late 40s or early 50s. Their menstrual periods stop completely and there is a dramatic decline in the production of oestrogen by their ovaries. This may be accompanied by uncomfortable symptoms, such as 'hot flushes' and fatigue. Some women also experience irritability and depression. Research has shown that most women judge menopause to be a positive experience (feeling relief about not having periods or having to worry about getting pregnant) or else think that it has made no difference to their lives.

Is there a male menopause? Men do experience hormonal changes in their 50s and 60s, but they do not have a dramatic drop in the production of sex hormones the way women do. While there is slight drop in testosterone production and in sperm count, men do not lose their sexual fertility in middle age. The late great opera singer Luciano Pavarotti fathered a girl at the age of 67.

The drop in energy that people call the 'male menopause' probably has less to do with hormone changes than with changes in physical ability and increases in work and family pressure.

Getty Images/Rino Petrosino/Mondadori Portfolio

Figure 1.9 Luciano Pavarotti fathered a child at the age of 67.

Psychoactive drugs

Hormones are not the only things that can affect our body chemistry and lead to changes in how we feel, think and behave. Drugs also have those effects. There are three main types of drugs, as follows.

- *Depressants* – these are 'downers' that calm the activity of the nervous system and slow the body's functions.
- *Stimulants* – these are 'uppers' that excite the nervous system and arouse body function.
- *Hallucinogens* – these substances change our perceptions and give us sensory images without input from the senses themselves.

Alcohol, caffeine and nicotine are the most commonly used drugs in Australia. Alcohol is a depressant, while caffeine and nicotine are stimulants, as are amphetamines. Both depressants and stimulants can become addictive.

Hallucinogens are mind-altering drugs that change our perception and result in vivid images that are not related to sensory input. These drugs can be natural in origin, such as marijuana. Others, such as LSD (lysergic acid diethylamide), can be synthetically produced. Marijuana is a mild hallucinogen. When smoked or eaten, it can reduce inhibitions rather like alcohol does, but it also increases sensitivity to sounds, colours, tastes and smells. LSD was heavily used in the 1960s and 1970s. The 'trip' that results from its use can range from one of euphoria with intense, pleasant images to one of absolute terror and panic. The drug user's mood and expectations can affect the nature of the trip.

Heroin, another commonly used drug, is an opiate and also a depressant. Opiates mimic endorphins, the body's painkillers, and, when used medically, they alter patients' reactions to pain by reducing the brain's perception of pain. Opiates such as morphine are used medically to give relief from pain and, because it is used sparingly and not very often, patients rarely develop an addiction to morphine. Heroin is usually taken intravenously and, when injected into a vein, reaches the brain quickly, creating a feeling of euphoria that is followed by feelings of calmness and peacefulness. Withdrawal from heroin produces unpleasant side effects such as fevers, cramps and gastrointestinal problems.

Cocaine is an 'upper' and, along with amphetamines, suppresses appetite (hence its use as a diet pill many years ago). Amphetamines are used mainly to elevate mood and produce a sense of euphoria. Tolerance for any of these drugs builds up quickly, leading to larger and larger doses being required to maintain their effects. Cocaine is made from the leaves of the South American coca tree (not related to the cacao plant, from which we get cocoa or chocolate). It is typically inhaled ('snorted') in powder form and reaches the brain rapidly. It produces euphoria, increased mental alertness and self-confidence, which is why it is very popular. Crack cocaine is a concentrated form of cocaine and is smoked. Prolonged use of cocaine can result in a form of psychosis with auditory hallucinations and strange, paranoid ideas.

The more common 'club drug' of the early 2000s, taken at parties or at all night raves, was ecstasy (methylenedioxymethamphetamine). Ecstasy is both a stimulant and a mild hallucinogen. Users commonly report heightened emotions and a feeling of connectedness with those around them. However, the risks associated with ecstasy are numerous. One immediate effect is dehydration and, if this occurs while the drug user is engaged in energetic dancing for long periods of time, it can result in overheating, blood pressure increase and even death. A long-term result of using ecstasy, due to its effect on brain serotonin, is a permanently deflated mood, memory loss and damage to the immune system. Research by Kylie McCardle and her colleagues (2004) at Swinburne University suggested that not only did individuals with a history of ecstasy use have higher levels of depression than non-users, but they also had difficulty in storing information in long-term memory. In addition, they were more easily distracted and less efficient at focusing on complex tasks. Other research has shown a loss of mental flexibility in people with a lifetime use of 50 or more ecstasy tablets: they had difficulty in switching between tasks (Dafters, 2006).

In recent years, the most prevalent drug used is methylamphetamine, known as ice or meth, a powerful stimulant that can be found in powdered, liquid or crystal (ice) form. Ice is the most-used form and its purity has increased in the past five years, which means that the effects are stronger and the outcomes are worse for users. For example, crystal ice has doubled in use since 2010 (while the powdered form use has decreased) and users are reporting more frequent usage than before – a quarter of regular drug-takers aged over 14 years reported taking ice at least once a week, and in 2013, 2.1 per cent of the general population reported using ice in the previous 12 months (Australian Institute of Health and Welfare, 2014).

Ice produces an intense high that can last between 4 and 12 hours. Users feel more awake and experience exhilaration and increased arousal and activity levels, though the drug also suppresses appetite. When ice is used, the receptors in the brain are flooded with monoamines (a form of neurotransmitter). As more is taken, these receptors can be destroyed and prolonged ice use can lead to a point when the user no longer feels pleasure without further ice use (Australian National Council on Drugs, 2013). Prolonged use of ice is associated with mental health conditions such as memory loss, depression and psychosis. Ultimately, ice use can negatively affect social and family relations, and lead to serious financial problems and poverty.

CHAPTER SUMMARY

Biological influences/bases of behaviour

Structure and function of the nervous system

- Central nervous system (CNS)
  - Components of the nervous system – brain and spinal cord
  - Functions of the components of the nervous system
- Brain
  - Components of the brain – forebrain, midbrain and hindbrain
  - Functions of the components of the brain
  - Studying the functions of the brain
- Spinal cord
  - Functions of the spinal cord
- Peripheral nervous system (PNS)
  - Functions of the peripheral nervous system
- Somatic nervous system
  - Functions of the somatic nervous system
- Autonomic nervous system – sympathetic, parasympathetic

Process of neural transmission

- Role of synapses
  - How synapses work
- Role of neurotransmitters – serotonin, dopamine
  - How neurotransmitters work

Roles of the four lobes of the cerebral cortex

- Specialised areas of the lobes and their functions
  - Frontal lobe – primary motor cortex, Broca's area
  - Parietal lobe – primary sensory cortex
  - Occipital lobe – primary visual cortex
  - Temporal lobe – Wernicke's area, primary auditory cortex

Factors that affect behaviour, emotion and thought

- Heredity – the role of genetics
- Hormones – the effects of adrenaline and noradrenaline
- Psychoactive drugs
  - Effects of depressants, stimulants and hallucinogens

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Cerebrum

2 Brainstem

3 Sympathetic nervous system

4 Parietal lobe

5 Adrenal glands

Multiple-choice questions

1 How many parts is the human nervous system divided into?
   A Two
   B Three
   C Four
   D Five

2 The cerebellum is:
   A the 'little brain'.
   B responsible for motor control.
   C involved in language and attention.
   D all of the above.

3 The somatic nervous system:
   A carries information *to* the central nervous system.
   B carries information *from* the nervous system.
   C is a network of sensory nerves.
   D all of the above.

4 Neurons transmit information by:
   A physical contact.
   B sending electrical impulses.
   C using chemical transmitters.
   D both B and C.

5 Neurotransmitters are:
   A chemicals.
   B electrical currents.
   C action potentials.
   D proteins.

6 Psychologists study the brain to learn about:
   A how children develop.
   B how we think and remember.
   C why we can stand on one leg.
   D how we sleep.

Apply and relate psychological understandings

Short-answer questions

1 Describe the three parts of the brainstem and what each part does.

2 Describe the sympathetic and parasympathetic nervous systems.

3 Explain the roles of the four lobes of the cerebral cortex.

4 Explain what the endocrine glands do.

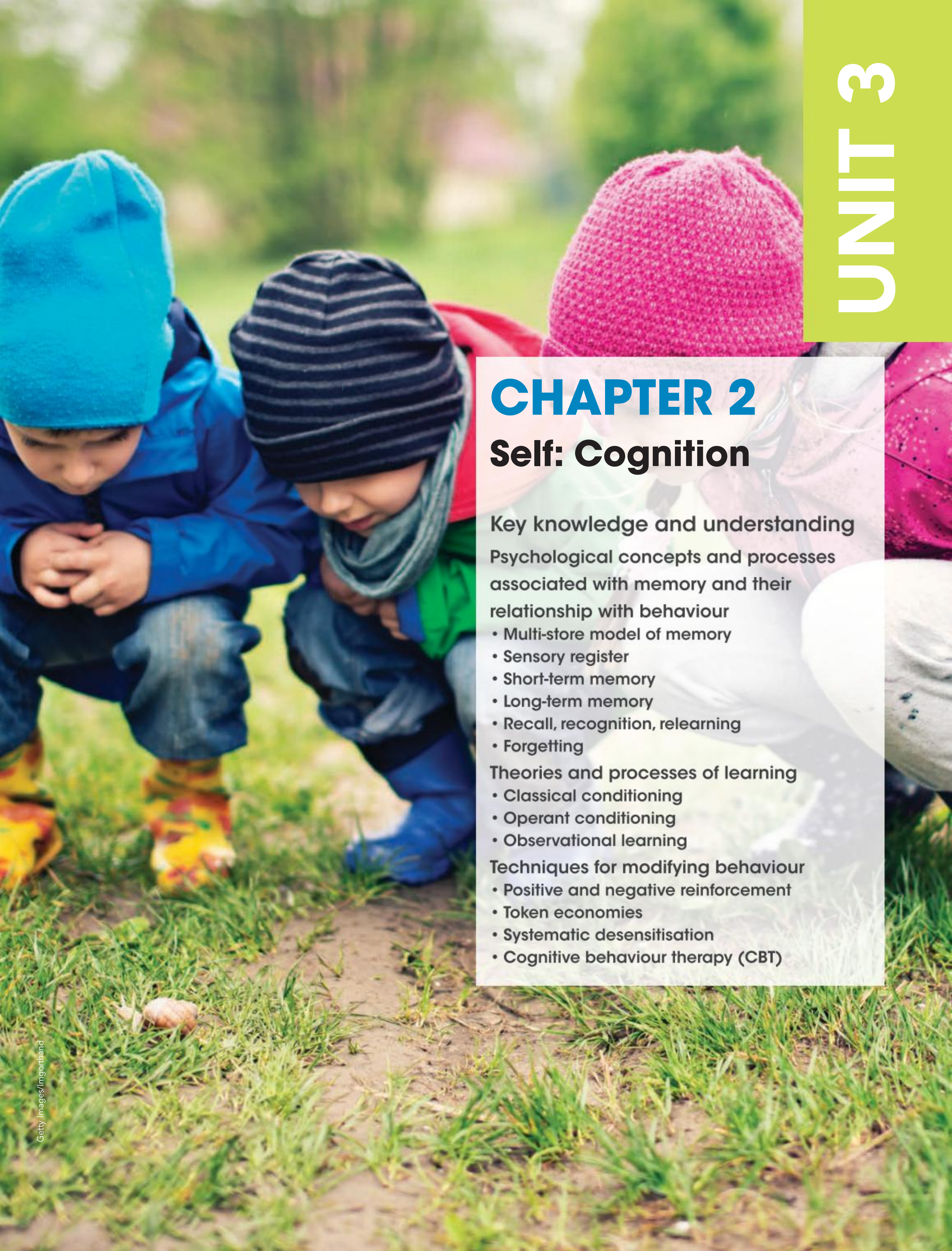
5 Outline how heroin 'works'.

Extended-answer question

This activity expands on material introduced in the chapter. It will require extra research or discussion in order to answer the question successfully.

We discussed some psychoactive drugs in this chapter. Pick one of the below and find out as much as you can about it.

- The definition of addiction
- The biological effects of drugs
- Psychological and environmental influences on drug-taking
- Why people abuse drugs



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UNIT 3

CHAPTER 2
Self: Cognition

Key knowledge and understanding

Psychological concepts and processes associated with memory and their relationship with behaviour

- Multi-store model of memory
- Sensory register
- Short-term memory
- Long-term memory
- Recall, recognition, relearning
- Forgetting

Theories and processes of learning

- Classical conditioning
- Operant conditioning
- Observational learning

Techniques for modifying behaviour

- Positive and negative reinforcement
- Token economies
- Systematic desensitisation
- Cognitive behaviour therapy (CBT)

Cognition

Psychological concepts and processes associated with memory and their relationship with behaviour

What is memory? You remember telephone numbers and hashtags, you remember to take your keys with you when you leave home, you remember last summer's holiday and you remember when your sister was born. You can therefore remember things that happen daily and things that happened a long time ago. But there are also occasions when you cannot remember information that you would like to, such as a telephone number or your grandmother's birthday. And yet on other occasions, a seemingly unconnected memory pops into your mind, perhaps triggered by a noise or a smell.

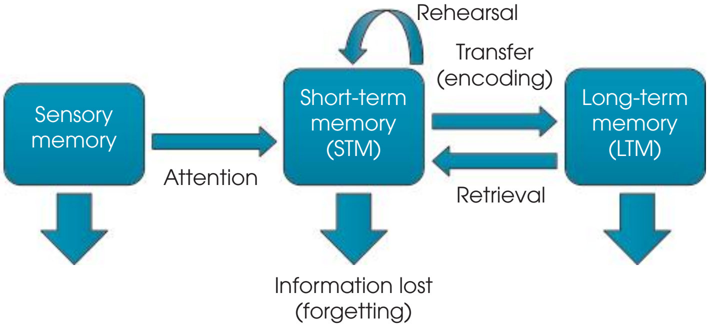
Figure 2.1 Is this what memories look like?

Neurons are the building blocks of memory and you learned about them in Chapter 1.

Memory is a very important part of our lives. It would not be possible to participate in society if you could not remember your name, address or age, could not recognise members of your family or remember what you learned at school yesterday. In the 2000 film *Memento*, the central character of Leonard Shelby (played by Guy Pearce) has a traumatic event that causes him to fail to remember anything that occurs and he suffers short-term memory loss approximately every five minutes. He uses a number of prompts such as hand-written notes and photographs to assist his memory. The film has a complex plot (but it is worth watching) and involves Shelby searching for the murderer of his wife since this event is the last thing he remembers. The film highlights the important role memory plays in our everyday lives, both for remembering past experiences and events, as well as helping us organise getting through each day and planning for the future.

Memory is complex: it involves paying attention to what you are doing and what you see, converting that into a form that can be stored in the brain and then retrieving that information when it is required and using it. Memory is an active information processing system in which the brain (via neurons) processes, encodes, stores, retrieves and uses that information.

Figure 2.2 The Atkinson and Shiffrin model of memory



Multi-store model of memory – Atkinson and Shiffrin

Memory can be defined as the internal record of some previous event or experience. If we had no memory, we would not be able to learn. It can be argued that memory is the most important mental process that humans possess. This process is considered to be the representation of things we have seen, thought or spoken about or experienced without the original stimulus being present. Memory is sometimes called mental representation, which refers to the fact that memory is a psychological version ('representation') of the original sound, thought, object or concept.

Atkinson and Shiffrin (1968) developed a model of memory, known as the stage model, which has three separate stages: sensory memory, short-term memory and long-term memory. We will discuss these in more detail below.

Table 2.1 Summary of memory systems

Memory	Characteristics
Sensory memory or sensory register	Information stored for a short period, usually only a few seconds
Short-term memory	Information that has been attended to is transferred from sensory memory and is stored for a short period If information is rehearsed, it is transferred to long-term memory Short-term memory holds all current information (thoughts and experiences) Short-term memory can also retrieve information from long-term memory
Long-term memory	Relatively permanent storage of information

Each memory stage is characterised by three processes:

- *Duration:* How long can the information be stored?
- *Capacity:* How much information can be stored?
- *Encoding:* In what form is the information stored?

These are summarised in Table 2.2 below.

Table 2.2 Summary of memory processes

Memory stage	Duration	Capacity	Encoding system
Sensory memory or sensory register	From one to a few seconds	Unlimited	As a sense, such as an image or a sound
Short-term memory	30 seconds	Limited to between five and nine pieces of information	Active processing and rehearsal
Long-term memory	Indefinitely	Unlimited, but can decay over time	Physical changes in neurons for storage

Encoding refers to the conversion of sensory information into a form that can be processed by the brain. The information may be encoded visually, such as with faces or a view from your bedroom window; acoustically, such as your ringtone; or through meaning, since words are often encoded by what they mean rather than by their form.

Storage refers to the retention of the information for various lengths of time. The brain can be thought of as a computer that stores information on its hard drive. Human information storage is via networks of neurons. Of course, information must be stored in a form that is accessible later. Computers use file names for this purpose. Humans form associations between neural networks to aid later retrieval.

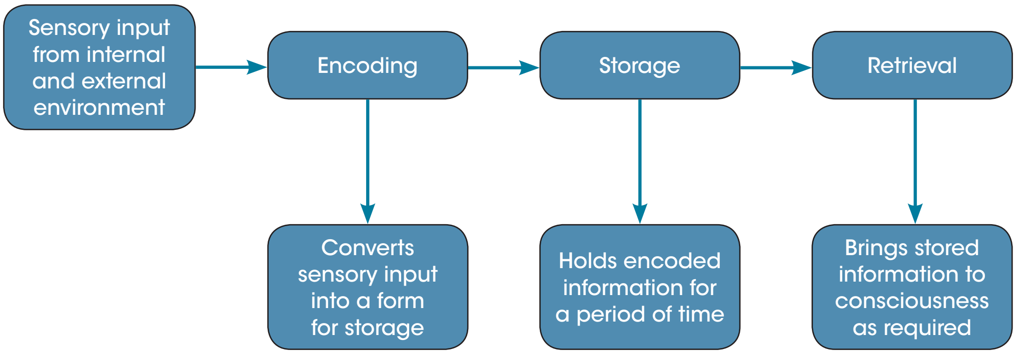
Finally, retrieval itself is central to memory, because it is only through accurate retrieval that memory can be identified as a process. Retrieval is the recovery of information stored in the brain. If a memory cannot be retrieved, then it cannot be shown to exist at all.

Table 2.3 Summary of memory stages

Characterisation of memory stages	Description
Duration	The length of time for which information is stored
Capacity	The amount of information that can be stored
Encoding	The process of converting information into a form that can be used (stored) by the memory system
Storage	Information is held for various lengths of time
Retrieval	A process that locates stored information and returns it to consciousness as required

The memory system stores and retrieves information, as shown in Figure 2.3.

Figure 2.3 The process of memory



Sensory register

Sensory memory, also called the sensory register, refers to memory retained for a brief period, usually less than one second. Information is encoded rapidly, based on the physical properties of the stimulation, often a sound or a fast visual image that can be attended to. The sensory memory system stores all incoming sensory information in memory registers for the different senses.

Duration, capacity, encoding

Most information held in sensory storage is lost quickly. Information that is considered important is attended to and passed into short-term memory. Sensory storage is unlimited in capacity even though duration is very short. Psychologists consider that each of our senses (such as vision or hearing) has a separate sensory register, so visual information is held as an image and a sound is held as an echo. The two main sensory registers are **iconic memory** and **echoic memory** but it is believed there are sensory registers for touch, taste and smell.

Iconic memory is the sensory register for visual information such as shape and colour. It works by briefly storing an icon or image for less than a second. If you look at a red car, for example, and close your eyes, a fleeting icon or picture, will be in your consciousness. If the icon is particularly intense (the red is vivid), it may last long enough (more than half a second) to begin encoding. Because our visual environment changes a lot and quickly, we need to be able to move on to new information promptly too. If we did not, all we would see would be a blur!

Echoic memory is the hearing equivalent of iconic memory except that the echo is held in the sensory stage for three to four seconds, long enough for encoding the storage to begin. This is important for the understanding of language because we need to be able to understand full long words (for example, 'keyboard') not just short components ('key' then 'board').

Short-term memory

Short-term memory (STM) is where information is stored for around 30 seconds. Information in STM may be rehearsed for the transfer, if any, of the information into longer term storage. Short-term memory refers to the information you are aware of, and is sometimes called working memory, which means that the thoughts, words and images are available for decision-making and problem-solving. Most memory theorists, therefore, distinguish between short-term and working memory; the former refers to what can be stored for a short period, such as a telephone number; the latter refers to holding information and working with it (for example, mental arithmetic and spelling).

Duration, capacity, encoding

Short-term memory has some characteristics that distinguish it from long-term storage. Information is generally retained for a reasonably brief period and the amount of material that can be retained is also limited. A famous study by Miller (1956) proposed that the amount of unrelated material that could be stored in STM was between five and nine pieces, or as he expressed it, 'the magical number seven plus or minus two'. His work involved the retention of numbers in STM, but other work has looked at the retention of unrelated letters and nonsense words (such as 'vur' or 'sep') and found a similar phenomenon. The capacity of STM is around seven pieces of information, although the capacity appears to be greatest for digits, and is lower for letters and words. Also, the longer the words, the shorter the STM span.

Figure 2.4 Telephone numbers are chunked so we can remember them more easily.

Rehearsal enables information to be retained in STM longer than it would usually be. It is also used to transfer material to long-term memory (LTM) in cases where you want to remember the information. There are two kinds of rehearsal – **maintenance rehearsal** and **elaborative rehearsal**. Maintenance rehearsal is when you are remembering a telephone number for immediate use: you may say the number aloud or in your head. It is not used for the transfer of the telephone number to LTM. In elaborative rehearsal, you actively process and encode the information, rather than simply repeating it, and associate the material with other information in LTM, such as other telephone numbers with a similar prefix or the same one. In elaborative rehearsal, you try to make the material more meaningful, so it can be stored and used later.

Another way that STM capacity can be increased is through the use of **chunking**, whereby material is combined into larger, meaningful groups. The larger group is based on patterns or regularities in the information being processed. We do this with mobile telephone numbers, where we chunk them, for example, into three groups – the first four (0499), then the next three (123), then the next three (456) or the first three (049), then three (912) then the final four numbers (3456).

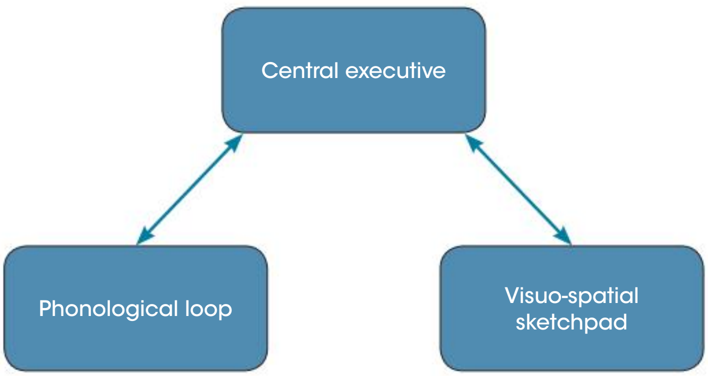
Working memory model – Baddeley and Hitch

Working memory (WM) is the current, preferred term for what used to be called short-term memory. It is broader than STM and emphasises the active nature of processing memory rather than earlier notions of passive maintenance. Like STM, it has a limited capacity.

The original working memory model developed by Baddeley and Hitch (1974) consists of two slave systems for short-term maintenance of information and one central executive responsible for organising information and coordinating the slave systems. Slave systems are the workhorses of memory while the central executive drives the whole system. The model is a hypothetical construct and is an attempt to describe the process of memory and how visual and verbal material is processed and stored.

The slave systems are the articulatory (or phonological) loop and the visuo-spatial sketchpad. They are storage systems for verbal and visual information respectively. The central executive directs attention to relevant information and suppresses irrelevant information. The articulatory loop stores and processes phonological information (the sounds of language) and rehearses it silently, so we can remember a 10-digit telephone number as long as it is refreshed in the rehearsal loop. The visuo-spatial sketchpad stores visual and spatial information, and constructs and manipulates visual images including details of shape, colour, motion, pattern and position, and represents mental maps. Diagrammatically, this can be seen in Figure 2.5.

Figure 2.5 Baddeley and Hitch (1974) model of working memory



Baddeley (1986) uses the metaphor of a company to describe the way in which the central executive operates. The company boss makes decisions about which issues deserve attention and which should be ignored. The boss will collect information from a number of different sources and select strategies for dealing with issues. He or she also needs the back-up of the hard-working systems that process the information. This applies to the model of memory where the central executive collects and collates information from the working slave systems (the phonological loop and the visuo-spatial sketchpad) while also drawing on information held in long-term memory.

Broaden your understanding

The working memory model today

In 2000, Alan Baddeley added a fourth component to the model, the episodic buffer. It was added because the model failed to be supported by experiments. This is a third slave system linking information across domains to form integrated units of visual, spatial and verbal information with time, such as the memory of a story or a movie. The episodic buffer also has links to long-term memory.

This updated model of working memory can be understood by observing Figure 2.6.

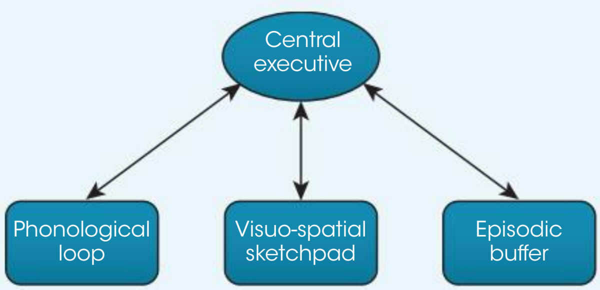


Figure 2.6 Updated model of working memory

Long-term memory

Long-term memory (LTM) is a relatively permanent store of information that must be large enough to retain all the information we encounter and remember during our lifetime. LTM refers to information storage of greater than 30 seconds to 'forever'. There is so much information stored that it can be difficult retrieving particular pieces of information you need at a particular time. You know how it feels to search your memory for that vital PIN or family birthday date!

Duration, capacity, encoding

Information moves from STM to LTM through physical changes in the neurons and neural networks to make the associations, and hence the storage, permanent. Two types of LTM can be distinguished: procedural memory and declarative memory. Information stored in LTM can decay over time, which means it naturally fades, especially if it is not used or retrieved very often, or even at all. And information can be interfered with, both during storage and retrieval, where associations become confused over time.

Procedural memory

Procedural memory stores the way you perform any type of action, the 'how to' of memory. It is remembering how to tie your shoe laces, ride a bicycle, how to swim or how to type accurately. It is the memory of actions and skills that have been learned. It is sometimes called **implicit memory**, because it is not a conscious memory process and mainly refers to the learning of motor skills. Procedural memories require little effort to retrieve, and retrieval takes place more or less automatically because the skills are well-established. You may also find it difficult to describe these procedures to others because they are so well-learned and frequently used.

Figure 2.7 Do you remember your first day at school?

Alamy Stock Photo/Angela Hampton Picture Library

Declarative memory – semantic and episodic

Declarative memory is the 'what' of memory. It is sometimes called **explicit memory** and requires conscious effort for retrieval. It is called declarative because it allows you to 'declare' how things are or what you remember. There are two types of declarative memory: **episodic memory** and **semantic memory**. Episodic memory is memory for past personal events and it is an internal representation of your own interpretation of an experience in your life. Episodic memory refers to a specific event such as the birth of your younger sister or your first day at school, which is remembered because of the importance of the experience to you personally. It is linked to particular feelings and sensations, and to a particular time.

Semantic memory is knowledge of facts and information, based on understanding and interpretation, often of spoken or written material. It is an encyclopaedia of memory, storing mental representations of the world.

The different types of LTM are summarised in Table 2.4.

Table 2.4 Different types of long-term memory

Type of LTM	Sub-type of LTM	Description
Procedural memory		Stores how you do things like riding a bike or swimming; sometimes called implicit memory
Declarative memory		Allows you to declare what it is you remember; sometimes called explicit memory
	Episodic memory	Memory for past personal events; sometimes called autobiographical memory
	Semantic memory	Memory of facts and information that enables us to construct meaning

Broaden your understanding

How good is your memory?

There are some online memory games that you can try to see if you have a good memory.

Type 'Simon says' or 'pelmanism' (finding matching pairs) into a search engine to discover some of these online memory games. Play one of them and see how easy or difficult they are and test your memory! Consider which stage of the memory process you might be using at any time.

Figure 2.8 A list can be used to jog the memory.

Getty Images/Daisy-Daisy

Recall, recognition, relearning

Research has shown that the amount of information that we can retrieve from our memories depends on the sort of questions that we ask. There are three main ways of measuring what a person has remembered: recall, recognition and relearning. **Recall** questions ask you to retrieve information from memory without any prompts or cues. For example, the question 'Who won the women's 400 m race at the Sydney Olympics?' asks you to recall information. While some of your class might know the answer to this question, most would probably find it easier if you were given the following list of names: Katherine Merry, Lorraine Graham, Cathy Freeman, Ana Guevara, Donna Fraser, Heide Seiderling, and then asked, 'Which of these women won the 400 m event at the Sydney Olympics?' This type of question relies on **recognition**, identifying the information from a number of alternatives. (The answer is Cathy Freeman.)

There is a lot of research that shows that regardless of the type of information to be remembered, people find recognition easier than recall. This is the reason that students usually prefer multiple-choice questions to essay questions in exams, why most people find it easier to recognise a person's face than recall his or her name, and why people make fewer mistakes when reading than they do when spelling.

The most sensitive measure of memory, however, is **relearning**. There are many times when we seem unable to retrieve something we have seen or heard from memory, even with the help of cues or prompts. Does that mean that it is totally forgotten? Psychologists have devised a technique called relearning (or the method of savings), to see if any information has been retained. This method involves a person relearning information he or she has previously learned. If the information is learned more quickly the second time, it is assumed that some information must have been retained. An example would be an immigrant to Australia who spoke another language up to age seven years of age or so, did not speak it for many years, then returned to the country of origin decades later and began speaking the first language more easily over the course of their visit.

All of this information is summarised in Table 2.5.

Table 2.5 Types of remembering

Type of remembering	Description
Recall	Retrieval of information from memory without any prompts or cues
Recognition	Retrieval of the correct information from a list of alternatives
Relearning	Learning information again that has previously been learned; this occurs more quickly than the original learning

Forgetting: Retrieval failure, interference, motivated forgetting, decay

Once we have remembered a piece of information, we sometimes forget it later. We need to understand why and how we forget. Forgetting can be seen as a failure to retrieve information that has been previously stored or a failure to use information as it is required. Let us see what this means.

- Was the information stored and now cannot be accessed?
- Was the information not stored in the first place?
- Is it an inability to retrieve the stored information?

Psychologists have been seeking answers to questions such as these because memory is only of use or value when stored information is successfully retrieved.

We all know there are times when we cannot remember something. We also know that memory problems affect many people as they age and are a characteristic of some illnesses, such as Alzheimer's disease. These illness-related memory problems are due to organic causes of forgetting and are a result of damage to the brain.

Retrieval failure is the inability to retrieve a certain piece of information. Successful retrieval requires the use of cues that act as mental reminders and include such things as mental images or associations, as well as questions or prompts from others, or sights or sounds. Such cues cause a search to be activated, transferring likely information from LTM to short-term or working memory. For information to be useful, it must be retrieved from long-term storage and the cues assist in the identification of information that in all likelihood will be the most useful.

Interference suggests that forgetting is a result of retrieval difficulties due to competing, similar, information being stored. Information is not lost from storage, but cannot be successfully retrieved because related or similar information gets mixed up or blocks retrieval. So you may not be able to retrieve information about what you did last summer holidays because you went to the same campsite as you did the year before. The two events were similar enough to be confused in trying to remember what you did accurately.

In **retroactive interference**, new information interferes retroactively with old information. It is best illustrated in a standard experimental design shown in Table 2.6.

Table 2.6 Retroactive interference

Group	First task	Second task	Third task
Experimental	Learns A	Learns B	Test for retention of A
Control	Learns A	Rests or unrelated task	Test for retention of A

If the experimental group has greater difficulty remembering the first task (for example, a list of Australian city names), then it can be claimed that the learning in the second task (a list of worldwide capital city names) has interfered with the earlier learning of the first task. **Proactive interference** works in the opposite direction and information previously learned interferes with new learning. It happens if you have to learn a number of items on two lists and then recall the last four items from the first list before recalling the last four items from the second list.

Motivated forgetting refers to the inability to retrieve information because there is some advantage to not remembering it. This is a self-protection defence and can be seen as forgetting because you do not want to think about it. The information may be anxiety-provoking or it may simply be convenient or desirable to forget (such as forgetting to mow the lawn or take the bin out, because the jobs are reasonably unpleasant). Motivated forgetting is similar to a defence mechanism (which is an unconscious psychological mechanism that denies, distorts or falsifies reality – you learned about this in Year 11) and it is not deliberate.

Decay is the simple fading away of memory over time. It is much more evident in sensory storage and short-term memory, but some psychologists claim memories never decay, and that they are simply not able to be remembered at certain times. There is evidence that some memories, thought long faded, can be retrieved, such as through the sight of a face or a view, or with the sound of certain music, or even from a particular smell.

Broaden your understanding

Remembrance of Things Past

French writer Marcel Proust (1871–1922) wrote a seven-volume novel, *À la recherche de temps perdu* (*In search of lost time* (literal translation) or *Remembrance of Things Past*). One of the things explored in this novel is the enigma of memory as well as links between perception and memory. A famous episode in the novel is when the writer tastes a madeleine (a small sweet biscuit) dipped in tea, which leads to a childhood memory of the past. The description provided by Proust of this uncovering of a long-faded memory, triggered by a taste, is exquisite both in the original French and in the subsequent English translations.

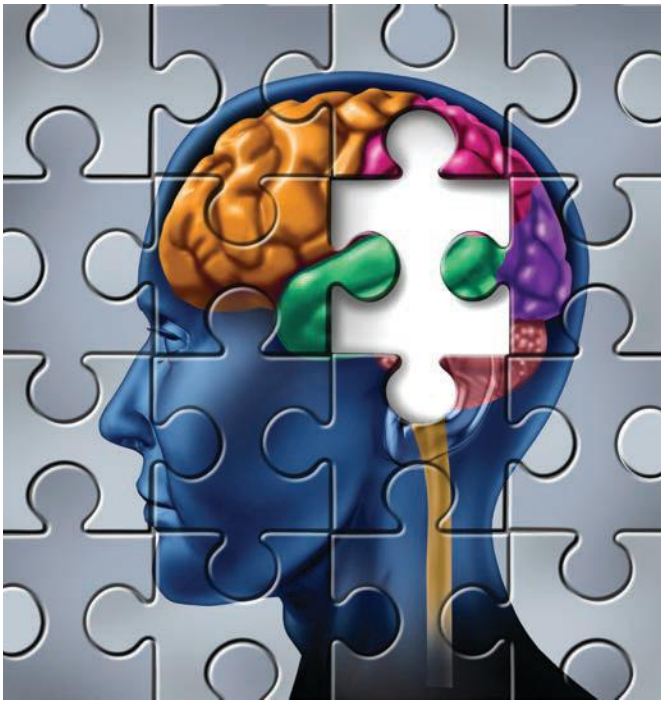
Theories of forgetting generally conclude that forgetting occurs as a result of retrieval failure, in one form or another. This makes sense, because remembering has been defined as successful retrieval.

More 'organic' theories of forgetting assume that **amnesia**, or memory loss, occurs because of some brain damage, caused by such things as a blow to the head, misuse of alcohol or other drugs, ageing or brain surgery. Damage to different areas of the brain can lead to different forms of memory loss. Psychologists study individuals who have suffered memory loss as a result of brain damage in order to gain valuable insights into how remembering and forgetting works.

The different ways forgetting can occur are summarised in Table 2.7.

Type of forgetting	Description
Retrieval failure	Inability to retrieve information when reminder cues do not assist, since the cues are not stored in the first place
Interference	Retrieval difficulties due to competing or similar information being stored
Motivated forgetting	Where there are advantages to not being able to retrieve the information because it is anxiety-provoking or unpleasant
Decay	The fading away of memory over time

Table 2.7 Summary of types of forgetting



Shutterstock.com/Lightspring

Figure 2.9 Brain damage is like having a piece of your brain missing.

Broaden your understanding

How to enhance retrieval of information and improve memory

There are ways in which memory can be improved through enhancing retrieval. People want to improve their memory so they can do better in tests and exams or remember people's names. Memory can be improved through:

- using systems to improve organisation of memory
- paying closer attention to the material to be remembered
- having experience with the information to be remembered
- using the information to be remembered
- rehearsing the material to be remembered as it is transferred from STM to LTM.

Another way of enhancing memory is the use of mnemonics or memory-aid tricks to remember things better. In mnemonics, you develop a system such as taking the first letter of each of the words to be remembered and making a new word; for example, HOMES to remember the Canadian Great Lakes – Huron, Ontario, Michigan, Erie and Superior – or making a sentence using letters, such as Every Good Boy Deserves Fun to represent the lines E, G, B, D and F on a musical treble clef staff.

Enhancing retrieval takes place best when contextual cues are used to trigger memories. A good example is the context in which you study. A quiet, well-lit study area in your home will likely lead to learning that will be successfully retrieved in the exam room, which is also quiet and well lit. By contrast, if you study lying in bed, listening to loud music, the same conditions will not be available when you wish to retrieve the information in the exam room, so the contextual cues for the information to be retrieved are not available. Your emotional state while learning can also affect your ability to retrieve information, and material learned in one mood is likely to be better remembered under conditions of the same mood.

Theories and processes of learning

You are learning all the time and learning is often associated with school. But you learned to talk and walk when you were a baby; you learned how to feed yourself, dress yourself, ride your bicycle, swim, catch a ball, tie your shoe laces, hold a pencil and write, and how to read. Learning is usually defined as a relatively permanent change, often of behaviour, that occurs as a result of experience. There are many different theories about how learning occurs, each of which can explain certain types of learning or what happened in certain circumstances. Early approaches (discussed below) described learning as a result of humans (and animals) responding to stimuli in the environment. These theories are known as the **stimulus–response** approach, and they assume that the changes in observed behaviours are a result of the environment in which learning occurs. That is, we learn by responding to environmental stimuli. Examples of these theories are **classical conditioning** and **operant conditioning**.

Recent theories have been more interested in describing learning as humans making sense of the world and problem-solving. The focus has shifted to internal (or cognitive or mental) processes rather than changes in observable behaviours as a result of environmental stimuli. One example, discussed later in this chapter, is **observational learning**.

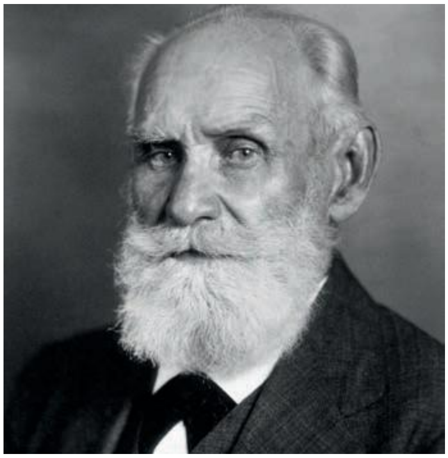
The following table summarises the main theories of learning and the main theorists.

Table 2.8 Learning theories

Type of learning	Theorist	Description
Classical conditioning	Ivan Pavlov (1849–1936) J.B. Watson (1878–1958)	Learning caused by the pairing, or association, of two stimuli, that is, learning of 'conditional' behaviour An association forms between two stimuli, one of which is not normally associated with the desired response, such that the appearance of that stimulus alone resulting in the desired response behaviour
Operant conditioning	E.L. Thorndike (1874–1949) B.F. Skinner (1904–1990)	Behaviours can be learned if the consequences are rewarded (such as with food) Operant conditioning is learning explained by its consequences Terms such as 'reinforcement' and 'punishment' are associated with operant conditioning
Observational learning	Albert Bandura (1925–)	Observational learning takes place when a new behaviour is learned or modified as a result of watching others and copying their behaviours, or after watching the consequences of the behaviour of others

Classical conditioning

Before turning our attention to observational learning, we need to understand early approaches to learning. Classical conditioning was one such approach and was initially shown in animals. It is learning caused by the pairing, or association, of two stimuli, that is, the learning of 'conditional' behaviour. In other words, an association forms between two stimuli, one of which is not normally associated with the desired response, such that the appearance of that stimulus alone results in the desired response behaviour.



National Library of Medicine

Figure 2.10 Ivan Pavlov

Broaden your understanding

Pavlov's experiment

Ivan Pavlov (1849–1936), a Russian Nobel Prize winner who studied the digestive systems of dogs, knew that dogs naturally salivated while being given food. Pavlov noted that this salivation, usually considered a reflex action, could occur *before* food was given to them. He wanted to know what triggered the anticipatory salivation that occurred to many stimuli associated with food, such as the sight of the bowl and the footsteps of the person coming to feed them. Pavlov had a way to measure salivation in dogs, so he set about finding out more about how this happened.

In Pavlov's experiment, food powder was placed in the mouth of a dog. This food, termed the 'unconditioned stimulus' (UCS), was paired with the sound of a bell (the 'conditioned stimulus' (CS)), and the amount of the dog's saliva measured. After a number of pairings of the food powder and bell, the sound of the bell was given alone. Pavlov found that the dog salivated (the 'conditioned response' (CR)) at the sound of the bell alone. The salivation at the sound of the bell was thus considered to be conditional on its pairing with the CS. This experiment, modifying a reflex behaviour, showed how learning can take place.

Pavlov introduced several terms to our vocabulary. Salivation is a natural reflex in dogs. Salivation in response to the CS is called the conditioned reflex since it depends on a stimulus that is not the natural one (food). The relationship can be illustrated diagrammatically.

Pavlov also used the term 'reinforcement' but not in the way we use it today. He used it to refer to the following of the conditioned by the unconditioned stimulus, as when food followed the bell – a more restricted meaning whereby the reinforcer is paired with the stimulus.

After conditioning has occurred, researchers sometimes test for **stimulus generalisation** to see if a stimulus similar to the CS produces the CR. For example, in the case of a dog being conditioned to a bell, if a buzzer instead of a bell is sounded, we can look at the reaction of the dog. Generalisation would have occurred if the dog salivated in response to the buzzer.

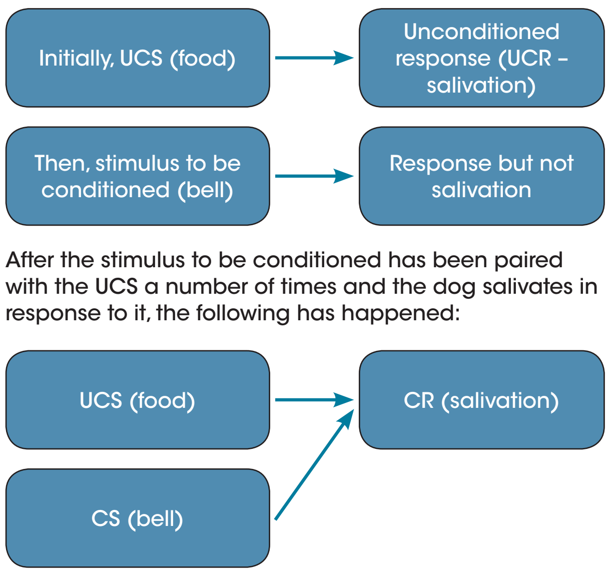


Figure 2.11 Pavlov's conditioned reflex

How can a conditioned response be eliminated? The most common way to extinguish a CR is to present the CS repeatedly without following it with the UCS. So if the bell is sounded without the presentation of food, the amount of saliva gradually decreases. Finally there is **extinction** of the CR.

An experimentally extinguished response can return after a break in the sessions of conditioning. This is known as *spontaneous recovery*.

While dog salivation has been used as the example here, conditioning has also been conducted with reflexes in humans involving knee jerk and heart rate.

Broaden your understanding

J.B. Watson and Little Albert

J.B. Watson conducted an experiment with an 11-month-old baby, Little Albert, to show how emotions are learned. Watson presented a white rat (CS) and a loud noise (UCS) to Little Albert. After several pairings, Albert showed fear (CR) of the white rat. Later, Albert generalised the fear to stimuli that were similar to the CS, such as a beard or a fur coat.

An experiment such as this would not be considered ethical today for the following reasons:

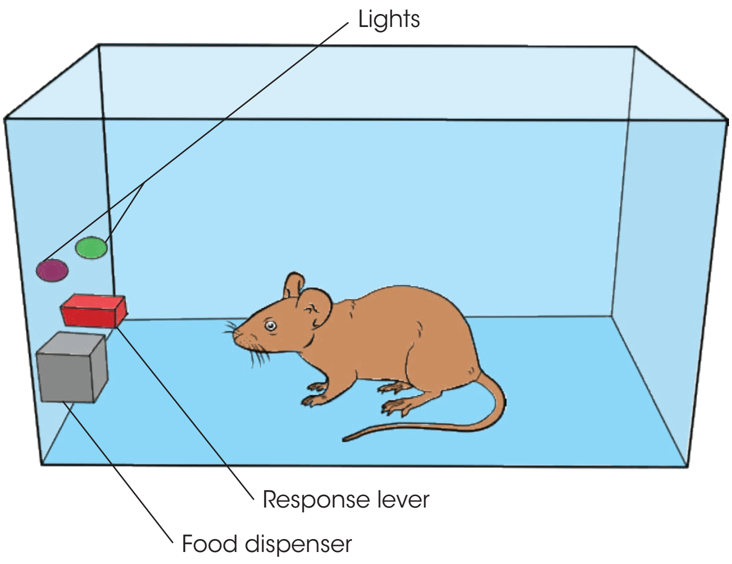
- No informed consent was obtained from Albert's mother and she was not told about the nature of the study, the possible risks and possible consequences.
- The experiment induced fear in a small child and could have had a long-lasting negative emotional effect.
- Watson did not debrief Albert or his mother and explain what the study was about and did not attempt to extinguish the CR.
- Watson published the results of the study without permission and without anonymity (Albert was identified).

Operant conditioning

The theory of operant conditioning as a form of learning had its origins in classical conditioning as well as in animal psychology research from the US. It refers to the fact that in order to get a reward, the person (or animal) does something to the environment, that is, the behaviour operates on the environment to generate consequences. Much of the early work on this sort of learning was conducted with animals and then generalised to humans. E.L. Thorndike (1874–1949) was a leader in the study of animal behaviour as well as the development of several intelligence tests for humans. Thorndike proposed that animals learn responses through experiencing consequences. Animals repeat responses that are rewarded and drop other responses that are punished in some way. This was called Thorndike's **law of effect**. He discovered, through observing the behaviour of cats in puzzle boxes and rats in mazes, that behaviours can be learned if the consequences are rewarded (such as with food).

So, while classical conditioning is learning explained by changing involuntary behaviours such as reflexes through their antecedents (the stimulus), operant conditioning is learning explained by its consequences. Terms such as 'reinforcement' and 'punishment' are associated with operant conditioning.

Figure 2.12 Apparatus used in operant conditioning



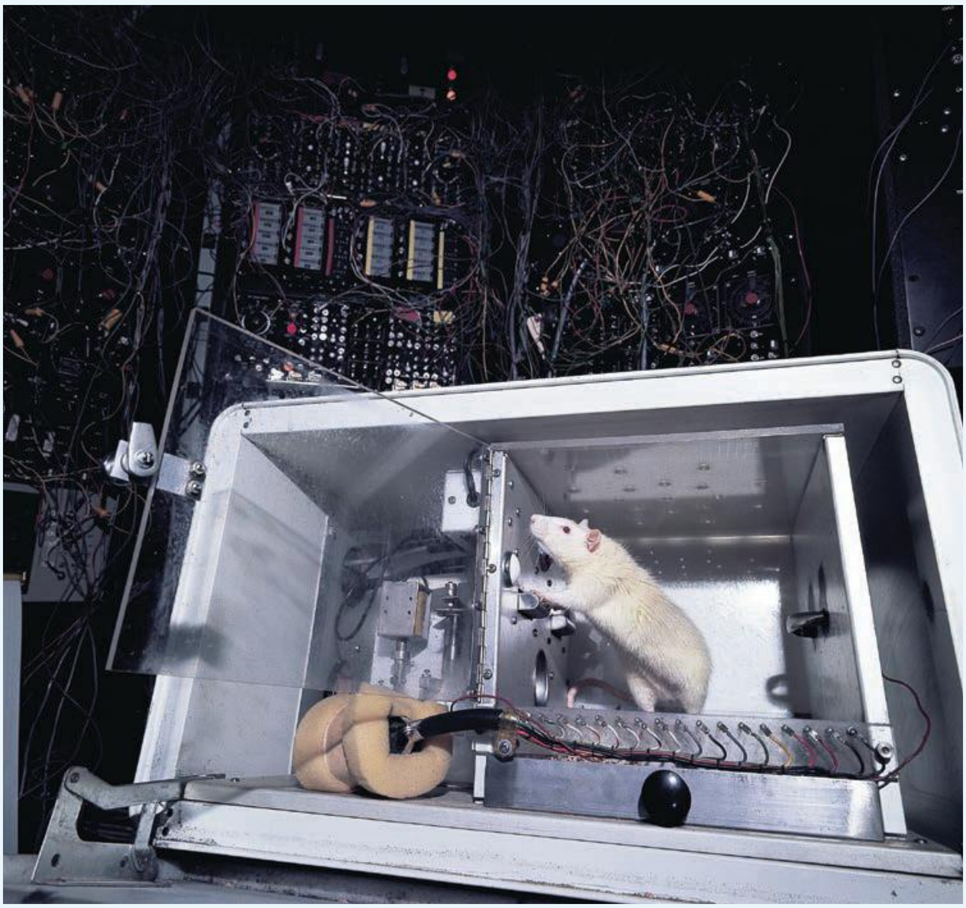
In operant conditioning, reinforcement is contingent on a response and this response results in a reward. There are many experimental techniques associated with operant conditioning. In a typical study, an apparatus like Figure 2.12 is used for rats, hamsters, mice and birds for which lever-pressing is an easily learned behaviour. This is also known as the Skinner box.

In this case, the operant is pressing the lever and the reinforcement is the food. Hungry rats can learn quickly that pressing the lever results in food being dispensed. Subsequent experiments have taught rats to expect a reinforcer by including an extra step. When the lever was pressed, a light came on and food was dispensed. If no light came on, no food was dispensed. Rats then learned to press the lever several times until the light came on and food dispensed. The light coming on only served to increase the frequency of pressing the lever. No new behaviour was learned; what was learned was the frequency of that behaviour.

Broaden your understanding

The Skinner box

The Skinner box is an experimental apparatus devised by Skinner and his colleagues to study conditioning in animals, often rodents and pigeons. A typical box has a number of levers that can be pressed by the animals, as well as a feeding chamber that delivers food or water in response to the lever pressing behaviour that is being learned. These boxes sometimes also contain devices to provide the trigger stimulus such as a light or a buzzer.



Getty Images/Walter Dawn

Figure 2.13 The Skinner box is used to study conditioning in animals.

Unlike in experiments with animals, reinforcement is more intermittent in real life. Researchers have therefore studied (with animals) what can be achieved with different **schedules of reinforcement**. In the example we have been using, the food dispenser can be set to provide reinforcement intermittently instead of after every response. The reinforcement may be provided at fixed intervals (such as every two minutes), at fixed ratios (such as after every tenth lever press) or at variable intervals or variable ratios. The rate of responding then varies in predictable ways according to the schedule of reinforcement. For example, reinforcement after a fixed interval schedule leads to a slow rate of responding but the rate picks up when the next reinforcement is due. In the case of fixed ratio schedule, the animal gets so much food per unit of lever pressing. This leads to a high rate of responding.

Extinction occurs when the reinforcement is absent. Food or other rewards for hungry animals is referred to as primary reinforcement. Secondary reinforcement, on the other hand, refers to reinforcement that does not reduce the drive (hunger) directly. For example, the sight of food may be sufficient reward in its own right. In our example, the food dispenser may emit a clicking noise when food is delivered and over time, the click itself may reinforce lever pressing. Evidence comes from the fact that the response (lever pressing) occurs when the click and food appear simultaneously. If the food is withdrawn, extinction does not occur or occurs much more slowly than when no click is used.

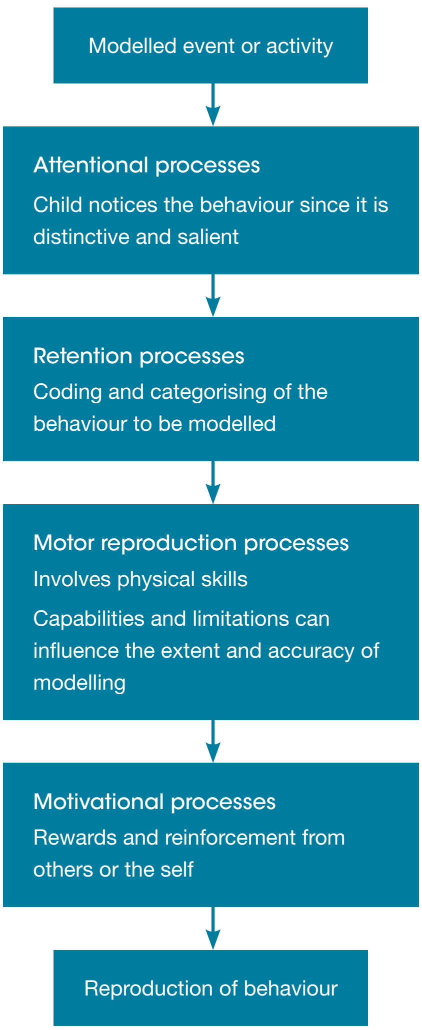


Figure 2.14 Processes of observational learning (adapted from Damon, 1983)

Classical and operant conditioning are today most often associated with J.B. Watson (1878–1958) and B.F. Skinner (1904–1990) respectively, who were interested in the modification of human behaviour. These psychologists are often called **behaviourists** because of their use of stimulus–response models of learning and behaviour. Their work has applications in psychological practice that continue today and are discussed later in this chapter.

Observational learning

The theory of observational learning is sometimes called **modelling** or imitation and was developed by Albert Bandura (1925–). Bandura started out as a behaviourist but found behavioural theory too simplistic for his work on aggression in adolescents. Behaviourists concentrate only on observable behaviours and do not concern themselves with internal mental processes. Reinforcement acts as a consequence, not only as a response that is desirable or undesirable as Skinner had claimed, but also as a reason for the response. So not only does the environment cause behaviour and learning, behaviour can change the environment. Bandura called this **reciprocal determinism**. For example, a young boy joins a new soccer team. He knows no-one and has difficulty making friends. The coach designates another boy to greet him and welcome him to the team – thus changing the environment to assist the new boy participate in the team. Learning also occurs when we observe and imitate the behaviour of others.

Observational learning takes place when a new behaviour is learned or modified as a result of watching others and copying their behaviours, or after watching the consequences of the behaviour of others. Applications of observational learning are found in research on children's aggressive behaviour in playgrounds and in the effects of television viewing on children's behaviour.

Bandura described the processes that he believed accounted for most human learning as modelling, which was considered more complex than observation (Damon, 1983). These processes – attention, retention, motor reproduction and motivation – are outlined in Figure 2.14.

Techniques for modifying behaviour

Behaviour modification is the application of classical and operant conditioning techniques to human behaviour and learning. Behaviour modification uses reinforcement (and sometimes punishment) to modify or change unwanted behaviours and strengthen desirable ones. It is sometimes called **behaviour therapy** because it can be used to treat psychological problems, such as fears or phobias. Behaviour modification builds on the principles of conditioning with the aim of altering the individual's environment and how the individual interacts with that environment. The underlying causes of the behaviours are not considered. That is, there is no interest in why the person fears spiders, for example. Rather, the aim of behaviour modification is to change behaviour to match altered situations. The behaviour is shaped to meet certain consequences.

A typical behaviour modification program is based on answers to the following questions:

- What behaviours are desired or undesired?
- Are these behaviours observable and measurable? (the answer must be 'yes')
- What reinforces these behaviours?
- When are the reinforcements applied?
- What are the consequences of these reinforcements?
- How can the reinforcement pattern be improved?

Positive and negative reinforcement including rewards and punishment

Reinforcement is a consequence that causes a behaviour to occur more frequently. **Positive reinforcement** occurs when a behaviour is followed by a pleasant reward, such as a sticker or a snack food. **Negative reinforcement** occurs when a behaviour is followed by the removal of an unpleasant outcome, such as the cessation of a loud noise.

Punishment is a consequence that causes a behaviour to occur less frequently. It too can be positive or negative. **Positive punishment** is the addition of an aversive consequence (such as a loud noise) and **negative punishment** is the removal of a pleasant stimulus (like taking away a child's favourite toy).

In sport, for example, rewards are often in the form of ribbons, medals and trophies or cups for winning. For children, rewards can be fruit, drinks or savoury snacks. It can be argued that such rewards reduce any internal motivation or drive to participate or compete. It may also focus attention on the reward rather than on participation. Other rewards include scholarships to places like the Western Australian Institute of Sport, being recognised in the street and, for elite athletes, opportunities in the media (TV and radio), in fashion and in advertising. Punishment and negative reinforcement are infrequently used in sport, but when they are used they might take the form of being dropped from the team as a consequence of some inappropriate behaviour on or off the field (thus denying the opportunity of obtaining rewards) or being forced to undertake additional physical training.

Broaden your understanding

A behaviour modification program

As an example of a behaviour modification program to try on yourself, try the following to change how much you exercise each day. Think about the theory of learning with which this aligns best.

>

The **single case design** (using yourself as the only participant, the 'case') depends on repeated measures on the same person over time. It is called an A–B design, where A = baseline and B = intervention. Observations are made in both conditions, over time, and you look for differences in patterns of performance. At baseline (A) you measure how much you exercise each day per week day, for a period of at least one week. In the intervention (B), you try to increase the amount of time you exercise by giving yourself a reward (though not chocolate!) or by someone else rewarding you through praise or money (say $2). You are looking for an increase in the amount you exercise each week day.

At baseline, measure the amount of exercise as the number of minutes you spend exercising per day. During intervention, set a target with suitable reward or reinforcement, and measure and record the number of minutes you spend exercising. Then graph the data over a three- or four-week period.

From this graph of a participant (the histogram in Figure 2.15), it can be seen that exercise is not maintained at a high rate (30 minutes or more per week day). Can you think of reasons why the high rate is not maintained?

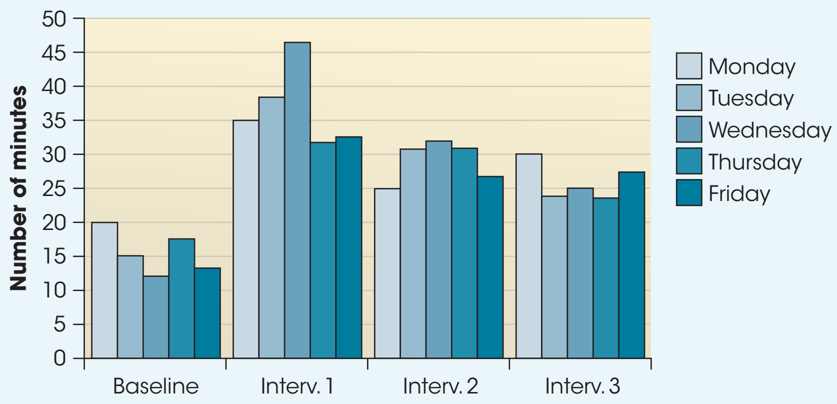


Figure 2.15 The number of minutes spent exercising at baseline and then in three intervention weeks

Have a go yourself at this or try a similar behaviour modification program. Areas that you might want to try include: increasing exercise, increasing time spent studying, increasing time spent with family, or spending more time on a hobby. Perhaps enlist some friends to engage in this type of behaviour modification to assist in motivation particularly to maintain the program. Select an appropriate time (one in which you can realistically expect to change your behaviour such as three weeks). Did you use positive or negative reinforcement? Measure your success.

Token economies

Token economies are artificial systems of reward and reinforcement where symbolic markers, such as coloured counters or fake money, are used to reward behaviour. These markers can then be exchanged for something more tangible, such as goods and privileges. It is a system that has been widely used in classrooms, psychiatric hospitals and prisons to alter undesirable behaviours. Token economies are more effective than simple reinforcement schemes, because, in reinforcement, the person whose behaviour is being changed can become 'full'. That is, the person ceases to respond to the reinforcement (such as a chocolate square) because they are full. The accumulation of counters, points or gold stars leads to a secondary reinforcer (a DVD, a new T-shirt), so you can never get full as such, and the changes to the behaviour are likely to continue. Tokens are not usually withdrawn as a penalty; instead, a different, unpleasant, consequence is given if a penalty is required. Slow accumulation of tokens means that secondary goals are not attained.

A criticism of token economies that are used in places like psychiatric hospitals and prisons is the difficulty of maintaining improvement in behaviour once the patients or inmates have left the institution. Tokens need to be replaced with other social reinforcers and this is often not very successful. An example of a scheme that does work is Alcoholics Anonymous, where a behavioural contract (not to drink alcohol) is set as a mutually agreed-upon standard of behaviour for all members of a group. This acts as a reinforcer for all the members of the group and can be effective to maintain abstinence.

Similar schemes are also seen in loyalty programs such as those seen with hotel chains, frequent flyer programs, casino chips and 'flybuys', where points and tokens are accumulated for later use, when they are exchanged for cash or for buying gifts, flights or luxury hotel accommodation.

Systematic desensitisation

Systematic desensitisation is the application of classical conditioning to fears and phobias in humans. Fears and phobias are regarded as undesirable behaviours and the idea is to replace them with more productive and desirable behaviours, usually a more appropriate response to the frightening situation or event, such as going to the dentist or exposure to spiders. The fear response is replaced with a more relaxed response and the first part of therapy is to practise relaxation techniques. This step is important since one response is inhibited because it is incompatible with another. In the case of phobias, fears involve tension and tension is incompatible with relaxation. In other words, you cannot be tense and relaxed at the same time.

Systematic desensitisation is undertaken by a psychologist who has been consulted when a person realises he or she has a problem with a fear. The psychologist will generally try to find the extent of the problem: Is it a fear of small spiders? Large spiders? All spiders? Live spiders? The psychologist will also generally try to find the source of the problem. Even though this does not play any part in the therapy, it is useful to know if there was a specific event that triggered the fear, and how much the problem interferes with daily living.

The process of systematic desensitisation involves drawing up a list of the most fear-provoking situation (a spider crawling up your arm, for example) to the least (a picture of a spider). The psychologist gradually introduces these, from least to most fearful, during therapy. This is called **graded exposure**. The person is first taught to relax generally, then is exposed to the least frightening situation or event and practises the relaxation techniques until she is comfortable enough to proceed to the next least-frightening situation, and so on, until able to relax with a live spider crawling up her arm. Obviously, all of this takes place over time, and the person is assisted with relaxation techniques and is also given cognitive arguments about the real danger ('none') of each step. Systematic desensitisation is used widely to treat fears and phobias and has remarkable success.

Science Photo Library/Lea Paterson

Figure 2.16 Successful systematic desensitisation

Figure 2.17 CBT can help with depression.

Cognitive behaviour therapy (CBT)

Cognitive behaviour therapy is a technique used by psychologists that is based on the premise that cognitions (thoughts) influence feelings and behaviours and that subsequent behaviours and emotions influence thoughts. In CBT, the therapist helps the client identify unhelpful thoughts, feelings or emotions. These are unhelpful because they are causing distress and are a distraction to everyday living. As the name suggests, CBT has a cognitive component and a behavioural component. In behaviour therapy, the therapist helps to change behaviour through behaviour modification, relaxation and other behavioural change techniques. Cognitive therapy is based on the theory that distressing emotions and behaviours are the result of maladaptive thinking. It consists of replacing the dysfunctional thoughts with ones that can be managed, and is another important component of CBT (Australian Psychological Society, 2010).

CBT can be used to treat depressive disorders, anxiety disorders (for which it is highly recommended and successful), post-traumatic stress disorder (PTSD) (which uses trauma-focused CBT), obsessive-compulsive disorder (also used highly successfully), adjustment disorder, substance use disorders, childhood behavioural disorders and childhood anxiety disorders. CBT has also been shown to be cost-effective, that is, the benefits outweigh the costs relative to other treatments (Australian Psychological Society, 2014).

Table 2.9 outlines some of the core principles of CBT (from Australian Psychological Society EQUIP, 2013).

Table 2.9 Principles of CBT

Principle	Description
CBT concentrates on the here-and-now	CBT does not focus on the causes or the origins of the problem
CBT requires active participation by the client	The client plays an active role in treatment by helping set goals, determining the agenda for each sessions and completing assignments between sessions
CBT is based on an educational model	CBT aims to empower the client to manage problems better now and in the future by being able to work on their own strategies for identifying and challenging unhelpful thoughts and planning exercises for behavioural change
CBT is problem-focused and goal-oriented	After the therapist and client determine the problems to be addressed, they are translated into specific goals for therapy; there is a shared understanding of the purpose of therapeutic sessions
CBT is designed to be a time-limited treatment	CBT aims to effect change within a fixed time period, negotiated at the start of therapy

CBT is used by many psychologists, as well as psychiatrists and counsellors. Some psychologists specialise in this form of therapy, while others will use some of the techniques to help a person work through particular difficulties.

CBT has been used with some limited success in treating schizophrenia, a mental illness characterised by distorted thinking and emotions, by reducing some of the symptoms. CBT can also be used to assist families in helping their family member (the patient) to avoid relapsing and having another episode of schizophrenia. In general, psychological therapy, such as CBT, works well in conjunction with medication for the treatment of schizophrenia, and works better than medication alone.

Depression has a strong effect on the way people think. For example, in situations that could end positively or negatively, people who experience depression are more likely to think a situation will end negatively. In part, CBT will help replace negative thoughts with positive ones, as well as reinforcing positive actions. CBT has been shown to be particularly successful in the treatment of depression and anxiety, and has demonstrated health outcomes that are in some cases better than the outcomes after medication alone. CBT has also proved to be successful in reducing relapse after treatment for depression and anxiety.

Broaden your understanding

Treating depression with CBT

CBT works to treat depression in three ways:

1. *CBT helps identify and change negative thinking associated with depressed feelings.* If you are depressed, you may feel hopeless, a lack of energy, empty and/or anxious. These feelings make it difficult to think positively about yourself, your relationships with other people and life in general. CBT helps you to look at situations from another angle by reviewing how you managed certain events and situations in your life. Together with a psychologist, you look at events in your life and talk about all the possible interpretations of those events. In this way, negative or unhelpful thoughts are identified along with possible helpful interpretations of a situation. Through this process, you learn how to replace negative thinking patterns with more positive ones. This helps you to feel better about yourself, your relationships and life in general.
2. *CBT helps to focus on the positive things.* If you are experiencing depression, it is likely that you will not be doing many of the things that you used to enjoy. This can be cyclical: doing things that are less fun makes you feel sad, which in turn makes you feel less like doing something enjoyable. In this situation, it is important that someone supports and helps motivate you. Using CBT, a psychologist can work with you to gradually increase the fun in your life and reinforce the positive steps that you are taking.
3. *CBT helps to manage your problems.* Managing problems is part of everyday life, but it can feel overwhelming when you have depression. CBT will give you strategies for managing problems both small and large so they do not get on top of you.

Usually, CBT is structured with regular appointments with a psychologist. These will typically be weekly at the start and become less frequent over time. Many psychologists will also agree for you to come and see them for a set length of time (for example, weekly for eight weeks) and then see how you go. Reviewing progress is an important part of the process. The appointments may vary in length, but are usually an hour long. It is not uncommon for psychologists to give their patient some tasks ('homework') to do between appointments.

CBT is also used to treat anxiety, shyness, smoking cessation, obesity and all manner of activities where changing a person's thinking can lead to changes in behaviour.

CHAPTER SUMMARY

Cognition

Psychological concepts and processes associated with memory and their relationship with behaviour

- Description of memory
- Multi-store model of memory – Atkinson and Shiffrin (1968)
  - Components of memory
  - Characteristics of memory stages
  - Memory process
- Sensory register
  - Duration, capacity, encoding
    - Iconic and echoic memory
- Short-term memory (working memory)
  - Duration, capacity, encoding
    - Maintenance rehearsal and elaborative rehearsal
  - Working memory model – Baddeley and Hitch (1974)
- Long-term memory
  - Duration, capacity, encoding
  - Procedural memory
    - Implicit memory
  - Declarative memory
    - Explicit memory
    - Semantic and episodic
- Recall, recognition, relearning
- Forgetting: Retrieval failure, interference, motivated forgetting, decay

Theories and processes of learning

- Classical conditioning
  - Ivan Pavlov
  - J.B. Watson
- Operant conditioning
  - Thorndike and Skinner
- Observational learning
  - Bandura

Techniques for modifying behaviour

- Positive and negative reinforcement including rewards and punishment
  - A behaviour modification program
- Token economies
- Systematic desensitisation
  - Application of classical conditioning
- Cognitive behaviour therapy (CBT)
  - Principles of CBT

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Sensory register

2 Declarative memory

3 Motivated forgetting

4 Classical conditioning

5 Punishment

Multiple-choice questions

1 Memories can be stored:
- A for a short time.
- B for a long time.
- C via a network of neurons.
- D all of the above.

2 Rehearsal enables:
- A practising.
- B encoding.
- C retrieval.
- D brain stimulation.

3 Information retrieval is:
- A recall.
- B recognition.
- C relearning.
- D all of the above.

4 Forgetting can be a result of:
- A studying in bed.
- B not repeating lists of numbers.
- C getting older.
- D not taking daily vitamins.

5 Learning is best described as a change of behaviour as a result of:
- A being at school.
- B watching your parents.
- C experience.
- D genetics.

6 The use of rewards for achievement reflects:
- A positive reinforcement.
- B negative reinforcement.
- C positive punishment.
- D negative punishment.

7 A test question such as this utilises:
- A relearning.
- B recognition.
- C recall.
- D reinforcement.

8 Tying your shoe laces this morning required you to use:
- A explicit memory.
- B episodic memory.
- C implicit memory.
- D semantic memory.

9 Old Jimmy takes his coffee the same as the barista's grandfather. How is it that, from the beginning, the barista never got Jimmy's order wrong?
- A The use of chunking
- B The use of elaborative rehearsal
- C The use of maintenance rehearsal
- D The use of the visuo-spatial sketchpad

10 The first step in systematic desensitisation is:
- A practising relaxation.
- B identifying your phobia.
- C making an ascending list of fears.
- D phobic flooding.

11 A prominent aspect of the Little Albert experiment was:
- A extinction.
- B spontaneous recovery.
- C habituation.
- D generalisation.

12 Which theorist would put more emphasis on internal, cognitive processes?
- A Watson
- B Bandura
- C Thorndike
- D Skinner

Apply and relate psychological understanding

Short-answer questions

1 Explain the difference between the three measures of memory: recall, recognition and relearning.

2 You want to telephone your friend. Explain how you might go about remembering the number (without finding it in your 'Contacts' on your mobile and dialling direct).

3 Describe the phonological loop.

4 Describe cognitive behaviour therapy (CBT) as a treatment for depression.

5 Explain systematic desensitisation.

Memory experiment

Look at the numbers below:
Row 1: 4 6 9 2
Row 2: 5 8 1 7 9
Row 3: 9 4 0 1 3 5
Row 4: 0 7 5 1 2 8 6
Row 5: 8 6 3 0 9 5 2 1
Row 6: 5 1 3 1 2 2 4 7 8
Row 7: 1 2 0 3 5 7 9 1 3 4
Row 8: 6 2 9 0 1 7 8 3 5 7 6
In pairs, one of you reads the numbers out, one row at a time, and asks the other person to repeat them back in the same order. Try to read the numbers out at a slow, steady rate. Note each row that the person repeating numbers remembers correctly. How many numbers were repeated correctly? What is this phenomenon?

UNIT 3

CHAPTER 3

Others: Relational influences

Key knowledge and understanding

Types of solutions to resolve conflict
- Imposed solutions
- Distributive solutions
- Integrative solutions

Techniques for resolving conflicts
- Mediation
- Negotiation
- Counselling

Socialisation processes observed within families
- Attachment – Harlow, Bowlby, Ainsworth
- Features of different parenting styles

Relational influences

Relationships are important to both individuals and groups. Positive relationships are necessary not only for our wellbeing, but also for our physical survival. For this reason, interpersonal and intergroup conflict is a source of concern and has been the subject of a great deal of research by social scientists, including psychologists.

Figure 3.1 Relationships may vary in closeness but are important in many ways.

Shutterstock.com/Rawpixel.com

Dreamstime.com/Sandor Kacso

Conflict occurs when there is a perception that two parties, whether individuals or groups, have incompatible goals, ideas or behaviour, or when an individual's needs are not being met. Even though the goals, ideas and behaviour may not in fact be incompatible, the belief that this is the case is sufficient to result in conflict. When people are involved in conflict, they become enmeshed in a social process that is potentially destructive and can produce results that no-one wants.

An odd phenomenon called **mirror-image perceptions** occurs when people are in conflict. Each party tends to form reciprocal and distorted perceptions of the other that are remarkably alike. Depending on the source of the conflict, each is likely to describe 'them' in terms such as incompetent or untrustworthy, or even evil or immoral, while 'we' are a model of competence, integrity, virtue and high moral values. This type of behaviour can be seen in a wide range of conflicts: disagreements between siblings, family custody disputes, industrial wrangling and international disputes.

Figure 3.2 Why is this bedroom messy? Biased attributions can lead to conflict.

Getty Images/Photofusion

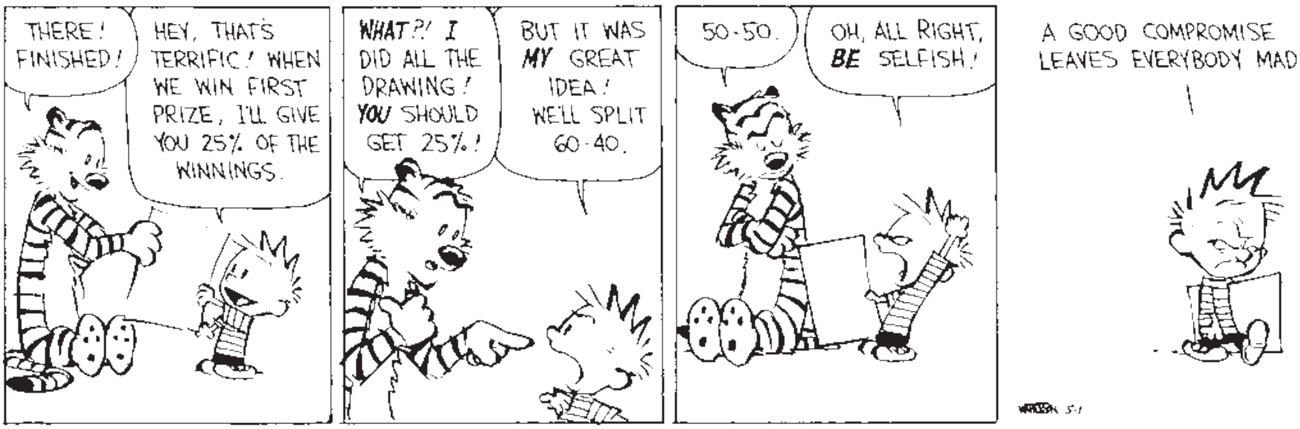
Biased perceptions like these can lead to an escalation in hostility when biased attributions are made for behaviour – when people assume that 'our' motives are positive and 'their' motives are negative. Internationally, we can see this happening in the dispute about nuclear arms: 'we' need them for self-protection; 'they' want them for aggression. Even in simple domestic disputes, we can see this sort of behaviour. A mother may be convinced that her son leaves his room messy 'just to annoy me', while the son is equally convinced that his mother tidies his room to irritate him.

Types of solutions to resolve conflict

There are various solutions to conflicts, some described below.

Imposed solutions

Imposed solutions are dictated solutions. Sometimes, for example, one party is 'stronger' or has more authority and will impose or force a solution. At other times, a third party may impose a solution, as when a mother settles a dispute between brothers as to who can use the family car on a Saturday night. Imposed solutions usually lead to one party winning. Not surprisingly, this type of solution usually leads to one party being dissatisfied and the underlying conflict staying unresolved.



Distributive solutions

Distributive solutions involve compromise or mutual concessions. This type of solution can be seen in industrial disputes where wages may be set at a level somewhere between that desired by employers and that desired by employees or in disputes between siblings at home regarding who can take charge of the remote control for the television and they agree to take it in turn.

Integrative solutions

Integrative solutions are often called win–win solutions because both sides can benefit from the decision reached. Finding an integrative solution is more difficult than reaching a compromise because it involves understanding both parties' motives, values and goals. This type of solution tries to ensure that the motives of each party are addressed, rather than focusing on explicit demands.

Follett (1940; cited in Thompson and Hastie, 1990) provided a classic example of the difference between distributive and integrative solutions when he discussed a dispute between two sisters over an orange. The sisters agreed to compromise and cut the orange in half – a distributive solution. One sister drank the juice and threw the peel away; the other used the peel in a cake and threw the juice away. The sisters overlooked the integrative solution that would have been for one sister to have all the juice and the other to have all the peel!

Table 3.1 summarises these three solutions to resolve conflicts.

Table 3.1 Solutions to resolve conflict

Solution	Description
Imposed	One party's position is imposed or forced on the other
Distributive	Involves compromise and mutual concession
Integrative	Win–win solutions where both parties are satisfied with the outcome

Broaden your understanding

Solving conflict

Consider a conflict between a mother and her son over his messy room, and think about how we might achieve an integrative (win–win) solution to this problem. In talking with the mother and son, we have found that the reason the son leaves his room messy and objects to his mother tidying it is that he wants to be given more independence and he wants some personal, private space in the house. The mother has said that she is offended by the smell coming from his room as a result of him leaving his used sporting gear lying around, and she also does not like his mess being on display when her friends come to visit the house.

See if you can generate a win–win solution to this conflict.

Techniques for resolving conflicts

Techniques for helping individuals and groups to resolve conflict have one factor in common: they all involve getting the parties to talk to each other. How often do we hear someone say, 'I'm not speaking to him/her'? When this happens with individuals, we might think the behaviour is immature, but this type of behaviour can have serious consequences when we are talking about family or industrial disputes or international conflict. If parties are to attempt to find solutions to conflict, they must communicate. In ideal situations, communication is directly between the parties involved. At times the situation may be so explosive that an intermediary – a counsellor or a mediator – is required.

Mediation

Mediation involves bringing in a third party to help settle conflict. Mediators help the parties in a dispute to focus on the issues and reach a voluntary solution, either distributive or integrative. In arbitration, which is a form of mediation, the third party has the right to hand down a decision after listening to both parties present their arguments. This leads to an imposed solution (as described previously).

Third-party intervention has several benefits. Mediators can arrange times, venues and agendas for meetings so that these do not add fuel to the conflict. In addition, a skilful mediator can improve relationships between the parties, helping them see common ground, bring fresh ideas and perspectives and stop the parties from getting themselves into untenable positions.

Negotiation

Negotiation involves parties who have some shared and opposing interests coming together to try to reach an agreement. The parties may be countries trying to reach a trade agreement, or a group of friends trying to come to an agreement about what movie to see on Saturday night. Successful negotiation arrives at an integrative solution, but at times the process breaks down because the parties fail to understand each other's positions and goals.

Thompson and Hastie (1990) investigated the process of negotiation in a study involving participants who were assigned to the role of a buyer or seller of a car. They found that most negotiators entered into negotiation expecting the other party's interests to be completely opposed to their own. Negotiators typically learned about the potential for joint gain during negotiations; the earlier that this realisation was reached, the better the outcome was for both parties. However, a substantial number of negotiators failed to realise that they had interests that were completely in common with the other party and so ended up settling for solutions that were less than ideal.

Counselling

Counselling is often sought when conflict arises within families. One or both parties in conflict may work with a counsellor in an effort to develop skills to help them deal with the conflict or to solve the conflict directly. While counsellors work from a variety of theoretical bases, they should be professionally trained. Counselling psychologists have six years of university education and training, and in particular recognise people's strengths and resources to improve psychological functioning. They will try to help their clients solve their own problems rather than provide them with solutions. Relationships within families frequently break down because of poor communication. Counsellors will often help their clients improve their listening skills so they actually hear what the other party is saying. They will also help clients to develop assertiveness, so they can express their opinions and concerns clearly and forcefully without becoming aggressive. You can see that there is a coaching element involved with counselling and that the skills learned not only help to settle the present or initial conflict, but give individuals the means to avoid future conflict.

Table 3.2 provides a summary of these three approaches to resolving conflict.

Table 3.2 Summary of techniques for resolving conflict

Technique	Description
Mediation	A third party is brought in to help resolve the conflict; arbitration is a form of mediation in which the third party has the right to hand down a decision after listening to both parties present their arguments
Negotiation	Where opposing parties try to reach mutual agreement
Counselling	A counsellor assists the conflicting parties to come to their own resolution of the problem

Broaden your understanding

Divorce mediation – an application of conflict resolution

In recent times, mediation and other forms of dispute resolution have been used in Australia and other countries as a means of dealing with conflict between parting parents. These techniques have been used partly to try to reduce the burden on the family law courts, but, more importantly, to reduce the negative impact of ongoing litigation, such as adversarial settlement, on children and family relationships generally. As noted above, mediation involves third parties to help settle conflict. In divorce mediation, a trained mediator can help the parties, who are often at odds with one another, to see common ground, and to bring fresh ideas and perspectives, and stop parties from getting themselves into untenable positions. It can be invaluable if there are children involved and the parties cannot agree on a sensible arrangement that is in the children's best interests. Mediation, therefore, has been shown to have clear benefits in conflicts such as those between married partners.

Longitudinal research by Robert Emery and his colleagues (2005) evaluated the effectiveness of mediation as opposed to adversarial settlement in court for separating parents. Over a 12-year period, they followed the progress of separating couples who had been randomly allocated to either a mediation or a court settlement group. They found that mediation can:

- settle a large percentage of cases otherwise headed to court;
- possibly speed settlement, save money and increase compliance with agreements;
- increase party satisfaction;
- lead to improved relationships between non-residential parents and children; and
- lead to improved relationships between divorced parents.

Emery and his colleagues attributed these positive outcomes and solutions from mediation to helping parents see the need for commitment to ongoing, long-term parenting cooperation; providing an opportunity, even though brief, to address underlying emotional issues; helping parents establish businesslike relationships; and avoiding divisive negotiations at a critical time for family relationships.

Figure 3.3 Mediation can reduce the negative impacts of divorce on children.

Mediation enabled a greater number of contact visits from non-residential parents compared to litigation (30 per cent versus 9 per cent had weekly or more frequent contact) while at the other extreme, 39 per cent of non-residential parents undergoing litigation procedures had very infrequent contact (once a year or less) compared to the 15 per cent receiving meditation. This is shown in Figure 3.4.

Adapted from Emery, Sbarra & Grover, 2005, p. 31

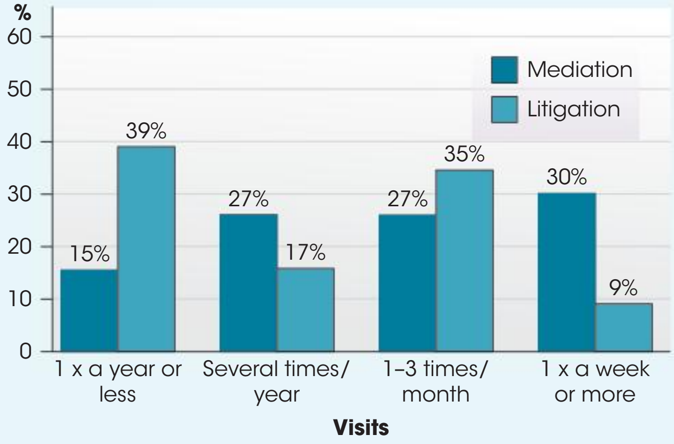


Figure 3.4 Contact between non-residential parents and children 12 years after mediation or litigation (adversarial settlement) dispute resolution

Broaden your understanding

Research in action – the effects of divorce on children

When we read research articles on topics such as the effects of divorce conflict on children, we can find results that, on the surface at least, seem to be directly contradictory. Some research indicates an increased risk for a variety of negative outcomes in children whose parents have divorced, while others have found evidence of overwhelming resilience in such children (for example, Emery, Sbarra & Grover, 2005; Kelly & Emery, 2003). It is important that we understand differences in results such as these.

There are a number of questions we need to ask about this kind of research and the contradictory findings. We first ask if any independent research group has replicated the findings in the disagreeing articles. If another group that has no vested interests in supporting the findings can repeat the study on a different sample of participants, we can be a lot more confident that the results are not due to some peculiarity in the sample or to a biased interpretation of the findings.

If both sets of contradictory findings receive support, we should then ask if there are any differences between the studies that could result in different findings.

These include the:

- recruitment of participants
- measures used
- method used
- data analysis.

If we question the research on the effects of divorce on children, we can find some major differences between the studies in terms of both the measures they have used and the method they have followed.

When looking at measures of outcomes for children of divorced parents, we find that researchers have typically focused on either mental health measures, such as depression, or they have looked at measures of emotional pain. Researchers who have looked at mental health have typically reported finding resilient children who are dealing with their lives successfully and have no higher incidence of depression than children in intact families. Researchers who have looked at emotional pain found that most children of divorced parents report substantial and ongoing 'pain', mentioning such things as wondering if their (non-residential) father loves them and feeling that they have had a tougher childhood than other children. When we look at these differences in measures, we can see that both sets of findings – the presence or absence of negative outcomes – can be correct. It all depends on how we define and measure outcomes.

Studies have also varied in aspects of the method they have used to conduct the research. One difference that is noticeable in studies of the effects of divorce is the timeframe of the study. Studies that have looked at the effects of divorce on children shortly after divorce typically report a higher level of negative outcomes for children than those that have looked at outcomes over a longer time. In studies on the effects of divorce, there are possible confounding variables, such as the ages of the children, remarriage or re-partnering of the parents, the degree of conflict between the parents and the amount of contact with both parents.

Socialisation processes observed within families

Throughout our lives we acquire the beliefs, values and behaviours that are thought to be important and appropriate to function effectively as members of society. This process is known as **socialisation**. While a lot of socialisation goes on in our early years, it is a process that is ongoing as we grow older and have to adjust to changing roles. How we undergo socialisation, and what the most important influences on us are at different stages in our lives, are of interest to developmental and social psychologists.

The factors that affect our socialisation are known as **agents of socialisation**. Some of the agents of socialisation that have been studied are families (parents, grandparents), schools, mass media, religious institutions and clubs.

Broaden your understanding

Personal influences

Which of these agents do you think influences you the most?

Copy the table, and from your own experiences and observation of others, note what you consider to be the major agents of socialisation at different stages of the lifespan.

Stage of lifespan	Major agents of socialisation
Preschool	
Primary school	
Secondary school	
Young adulthood	
Middle adulthood	
Later adulthood	

Attachment

Attachment has a specific meaning in psychology. It refers to the formation of a strong emotional tie between a primary caregiver and their baby, which is important in the development of later socialisation of the infant. It is claimed that there is a sensitive period during which such bonding can occur and that failure to establish attachment can lead to harmful effects in later life, such as poor social and emotional development. It has also been claimed that disruptions to attachment can lead to similar poor outcomes. We will look at the research that has led to these claims.

Table 3.3 summarises the main theorists and their contribution to the study of attachment. They need to be considered in chronological order and will be discussed in this chapter.

Table 3.3 Theorists of the study of attachment

Theorist	Contribution
Harry Harlow (1905–1981)	Attachment as contact comfort to a terry-towelling surrogate mother in rhesus monkeys.
John Bowlby (1907–1990)	Attachment as comfort for infants from their mothers. Failure to form attachment leads to maternal deprivation. First theory of attachment to consider both mother and infant.
Mary Ainsworth (1913–1999)	Measurement of attachment by the 'Strange Situation' and classification of types of infant attachment.
Michael Rutter (1933–)	Indicators of attachment shown for fathers, siblings, peers and even inanimate objects as well as mothers. The quality of the attachment bond is the most important factor, rather than just deprivation in the critical period.

Harlow – attachment in monkeys

In the 1950s and 1960s, an American psychologist, Harry Harlow, conducted some experiments to measure the development of attachment of infant rhesus monkeys to their mothers. He believed that such emotional bonds were important for subsequent healthy development. His original study (Harlow, 1959) investigated the role of nursing in attachment in eight infant rhesus monkeys that had been separated from their mothers at birth. (Nowadays, there are ethics committees to decide on the appropriateness of research on humans and animals, and experiments such as this would probably not be conducted.)

The monkeys were each reared separately in a cage that contained two surrogate mothers, which were substitutes for their real mother and similar in shape and size but made of wire mesh. One was covered in cloth (terry towelling) and the other left uncovered. A baby's bottle was attached to one of the surrogates, where the mother's breast would be. Half the infants had the bottle attached to the wire-mesh surrogate (group 2) and the other half to the terry-towelling surrogate (group 1). Harlow predicted that if an infant's attachment to its mother was based on feeding, the infant monkeys should prefer, and become attached to, the surrogate mother with the bottle. But this did not happen.

To Harlow's surprise, he discovered that, regardless of which surrogate was providing food via a bottle, the infant monkeys spent more time clinging to the terry-towelling surrogate than to the wire-mesh one. Although the two groups of monkeys drank similar amounts of milk and their weight increased at the same rate, all eight monkeys spent more time clinging to the cloth surrogate.

The preference for the cloth surrogate was tested through the introduction of stressful situations for the infants. For example, Harlow placed some frightening objects into the cages such as a mechanical spider and a small teddy bear beating a drum. These objects could be set in motion inside the cages. It was found that in such situations, all infants first sought contact with the cloth surrogate, regardless of whether it had the feeding bottle or not. That is, in the frightening situation, the infants showed a preference for the cloth substitute over the wire-mesh one.

Getty Images/The LIFE Picture Collection/Nina Leen

Figure 3.5 Surrogate mothers – why do you think the monkey prefers the cloth surrogate?

Aim
To find out whether provision of food or contact comfort is more important in the formation of infant–mother attachment

Participants
Eight newborn rhesus monkeys separated from their mothers immediately after birth

Procedure

Group 1
Four monkeys isolated in cages where a cloth surrogate mother provided food and a wire surrogate mother did not

Group 2
Four monkeys isolated in cages where a wire surrogate mother provided food and a cloth surrogate mother did not

Independent variable
Provision of food by either a cloth or wire surrogate mother

Dependent variable
Amount of contact time spent with cloth and wire surrogate mothers

Results
All monkeys in both groups 1 and 2 spent far more time with their cloth surrogate than they did with their wire surrogate, regardless of which provided food

Conclusion
Contact comfort is more important than feeding in the formation of infant–mother attachment in rhesus monkeys

Generalisation
Contact comfort is likely to be a crucial factor in human infant–parent attachment

Adapted from *Psychology for the VCE Student Units 1 & 2*, 4e, Grivas and Carter, © 2009; reproduced with permission of John Wiley & Sons Ltd

Figure 3.6 A flow chart of Harlow's experiment

Harlow concluded that 'contact comfort', as provided by the cloth surrogate, was more important in the formation of mother–infant attachment than feeding. He generalised this conclusion to the human mother–infant bond. It should be noted that generalisation from animal behaviour to human behaviour should be treated cautiously; nonetheless, Harlow's pioneering work did encourage psychologists to conduct studies into attachment and the effects of different types of attachment on subsequent social behaviour in humans.

Bowlby and Ainsworth – attachment in humans

For a long time, socialisation in the family was seen as being a one-way process with parents – especially the mother – shaping children's character and behaviour. These days, researchers recognise that families are complex social systems and see socialisation as involving a network of influences.

John Bowlby (1907–1990) was an English psychologist and psychiatrist who studied the predisposition of infants for constant contact with their mothers. He was not a researcher and did not conduct experiments as such. Rather, he drew on various strands of theoretical thinking and clinical experience when developing his theory of attachment as a system that had evolved to increase the infant's chances of survival.

According to Bowlby's evolutionary perspective, children who were always close to their mothers would have avoided predators and grown up to have children of their own. Bowlby believed there was an optimum time (a 'sensitive period') when infants became imprinted by early contact with their mothers. Imprinting refers to the precise and permanent learning that occurs very early on in an infant's life to form a bond, usually with the mother. This bond is termed 'attachment' and the bond occurs in animals too.

In Bowlby's theory, mothers have a biological need to be close to their child, which is why mothers respond to crying and smiling. Bowlby's was the first theory of attachment to consider the pair and not just the infant. Bowlby also warned of the dangers to children of the failure to experience a warm and reciprocal relationship with their mother, namely the inability to form healthy relationships when older. He assumed the process of infant bonding was essential for attachments in adulthood.

Although Bowlby did not rule out the possibility of other attachment figures for a child, he did believe that there should be a primary bond that was much more important than any other, usually with the mother. Bowlby believed that this attachment is different from any other attachment. Bowlby suggested that the nature of **monotropy** (attachment as a close bond with just one attachment figure) meant that a failure to initiate, or a breakdown of, the maternal attachment would lead to serious negative consequences.

Figure 3.7 Attachment between a mother and child

Source to come

Children behave in ways that elicit contact or proximity to the caregiver. When children experience heightened arousal, they signal their caregiver. Crying, smiling and movement are examples of signalling behaviours. Instinctively, caregivers respond to their children's behaviour, creating a reciprocal pattern of interaction. Bowlby (1952) claimed that mothering is ineffective if delayed until after 12 months; in other words, there is a critical period. If the attachment is broken or disrupted during the critical period of the first 12 months, the child will suffer irreversible, long-term consequences. Bowlby used the term **maternal deprivation** to refer to the separation from, or loss of, the mother, as well as to the failure to develop an attachment.

Broaden your understanding

Is Bowlby's theory relevant today?

The underlying assumption of Bowlby's maternal deprivation hypothesis is that disruption of the attachment between infant and primary caregiver (that is, the mother) could result in long-term cognitive, social and emotional difficulties for that infant. The implications of this are vast. Consider these contemporary questions about child care:

- If Bowlby's assumption is true, should the primary caregiver leave her infant under the age of 12 months in child care while she returns to work?
- Should child care be full-time or part-time?
- What age should the child be when he or she enters child care?
- Are there any risks to the attachment bond with the mother if the child attends child care?

Some of the discussion later in the chapter may help your thinking about these questions.

The child's attachment relationship with his or her primary caregiver leads to the development of an internal working model or a cognitive framework comprising mental representations for understanding the world, the self and others. It is a conceptual model only and does not exist as an entity. People's interaction with others is guided by memories and expectations from their internal model that influence and help to evaluate their contact with others. As children develop, these become part of their personality and thus affect their understanding of the world and future interactions with others. According to Bowlby, the primary caregiver acts as a prototype for future relationships via the internal working model. There are three main features of this internal working model:

1. a model of others such as the mother being experienced as trustworthy
2. a model of the self as being valuable and important to others
3. a model of the self as having been effective when interacting with others, such as with their mothers.

These three elements of the model guide future social and emotional behaviour.

The long-term consequences, therefore, of maternal deprivation might include the following for the child:

- delinquency;
- reduced intelligence;
- increased aggression;
- depression; and/or
- an inability show affection or concern for others (affectionless psychopathy).

Bowlby's ideas had a great influence on the way researchers thought about attachment and much of the later discussion of his theory has focused on his belief in monotropy. Although Bowlby did not dispute that young children form multiple attachments, he still contended that the attachment to the mother is unique in that it is the first to appear and remains the strongest of all. Later, Michael Rutter (1972) pointed out that several indicators of attachment (such as protest or distress when the attached person leaves) have been shown for a variety of attachment figures – fathers, siblings, peers and even inanimate objects.

Critics such as Rutter have also accused Bowlby of not distinguishing between deprivation and privation – the complete lack of an attachment bond rather than its loss. Rutter stressed that the quality of the attachment bond is the most important factor, rather than just deprivation in the critical period.

In his 1972 book *Maternal Deprivation Reassessed*, Rutter suggested that Bowlby may have oversimplified the concept of maternal deprivation. Bowlby used the term 'maternal deprivation' to refer to separation from an attached figure, loss of an attached figure and failure to develop an attachment to any figure. Each of these can have different effects. Rutter argued that if a child fails to develop an emotional bond, this is privation, whereas deprivation refers to the loss of, or damage to, an attachment.

Rutter's notion of privation is supported by Harlow's research (described earlier). Harlow showed that monkeys reared in isolation from their mother suffered emotional and social problems in older age. The monkeys in his studies never formed an attachment (privation) and grew up to be aggressive and had problems interacting with other monkeys.

For people such as Bowlby and Mary Ainsworth, the 'marker' of attachment in an infant was behaviour designed to gain and maintain closeness with the parent. Ainsworth and Bell (1970) developed a way to measure attachment, which resulted in the description of three types of attachment in infants: A, B and C (see the 'Broaden your understanding' box below). The intensity of attachment behaviour can be heightened or reduced by changing environmental conditions. Separation, for example, could bring a strong response, with the child crying and showing other signs of distress. Attachment behaviour was considered to be of importance for the survival of the infant, and as such was expected to be found in all cultures.

Broaden your understanding

Measuring attachment

How do researchers decide whether a mother and infant are securely attached? Much of the research reported in the literature has used a research measure, developed by Mary Ainsworth, known as the Strange Situation. This measure involves the infant in a series of episodes with his or her mother and a stranger.

1. The observer introduces the parent and infant to an experimental room in which there are appealing toys, and then leaves the room.
2. The mother sits in the room while the infant explores the room and plays.
3. A stranger comes into the room. At first she is silent, then she speaks to the mother and then approaches the infant.
4. (First separation) The mother leaves unobtrusively. The stranger is left with the infant and gears her behaviour to that of the infant.
5. (First reunion) The mother returns, greets and/or comforts the infant and then tries to re-engage the infant in play. The stranger leaves the room.
6. (Second separation) The mother leaves the room, saying 'bye-bye'. The baby is left alone.
7. The stranger re-enters the room and gears her behaviour to that of the infant.
8. (Second reunion) The mother returns, greets the infant and picks the infant up. The stranger leaves quietly.

Ainsworth believed that by observing the infant's reactions during the separations and reunions in an unfamiliar environment, they could be classified into one of three attachment categories:

- *Type A:* Anxious-avoidant infants. They showed their insecurity when playing with the toys by ignoring their mother, failing to look at her and not trying to be close to her and did not seek contact during reunion.
- *Type B:* Secure infants. They used their mother as a secure base from which to explore the room when playing with the toys and settled down quickly after reunion.
- *Type C:* Anxious-resistant infants. They show a combination of positive and negative reactions to their mother. They show their insecurity by resisting their mothers, such as by clinging to her but also kicking and pushing away particularly during reunion. Exploration of the environment during play was seen to be inhibited.

Around 65 per cent of infants in the United States were classified as securely attached (Type B) while between 15 and 20 per cent fell into each of the other categories. Ainsworth considered that the type of attachment relationship formed between mother and child depended on how sensitive and responsive the mother was to her child's signals and that the nature of this relationship was shown through the infant's responses to the stresses of the Strange Situation.

Since this early work, there have been numerous studies conducted to see if these types of attachment occur in different cultures and, if so, whether they occur in similar proportions. Van Ijzendoorn and Kroonenberg (1988) carried out an analysis of studies involving 32 samples from eight different countries to look for similarities and differences within and between cultures. They found evidence of all three types of attachment in all cultures, and interestingly, they found that differences within cultures were greater than differences between cultures. For example, three German studies resulted in widely different proportions of each of the three types. However, when the countries as a whole were compared, there did seem to be some patterns of differences. While Type B (secure attachment) is the most common type in all countries, Type A is relatively more common in Western European countries and Type C more common in Japan and Israel.

The different proportions of attachment types could indicate that cultural differences in child-rearing do, in fact, lead to differences in attachment, or it might be that the Strange Situation is a culturally inappropriate tool to use in some countries. A study by Sagi and his colleagues (1994) suggests that early child-rearing practices can indeed lead to differences in the proportion of each attachment type. He was interested that a high proportion of children raised in traditional Israeli kibbutzim had in past research demonstrated Type C (anxious-resistant) attachment to their mothers. Kibbutzism refers to the Israeli practice of collective community characterised by mutual aid, social justice and equality. It originated in agricultural communities in the early 20th century.

Sagi considered that the predominant type of attachment was likely due to the infants' sleeping arrangements. In the traditional kibbutz, infants are moved to an 'infants' house' at six weeks of age. Here, they are cared for by a small group of professional carers, with mothers visiting to feed and bathe them. At night, two watchwomen care for all the children in the kibbutz on a rotational basis. This means that there may be a delay in attending to the infants' needs during the night and that there is no stable relationship with an adult available to them at night. Sagi considered that these factors would be likely to lead to insecure attachments.

To investigate this hypothesis, Sagi and his colleagues compared the attachment behaviour of children reared in traditional, as compared with home-based, kibbutzim. In home-based kibbutzim, the environment is basically the same as in the traditional kibbutzim, with the exception that the children sleep in their parents' homes. Their study used Ainsworth's Strange Situation. Observers who rated the attachment type were unaware of which type of kibbutz each mother and child pair was from, to avoid possible bias. Yet they found that children from the traditional kibbutzim did indeed show a significantly higher level of anxious-avoidant attachment with their mothers – 52 per cent as compared with 20 per cent of children from the home-based kibbutzim.

Nevertheless, the Strange Situation as a research method has had its critics. Various researchers have questioned whether this method is really measuring attachment or whether it is measuring the 'strangeness' of the Strange Situation. Japanese children find the separation part of the Strange Situation particularly stressful because they are rarely separated from their mothers (Durkin, 1995). However, children who spend much of the day in child care, which is common in many Western countries, may be unperturbed by their mother leaving the room.

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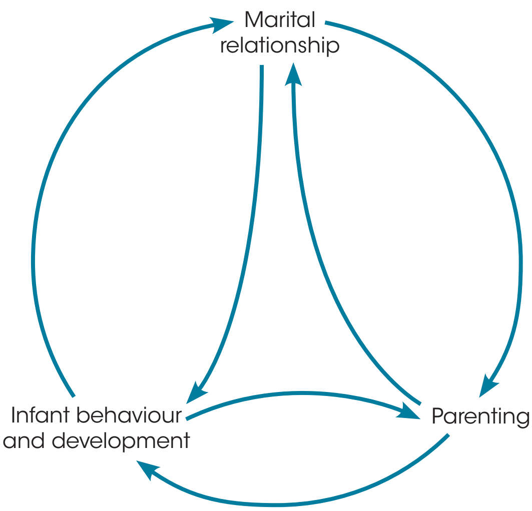
Figure 3.9 Families are important agents of socialisation.



Adapted from Shaffer, *Developmental Psychology (with InfoTrac)*, 5e. © 1999 Cengage Learning.

Figure 3.10 A model of the family as a social system

If attachment is not your chief interest, it does not really matter whether the behaviour shown by children in the Strange Situation is actually an indication of their attachment or an indication of how strange the situation is to them. It does demonstrate quite clearly that in this situation the behaviour of children from different cultures does vary and that some of this variation can be attributed to cultural differences in child-rearing practices.

Features of different parenting styles

Nowadays, we know that parent–child interactions work in both directions – they are reciprocal. While parents do influence their children, children themselves also influence how their parents react to them and raise them. The temperament of infants – whether they are 'easy' or 'difficult' babies – makes a big difference to how parents respond to them. Similarly, something as simple as mutual eye contact has been found to be important in early social interactions.

Other relationships within the family, such as that between the parents, will also affect parenting. Cox and his colleagues (1989) found that mothers with a close and supportive relationship with their partner are more likely to be patient and nurturing in their relationships with their children.

Figure 3.10 shows a model of how parenting interacts with the nature of the relationship between the parents and with the child's behaviour and development.

This model shows the interconnectedness of the family members and how parenting styles directly affect both the child's behaviour and the parental relationship.

Two aspects of parenting that have been found to be important in determining the development of children and adolescents as individuals and as members of society are responsiveness and control. By responsiveness we mean the level of support and affection shown by a parent – the degree to which they smile at, praise and encourage their children. When we speak of control, we are referring to the extent that parents supervise and regulate their children's behaviour.

Diana Baumrind is one of the best-known researchers on parenting styles. She noted that the two major parenting dimensions of responsiveness and control are independent and can be combined into four parenting styles, as shown in Table. 3.4.

Table 3.4 Baumrind's four parenting styles

		Level of control	
		High	**Low**
Level of responsiveness	**High**	Authoritative parent	Permissive parent
	Low	Authoritarian parent	Uninvolved parent

People who use an **authoritarian parenting** style demand obedience from their children. Parents are high on control and low on responsiveness. They set many rules and give few explanations for them ('I want you home by 10 pm!' 'Why?' 'Because I said so.'). They are not interested in alternative viewpoints that their children may have. They often use power or withdrawal of love to enforce their rules. They are therefore both demanding and strict, with high expectations of compliance to parental rules and demands. The parents are low in warmth of feelings but high in involvement and concern.

Authoritative parenting is a style that also set limits for the children. They are high on both control and responsiveness. However, the parents' demands are reasonable and they make sure that their children understand the reason for the rules they set ('I want you home by 10 pm' 'Why?' 'Because you have an early netball game tomorrow and you will need a good night's sleep to play well.'). They are also more responsive to their children's viewpoints and, as their children grow older, try to involve them in the decision-making process. Authoritative parents are warm and responsive in their interactions with their children yet expect that their children will follow the rules that have been set. They expect mature, independent and age-appropriate behaviours from their children.

Permissive parenting is a style that provides parental acceptance of children, but there are few rules or guidelines for the children to follow. Parents are low on control and high on responsiveness. Children's activities are not closely monitored and parents rarely try to control their behaviour. Children are allowed to express themselves as they please. It is sometimes referred to as 'indulgent parenting' since the parents are non-directive and lenient.

Uninvolved parenting is displayed by parents who have either rejected their children or who are so overwhelmed by the stresses in their own lives that they have no time or energy left for their children. They are low on both control and responsiveness. As a consequence, their approach is extremely lax and discipline is erratic. They do not set limits, enforce behaviour or show interest in their children. They are unlikely to know where their children are after school or at weekends, for example. It is sometimes termed 'neglectful parenting' since it is 'hands off' and detached.

Which of these parenting styles is more likely to have good outcomes for the developing child as an individual and as a member of society? Baumrind (1971) followed children who had experienced different styles of parenting over a number of years. She found that children of authoritative parents were more achievement-oriented and had better social skills than children of either authoritarian or permissive parents. As adolescents, they were relatively confident and they tended to stay clear of drug abuse and other problem behaviours.

Other research has shown that children of uninvolved parents have the most negative outcomes. By three years of age, these children were prone to temper tantrums and showed high levels of aggression. By adolescence, they were more likely to be involved in delinquent behaviour and criminal acts. Findings similar to these have been found in many studies with families from a wide variety of cultural backgrounds.

Baumrind's work was conducted on intact, traditional families, nearly 50 years ago. Families and family structures have changed since then. In the 21st century, parenting styles not only apply to the biological parents but to other caregivers of children, such as grandparents who have a role taking care of their grandchildren. Different types of family structure also influence the types of parenting to which children are exposed. Family structures are much more complex than they used to be and that too can alter the nature and style of parenting.

Broaden your understanding

Social changes in families in the 21st century

What is a family in the 21st century? Is it a dad, mum and two children? Look around you – which of your friends live in such a family? What sorts of families do they live in?

The Australian Bureau of Statistics (2015) offers definitions of families as follows:

- *Blended family:* A couple family containing two or more children, of whom at least one is the natural child of both members of the couple, and at least one is the stepchild of either member of the couple.
- *Family:* Two or more persons, one of whom is aged 15 years and over, who are related by blood, marriage (registered or de facto), adoption, step or fostering, and who are usually resident in the same household.
- *Intact family:* A couple family containing at least one child who is the natural or foster child of both members of the couple, and no child who is the stepchild of either member of the couple.
- *One-parent family:* A family consisting of a lone ('single') parent with at least one dependent or non-dependent child (regardless of age) who is also usually resident in the household. The family may also include any number of other dependent children, non-dependent children and other related individuals.
- *Other family:* A family of related individuals residing in the same household. These individuals do not form a couple or parent–child relationship with any other person in the household and are not attached to a couple or one-parent family in the household. For example, a household consisting of a brother and sister only.
- *Step family:* A couple family containing one or more children, at least one of whom is the stepchild of either member of the couple and none of whom is the natural or foster child of both members of the couple.

Adapted from Australian Bureau of Statistics (2015), *4442.0 – Family Characteristics, Australia, 2009–10*

You can see the definition of a family is not so very simple. There are the complexities associated with parental separation, divorce and re-partnering (or remarriage), some of which are reflected in the various family combinations. There are also issues raised by parenting associated with grandparenting, teenage mothers, and Aboriginal and Torres Strait Islander families and communities (which are characterised by the importance of kinship).

Families have historically assumed responsibility for the care of children. Children generally grow up and develop in families and members of families influence, directly and indirectly, their children's development, their behaviour, their feelings and their ways of thinking. Families can protect children from the wider community and society and give them access to broader social experiences. But families can also pose risks for children by not providing optimum conditions for development.

Figure 3.11 Biological families comprising parents and dependent children are no longer the most common family type.

Getty Images/DNF-Style

As noted, the traditional definition of family has changed in the past few decades and this leads to changes in socialisation processes in families as well as parenting styles when the parents may not be the biological mother and father. Families are no longer predominantly structured with the father as the breadwinner and the mother staying at home to care for the dependent children. Thus, there have been changes in the way adults 'parent' children depending on their relationship with the children, the children's behaviour and the family structure.

One main reason for the changing structure of families is the change in workforce participation by women with children. In the early 1980s, only 40 per cent of women with children were in the paid workforce; now, it is around 70 per cent. Many of the positions held by women are part-time and are often poorly paid. Despite increased participation in the paid workforce, many women also assume the major domestic roles including child care (Crabbe, 2014). Men's patterns of workforce participation are typically not altered when they have children, although more fathers are choosing to be 'stay at home dads', especially if families are economically dependent on the mother's income.

Another factor influencing the nature of families, and hence the type of parenting style adopted, is the reduction in the number of children in families. Parents (who are as likely to be not married as married) are having fewer children later in life. The current birth rate in Australia is 1.9, so couples are not even reproducing to replace themselves numerically. Improvements in health and healthcare mean babies are born healthier and will live beyond infancy, and adults will live longer. Parents do not need to have many babies in order for some to survive. As families are decreasing in size – you may have only one or two brothers or sisters compared to 10 a few generations ago – parenting is divided between fewer children and this can alter the type of parenting style adopted and used.

While the definitions of family and parenting are changing, family membership can also change as partners divorce and remarry, as new children are born, and as grandparents die. The divorce rate in Australia is approximately one-third of all marriages. Many of those partners remarry but the divorce rate among second marriages is also high. Consequently, many children, often of varying ages, are living in single-parent or blended families. In such families, there are often few resources to go around, little money to meet the educational, health, accommodation and clothing needs of all family members, and perhaps little in the way of time or opportunity for parenting to maximise parent–child relationships. This can affect the nature of the parenting style that is most effective for rearing the children.

Since your parents are one of your most influential agents of socialisation, it is also good to have an understanding of their most influential agents – your grandparents. Grandparents may play an important role in a child's life and can be part of the socialisation system we saw in Figure 3.10. Traditionally, grandparents were regarded as knowledgeable and loving elders whose role in child-rearing was to dispense good advice, provide cuddles and tell stories about the 'old days'. They were not seen to be parents and thus did not adopt a parenting style. Nowadays, grandparents are less likely to be white-haired, frail and retired from the workforce. Instead, they will have a full and active life of their own, regarding their own child-rearing duties as being over and enjoying the 'empty nest', a life without dependent children. Of course, these are stereotypes – there are as many different types of grandparents as there are parents and families.

The age at which we become a grandparent is influential in the type of grandparent we are, as are such things as proximity to grandchildren and expectations about grandparents' involvement in child-rearing. Today, we see women of 40 becoming mothers for the first time alongside women becoming grandmothers at the same age. It is thus not uncommon for mistakes to be made about who is the mother.

In more recent times, grandparents have attracted interest because of policy concerns about grandparents who have assumed the sole responsibility for the care of their grandchildren when there has been a family break-up or when either or both parents are not capable of providing appropriate care, because of illness, substance abuse or death. The rights of grandparents who have taken at least some responsibility for the care of their grandchildren are now a factor taken into consideration when decisions about parental contact and residence are decided by the Family Court. So, the study of parenting styles has turned attention to the styles used by grandparents as they play an increasing amount of time rearing their grandchildren.

Figure 3.12 Two different styles of grandparenting

Broaden your understanding

Grandparents and their role in family socialisation

Recent research from the Australian Institute of Family Studies is showing some important information about the levels of contact that grandchildren are having with their grandparents (Hayes & Higgins, 2014). For example, Brennan and Cass (2014) note that in recent years there has been considerable uncertainty about the number of grandparents raising grandchildren in Australia. They cite three different calculations:

- Data from the Australian Bureau of Statistics (ABS) *Family Characteristics Survey 2003* suggested that there were approximately 22 500 grandparent families caring for 31 100 children.
- The ABS *Family Characteristics and Transitions Survey 2006–07* findings identified 14 000 such families, headed by around 23 000 grandparents.
- Analysis of the *Household, Income and Labour Dynamics in Australia (HILDA)* survey suggested that 27 718 children under 15 years of age lived in households with only their grandparents in 2004.

Grandparents provide various forms of regular care for their grandchildren in the preschool years. Most grandchildren have reasonably regular contact with their grandparents, ranging from daily, through to weekly, monthly and less frequently. Distance is the reason most grandchildren have less frequent contact with grandparents. Grandparents play a particularly important role in the lives of their grandchildren in the case of separation and divorce. Patterns of contact need to be explored in families where there has been separation and divorce, particularly contact with paternal grandparents where mothers have daily responsibility for the care of the children and maternal grandparents have more regular contact with the grandchildren. The role of grandparents tends to decrease as the grandchildren get older (and the grandparents themselves age and become less agile). But they play an important and often central role in the socialisation of their grandchildren.

CHAPTER SUMMARY

Relational influences

Types of solutions to resolve conflict

- Imposed solutions
  - Third party imposes a solution
- Distributive solutions
  - Compromise solution
- Integrative solutions
  - Win–win situation

Techniques for resolving conflicts

- Mediation
  - Third party brought in to help resolve the conflict
- Negotiation
  - Opposing parties try to reach mutual agreement
- Counselling
  - Counsellor assists the conflicting parties to come to their own resolution of the problem
    - Divorce mediation – an application of conflict resolution

Socialisation processes observed within families

- Attachment
  - Harlow – contact comfort with surrogate mothers in rhesus monkeys
  - Bowlby – contact with mother; maternal deprivation hypothesis
    - Is Bowlby's theory relevant today?
  - Ainsworth – Strange Situation to measure attachment
  - Three types of attachment behaviour
    - Type A – anxious-avoidant infants
    - Type B – secure infants
    - Type C – anxious-resistant infants
    - Measuring attachment
  - Rutter's querying of maternal deprivation
- Features of different parenting styles
  - Authoritarian parenting
  - Authoritative parenting
  - Permissive parenting
  - Uninvolved parenting
  - Social changes in families in the 21st century
  - Grandparents and their role in family socialisation

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Negotiation

2 Counselling

3 Maternal deprivation

4 Strange Situation

5 Parenting

Multiple-choice questions

1 Solutions to resolve conflicts can be:
- A imposed.
- B distributive.
- C integrative.
- D all of the above.

2 Divorce mediation:
- A means couples always stay together.
- B allows children to have a say about their parents' marriage.
- C leads to improved relationships between divorced parents.
- D increases the costs of divorce.

3 Harlow's monkeys showed attachment to:
- A each other.
- B their mother.
- C a wire-mesh surrogate.
- D a cloth surrogate.

4 Parents who expect their children to always obey them without asking questions are showing:
- A permissive parenting style.
- B authoritative parenting style.
- C authoritarian parenting style.
- D uninvolved parenting style.

5 What are the main differences in families of the 21st century compared to those of the 20th century?
- A Fewer children
- B More mothers working and fewer children
- C Less family support close by
- D All of the above

6 An issue affecting changing family structure is:
- A more fathers in the workforce.
- B more women assuming domestic roles.
- C improved Internet access and use.
- D reduction in the number of children in families.

7 Grandparents may play an important role in:
- A child care of their grandchildren.
- B providing special treats for grandchildren.
- C maintaining family traditions.
- D all of the above.

Apply and relate psychological understandings

Short-answer questions

1 Describe three techniques to resolve conflict.

2 Explain what John Bowlby was welll-known for.

3 Describe the Strange Situation technique and how it is used to measure attachment.

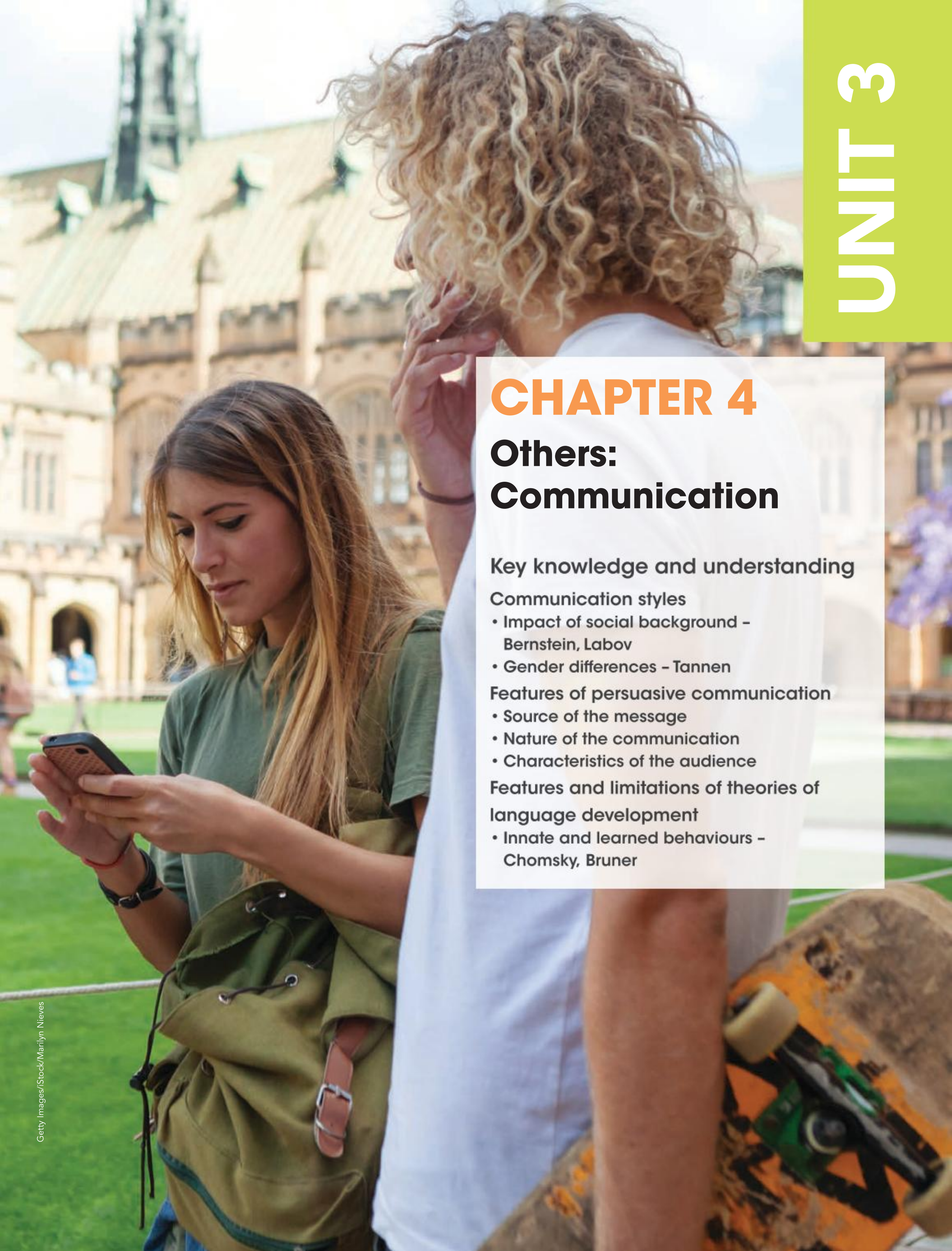
4 Describe cultural differences in attachment.

5 Describe three styles of parenting.

6 Give three definitions of a family.

Extended essay – parenting style and children's behaviour

Research has shown that parenting style is related to the behaviour of the children. Why do children of authoritative (democratic) parents show such good behaviours? We also need to look at how the parents relate to their children so how and why does authoritative parenting achieve the best child outcomes? Describe what we should study in both the children and the parents to answer these questions.



Getty Images/iStock/Marilyn Nieves

CHAPTER 4

Others: Communication

Key knowledge and understanding

Communication styles

- Impact of social background – Bernstein, Labov
- Gender differences – Tannen

Features of persuasive communication

- Source of the message
- Nature of the communication
- Characteristics of the audience

Features and limitations of theories of language development

- Innate and learned behaviours – Chomsky, Bruner

Communication

Communication is fundamental to human social interaction. It involves the transmission of a message from one person to another. Humans are constantly communicating – intentionally or unintentionally – their thoughts, feelings, observations and hopes. According to Vaughan and Hogg (1998), communication is social in three ways. It:

- involves inter-relationships among people;
- requires that people acquire a shared understanding of what particular sounds, words, signs and gestures mean; and
- is the means whereby people influence others and are in turn influenced by them.

Communication requires a speaker or sender of a message, a hearer or listener of that message, along with the message itself. But communication is more complex than this, since a speaker can also be a listener and there may be multiple messages, some of which may even contradict one another. Messages may also be verbal (spoken) or non-verbal (gestural) such as nodding one's head in agreement. So exactly what is communicated depends not only on the content of the message but also on how the content is conveyed. Our use of different media – visual, spoken or written – can affect the way our messages are received. Different communication styles can also have a major impact on how effective we are at getting our message across.

Communication styles

In looking at **communication styles**, we examine the cultural and social aspects of language. The style in which we learn to speak depends on the culture in which we were raised, our socioeconomic background and our gender. Style involves not only our accents, but also our vocabulary, grammar and the type of ideas we try to express. It is so much a part of us that it is often thought of as an attribute – something we have or are. Much of our identity is tied up in how we speak. It is both part of our self-image and something by which other people make judgements about us.

It has been claimed that there are three, four or five basic communication styles. The common three are assertive, aggressive and passive. According to the Australian Institute of Family Counselling, the three styles can be characterised as follows in Table 4.1.

Table 4.1 Characteristics of three communication styles

Communication style	Description
Assertive	In assertive communication you express your beliefs, feelings, opinions and thoughts in an open respectful manner that does not violate the rights of others. Assertive communicators use actions and words to express their boundaries in a calm, confident manner.
Aggressive	In aggressive communication you do not hold any respect for others. It disregards anyone else's needs, feelings, opinions and ideas and sometimes this can compromise the safety of others as well. Aggressive communicators are identified by their demanding, manipulative, angry and self-promoting behaviour. The body language of an aggressive person might be fist clenching, crossed arms, scowls, or staring at someone.
Passive	Passive communicators are often silent since they often lack respect for themselves, while not giving any importance to their own needs, feelings, opinions and wants. Passive communicators put their own needs after everyone else's, allowing for others to decide how things will turn out. Often they have body language that might include covering the mouth, looking down, avoiding eye contact and crossed arms.

Adapted from Australian Institute of Family Counselling (www.aifc.com.au)

As can be seen, communication styles involve both speech as well as non-verbal behaviours.

Impact of social background – Bernstein, Labov

Basil Bernstein (1924–2000) was one of the early researchers to show an interest in the relationship between language style and social class (for example, Bernstein, 1971). He claimed that people from the working and middle classes in the United Kingdom used different kinds of language codes. Language codes are the types of language used that reflect particular social groups. Working classes are those people who work for wages in jobs such as manual labour and industry. The middle class is in the middle of a social hierarchy and comprises people who work for salaries as professionals and in the public service. Bernstein considered that working-class people's conversation relied on preserving traditional roles and ways of interacting; they used a **restricted code**. By contrast, people from middle classes wanted to develop ideas in relation to their personal experiences, so in addition to using a restricted code, they also used an **elaborated code** in their interactions.

The construct of elaborated and restricted language codes was introduced by Bernstein originally as a way of accounting for the relatively poor performance of working-class school pupils on language-based subjects, when they were achieving as well as their middle-class counterparts on mathematical topics. Bernstein wished to explore why this was the case.

One of Bernstein's research studies involved showing a group of children a cartoon strip and recording their account of what it depicted.

Some children said things like:	Other children said things like:
'They're playing football	'Three boys are playing football
and he kicks it and it goes through there	and one boy kicks the ball
it breaks the window and they're looking at it	and it goes through the window
and he comes out	the ball breaks the window
and shouts at them	and the boys are looking at it
because they've broken it	and a man comes out and shouts at them
so they run away	because they've broken the window
and then she looks out	so they run away
and she tells them off.'	and then that lady looks out of her window
	and she tells the boys off.'

Basil Bernstein, *Class, Codes and Control, Vol I. Theoretical Studies towards a Sociology of Language*, Routledge, 1971, p. 138.

The first makes sense only if you have the cartoon in front of you while the latter can stand alone more easily.

Bernstein's ideas about the characteristics of these codes are summarised in Table 4.2.

Table 4.2 Summary of Bernstein's restricted and elaborated codes

Restricted code	Elaborated code
Short and simple sentences are used, with much information conveyed non-verbally	Complex, precise sentences are used
Much of the meaning only makes sense if the context is known (e.g., 'He put it over there.')	The meaning is clear from the sentence alone (e.g., 'He put the spade in the shed.')
Few descriptive words are used	More use is made of descriptive words
Commands are frequently used to gain compliance	Explanations are usually used to gain compliance
The 'here and now' is stressed	Reference is made to events in the past or future
Abstract ideas are rarely expressed	Abstract ideas, future possibilities and so on are expressed easily and often

In effect, the language codes can be differentiated in terms of what the language is suited for. The restricted code works better than the elaborated code for situations in which there is a great deal of shared and assumed knowledge in the group of speakers. It is economical and rich, conveying a vast amount of meaning with a few words. It should be noted that the restricted code does not refer to a restricted vocabulary and the elaborated code does not entail colourful use of language.

Because it draws on shared understandings, meanings and background knowledge, a restricted code carries a social message of inclusion, of implicitly acknowledging that the person addressed is 'one of us'. It takes one form within a family or a friendship group, and another with the use of jargon within a study or work group. Everyone uses restricted code communication some of the time. It would be a very peculiar family that did not have its own language.

By contrast, an elaborated code spells everything out so that everyone can understand it. It has to elaborate because the circumstances (such as no shared understandings) do not allow speakers to restrict their language. Bernstein argued that working-class students had access to their restricted code(s) but middle-class students had access to both restricted and elaborated codes, because the middle classes were more geographically, socially and culturally mobile. (Remember this work was conducted in the UK in the 1960s.)

Bernstein considered that children in working-class families had a language deficit because they could only use the restricted code. He claimed that this limited their ability to benefit from education. His theory had a major influence on education programs for young children in the United States in the 1960s and 1970s, with various projects such as Head Start being set up to help poor children overcome their educational disadvantage. Head Start was originally established in 1965 as a summer school program to teach low income students what they would need to know, especially language, when they started primary school. It has since been expanded considerably to provide comprehensive early education, health and other services to low income children and their families.

Bernstein has not gone unchallenged, particularly in his suggestion that restricted codes cannot deal effectively with new knowledge and ideas. The problem is that this has often been misunderstood, particularly in the United States.

The ideas of William Labov (1927–) are in strong contrast to Bernstein's language deficit position. Labov's ideas were based on his work with children from New York who spoke Black English Vernacular (BEV), now known as African American Vernacular English (AAVE). Labov considered that AAVE was just as complex and rule-governed as standard English and that it should be considered different, not deficient. He said that there was nothing inherently more complex, for example, in the standard English comment 'He doesn't know anything' than in the AAVE comment 'He don't know nothing'. He pointed out that several European languages use double negatives in the same way as AAVE. He was particularly concerned that teachers were being told not to accept AAVE since there was a belief that it was useless for learning. 'They are being taught to hear every natural utterance of the child as evidence of his mental inferiority. As linguists, we are unanimous in condemning this view as bad observation, bad theory and bad practice' (Labov, 1970, p. 240).

While linguists now accept that language styles are simply differences in language use, rather than one style being superior to another, prejudices against particular styles still exist in most communities. Ian Malcolm and his colleagues (2003) consider that Australian Aboriginal children are still expected to submit to an education that only recognises standard English and in which teachers have little appreciation of differences not only in speaking style, but also in listening style. They point out that the news-telling sessions so common in primary schools are based on the expectations that only one person speaks at a time and that the listener remains still and looks attentively at the speaker – expectations that are foreign to an Aboriginal child's understanding of sharing news. Interactions between teachers and students frequently involve the teacher asking questions and the student answering in front of the rest of the class, a situation that many Aboriginal children find threatening and embarrassing. In Aboriginal communities, a person who has been asked a question has the right not to reply. In the classroom, the Aboriginal child may take this same option, to the irritation of some teachers. Malcolm and his colleagues point out that it is important to understand and respect differences in communication styles for effective interactions.

Gender differences – Tannen

Researchers have looked at differences in conversation between men and women and how these might contribute to breakdowns in communication. Deborah Tannen (1990) described styles that she considers to be typical of men and women. In her early research, Tannen recorded conversations between women and men (cross-gender conversations) since she wished to identify and understand gender differences in ways of speaking or speech style. As a sociolinguist, she was interested in debunking notions of male speech being the norm and female speech, if it is different, being required to change.

Men tend to use **report talk**, which is the type of talk used in public speaking and for information sharing. When telling jokes or stories, or imparting information, they are comfortable with being centre stage. They use talk as a way of gaining and holding the attention of their audience and to negotiate and maintain status. Women, on the other hand, are more comfortable with **rapport talk**. This is the style of interaction that is based on establishing relationships and intimacy, developing understanding and negotiating differences. Tannen considered that women enjoyed private conversation more than men, and this requires sharing experiences. Tannen also considered that these styles evolved from childhood where boys and girls are socialised differently in terms of expectations about language style, girls being taught about maintaining relationships through talking and boys about maintaining relationships through action.

Table 4.3 Differences between report and rapport talk (Tannen, 1990)

Women (rapport talk)	Men (report talk)
Use talk to establish and maintain emotional connections	Get more air time and exchange information with little emotional connection
Focus on personal and small talk 'chat'	Are more public with their talk
Use talk to build relationships and maintain intimacy	Use language to negotiate status and to avoid failure
Tend to talk over and above one another, overlapping and simultaneous talk	Talk in turn

Friction between men and women can occur because of a lack of understanding of differences in communication styles. Women coming to couple counselling frequently complain that their partners do not listen to what they say or do not talk to them anymore. Tannen considers that if men and women simply understand the differences in each other's reasons for talking, a lot of anguish can be avoided.

Figure 4.1 Cathy cartoon – are couples really talking to one another?

Other researchers have attempted to look at differences in the forms of expression used by men and women and to link them to power differences between the sexes. Women have been shown to use more confirmatory noises like 'mmm' and 'yeah' to indicate that they are listening. They also use more indirect requests than men. While a man might say 'Shut the door', a woman is more likely to say 'Would you mind closing the door?' This type of behaviour occurs when women are interacting with each other, as well as when men and women are together.

Another grammatical form that is considered common in women's rapport speech is a 'hedge'. Hedges are words or phrases that are used to lessen the impact of a statement or request being made. In our previous example, a woman might say, 'Please shut the door, if you don't mind'. ('If you don't mind' is the hedge.) However, as Dallos (1996) noted, hedges are used by both men and women and are more correctly thought of as strategic devices, rather than as signs of softness. They are used to achieve an end since hedges are very important devices in communication and can be linked to politeness, which we discussed in our Year 11 Psychology course, and is mentioned later in this chapter.

Features of persuasive communication

Persuasion is a form of communication that we experience every day. We see a young child in a supermarket trying to convince his mother that she should buy him some lollies; the adolescent trying to persuade his father that he should be allowed to head off for the week on a surfing holiday with his mates; opposing political parties trying to convince voters to support them; or advertisers assuring an audience that their brand of flavoured milk is best. Persuasion involves attempting to change the beliefs, feelings and behaviour of another. Whatever the specific purpose of our attempts at persuasion, we need to know what affects the listener's reactions if we want to be successful.

Persuasion is most often associated with advertising and attitude change.

There are three variables in the context in which persuasion takes place and we will discuss these below. They are the:

- source of the message; that is, the person presenting the message (who)
- contents of the message; this may include the medium of the message, be it talking, SMS or advertising (what and how)
- audience or the receiver of the message (to whom).

Petty and Cacioppo (1986) developed what they called the *elaboration-likelihood model* of persuasion. In this model when people receive a message, they think about the argument that is being made. The thinking is not very deep since that would require considerable effort. So, persuasion then follows one of two processes or routes and the one chosen depends on the amount of elaboration or scrutiny required.

Fairfax Photos/Alex Ellinghausen

Figure 4.2 Attempts to persuade us are part of our everyday experience.

Petty and Cacioppo state that there are two routes to persuasion: central and peripheral. The *central* route to persuasion consists of thoughtful consideration of the content of the message by the receiver as an active participant in the process of persuasion. Central processing can only occur when the receiver has both the motivation and the ability to think about the message and its content. If the listener does not care about the topic or does not understand the persuasive message, he or she will almost certainly lack the motivation to process it. For example, if your doctor told you that you needed surgery, you would listen carefully to the message (what the doctor has to say), you might read about the procedure and you might even seek a second opinion. All of these suggest you are actively processing the information from a trusted professional.

The *peripheral* route to persuasion occurs when the listener decides whether to agree with a message based on cues other than the content of the message. For example, a listener may agree with a message because the source appears to be an expert or is attractive in some way. Peripheral cues, like source expertise or a great deal of content in one message, are used as a short-cut. Receivers engaged in peripheral processing are more passive than those doing central processing.

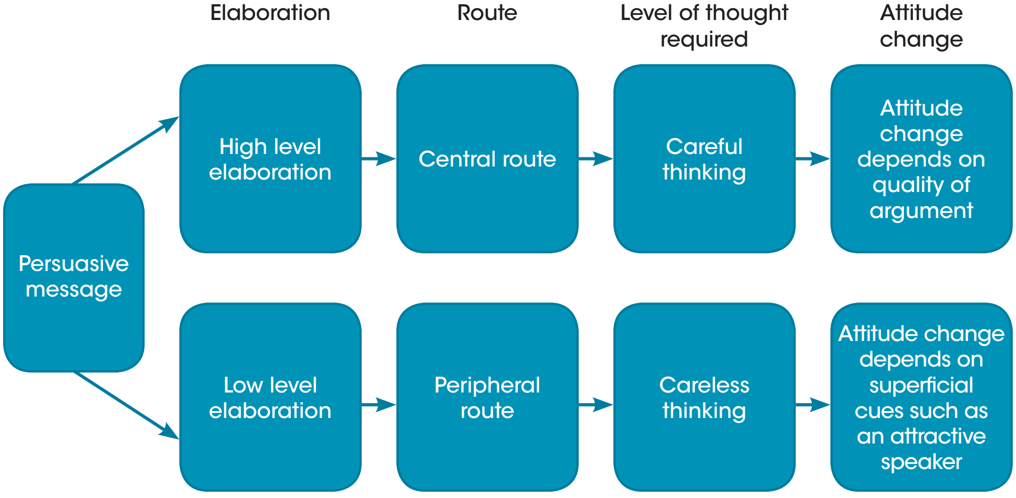


Figure 4.3 Diagram of the elaboration-likelihood model of persuasion (adapted from Petty and Cacioppo, 1986)

Figure 4.4 Would you take champion surfer Stephanie Gilmore's recommendation for a surfboard? Or a car?

Attitudes that are changed through the central route to persuasion will have different effects from attitudes changed via the peripheral route. As they are considered more carefully, the former are likely to have longer lasting effects. Such effects rely on the message being clear and convincing. It should be clear that people who are trying to persuade others would want to know how to make attitude change last longer, have a greater influence on behaviour of others and then be more resistant to change. However, even though peripheral processing has advantages insofar as it is quick and does not require much cognitive effort, receivers do not always have the motivation and ability to think about the content of the message. We need to understand both of these processes of persuasion.

Source of the message

Persuasive communication also considers the source of the message, the nature of the communication and the characteristics of the audience. Some of these are central; others are peripheral. If you heard Mitch Marsh extolling the virtues of a particular brand of cricket bat, would you believe him? Quite possibly. If, on the other hand, you were getting the same advice from a neighbourhood friend with whom you were playing beach cricket, would you be persuaded to buy it? Probably not. Why is this the case? Research suggests that we are likely to accept the word of people with expertise in an area, even without assessing the validity of their claim. Advertisers count on this.

Being a high-profile worker in a particular area is not the only basis people use for attributing competence to the speaker. Curiously enough, research has shown that we also attribute expertise to fast talkers! As long as the gist of the message can be understood, listeners assume that a fast speaker is more intelligent and knowledgeable. Smith and Shaffer (1995) considered that this is due to the fact that fast presentation makes it more difficult for listeners to evaluate the content properly.

Trustworthiness is another characteristic that persuades us. Politicians are well-aware of this, and in an election campaign will often try to convince us that their opponents are untrustworthy, by referring to broken political promises, for example.

Nature of the communication

The nature of the communication is the content itself as well as the medium used for communication between the source and the audience. The medium used can be speaking, writing, SMS or Twitter, and the tone of the language used can vary and can, for example, be formal/informal, accusatory/conciliatory or polite/rude.

Although there are times when we are 'won over' simply because of who is presenting the argument, there are also times when we carefully consider the argument being presented. When people understand a message and respond favourably to it, they are likely to be persuaded. However, simply being exposed to a message does not necessarily mean that we understand it. Research indicates that much persuasive information is misunderstood, although comprehension of printed advertisements and information is higher than for information presented on television. For this reason, those using broadcast media for persuasion need to remember to 'keep it simple'.

However, we do not simply absorb information: we react to it and interact with it. Messages often aim to provoke an emotional response as well as to change our thinking. If our reactions are unfavourable, we are unlikely to be persuaded.

World Vision/© Jon Warren

Figure 4.5 Did this photo, used in a World Vision advertisement, catch your eye and produce a positive reaction? If so, you might be persuaded by the message to donate.

Some advertisements make no appeal at all to our reason but aim straight at emotions. Many advertisements for products ranging from soft drinks to lottery tickets are created to try to make us feel good in the hope that we will buy the product. However, the research evidence linking good mood and ability to be persuaded is mixed. The reasoning appears to be that when people are in a good mood they are less likely to process information carefully and will therefore not be swayed by a rational argument, but they still might buy a product on impulse. They are, however, more likely to be convinced by a supposed expert. So, it depends on how the advertisement is understood by the listeners/viewers as to whether or not their good mood or their view of the speaker as being an expert or not is likely to lead to them to being persuaded by the message.

Some attempts at persuasion rely on inducing fear rather than a positive mood. We see this in political campaigns, in parents' warnings and in health campaigns. Research shows us that, for this type of appeal to be successful, it must arouse sufficient anxiety to convince us to attend to the message, but not too much anxiety or we may miss the message by becoming too emotional. High levels of fear can lead to avoidance of the message. It can also stop us from being able to process the content of the message properly.

Broaden your understanding

Fear in messages

Conduct an Internet search for 'quit smoking campaign' or 'anti-drink driving campaign'. Look for a video clip that appeals to fear by, for example, linking smoking to cancer of the mouth and throat, or drink-driving to fatal accidents. Consider the following:

- Was the video appealing to your reason?
- Was it appealing to your emotions?
- If so, did it arouse a feeling of anxiety or was it sufficiently fear-provoking to turn you off or impair your ability to process the message?
- What content do you think needs to be presented to viewers of your age and gender to be effective?
- What sort of images would raise sufficient anxiety to be effective?
- What was the source of persuasion – was it central or peripheral?

Characteristics of the audience

One of the first things we think of when we are trying to persuade someone about an idea or course of action is what will convince them to change their mind or undertake that course of action. The content or presentation style of our message will change depending on a range of characteristics of the audience such as their age, relationship to us, personality, level of education or culture. We 'know' this at an intuitive level and, in this instance, there is research to back our hunches.

Individuals differ in how carefully they will evaluate an argument. Research has shown that some people enjoy examining issues, checking for inconsistencies and weighing up the 'pros and cons' in a debate. Such people are said to have a high 'need for cognition' (Cacioppo & Petty, 1982). They are much more likely to be persuaded by strong arguments and unmoved by weak ones. In contrast, people who are less likely to take the strength of an argument into account are more likely to be swayed by such factors as the expertise or trustworthiness of the person presenting the message. They are said to be low in their 'need for cognition'.

Gender of the audience can also affect the persuasiveness of the source. In a study by Carli (1990; cited in Vaughan & Hogg, 1998), a message was read by either a man or a woman, either tentatively or assertively. When the reader was female and tentative, male listeners were more easily persuaded than female listeners. In contrast, male speakers were equally persuasive under both conditions and for both males and female listeners. This has interesting implications for advertising and the use of persuasive messages.

Advertisers working across cultures generally try to be aware of cultural differences in what people find persuasive. This can be seen in invitations to a trade fair that were examined by Zhu Yunxia (2000–2001). Letters were sent to people in mainland China, Australia, New Zealand and the United States, all with the goal of inviting the reader to the trade fair. Invitations to people from Western cultures were found to appeal strongly to logic. Invitations to Chinese readers appealed to both logic and emotions. Their letters were also written in a very formal and respectful way.

Min-Sun Kim and colleagues (1998) examined cultural differences in the way attempts at persuasion are evaluated. They based their study on known differences between individualistic and collectivist cultures (which we learned about in Year 11), with students from mainland United States, Korea and Hawaii as representatives of each culture. Korea has a largely collectivist culture, the USA has an individualistic one and Hawaii has a pluralistic culture, with Asian and Polynesian influence on a mainly Western culture.

Kim and colleagues wanted to describe and compare the preferred linguistic forms for the first- and second-attempt requests by people of different cultural orientations. Previous research had studied initial message production only and had rarely addressed the issue of what happens when the listener rejects the initial request and fails to comply.

The participants were students who were presented with three different vignettes describing different requesting situations. The three situations selected were 'Being on time', 'Repaying the loan', and 'Extending homework deadline'. The researchers hypothesised that participants who valued interdependence, as is common in people from collectivist cultures, would be likely to consider hint strategies (one of the requesting situations, essentially indirect requests) to be an effective means of persuasion. Conversely, they expected that participants who valued independence, as is typical of people from individualistic cultures, would consider direct statements to be the best way of making requests.

Their hypotheses were supported for 'first attempt' requests; however, if confronted with non-compliance, all participants reported that they would be likely to find direct requests for second attempts more effective. Kim et al. also asked participants to rate the effectiveness and later likelihood of use of requesting and re-requesting strategies. The results revealed that the higher the participants' interdependence as epitomised by the Korean students, the higher the effectiveness and subsequent likelihood of using hint strategies in first requests. Independence, however, was positively associated with the later likelihood of using direct statement strategies for both first- and second-attempt requests.

Features and limitations of theories of language development

What must the growing child master when learning the language of his or her parents or caregivers? Researchers of language consider that there are three main types of knowledge they must acquire: knowledge about what to say (the content of language); knowledge about how to say it (the form of language); and knowledge about the use of language. All languages, even the signed language of a deaf person, have these components, as noted in our discussion of hearing impairment in *Psychology WA ATAR: Self & Others Units 1 & 2*.

In addition, children learning a spoken language must learn to discriminate and produce the sounds of their language, while those who are learning a signed language must learn to discriminate and produce the hand shapes and movement of signs.

All these components change as the infant develops. The content of language for a 12-month-old child is usually made up of single words. These may be used in different ways and accompanied by different gestures to have quite different meanings. 'Daddy!' might mean 'There's Daddy'; 'Daddy?' might mean 'Where's Daddy?'; and 'Daddy' accompanied by raised arms might mean 'Pick me up, Daddy'.

By two years of age, children are usually combining two words, mostly in a fixed form. An English-speaking child typically says, for example 'More milk' rather than 'Milk more'. Between two and three years, children's language expands at an amazing rate, so by the time they are three years of age most will speak in complete sentences. The form of their sentences will still often be different from standard adult forms, as we can see in the following conversation between two four-year-olds. Tim and Andrew are playing 'shopping' and loading their purchases onto a toy truck.

Andrew: And I buyed all of those things with all of my money.
Tim: And all of my money too, 'cause they needed that much.
A: Yes, and you know what else I buyed?
T: What?
A: Nappies for Tess.
T: Oh, good.
A: That's all we need for tonight.
T: And what you think else I remembered I done? I bought a jacket!
A: Oh, I think that's all the room we've got on this truck.

This sequence demonstrates both the features and the limitations of language in four-year-old children. There are some complete sentences and some incorrect past tense use (such as 'buyed' for 'bought'). But there is a conversation structure with questions and answers between the two boys, while there are also sentences that do not follow the conversation ('And what you think else I remembered I done? I bought a jacket!').

Knowledge about how language is used also changes dramatically as children grow. If children do not learn how to use language that takes into account the person they are speaking with, then their intended message does not get across effectively. For example, a study in which four-year-old children were asked to introduce a new toy to either a two-year-old or an adult showed that, even at this age, a child can use different content and forms of expression to take into account the listener's level of understanding. When talking to the two-year-old, the four-year-olds used shorter sentences and used words such as 'Watch' or 'Look, John' to get the toddler's attention. With the adult, they used longer and more complex sentences and were usually more polite.

Politeness is expected in most cultures, especially if the speaker is asking for something. Young children often use very blunt requests such as 'Gimme' only to be told 'Say please' or asked 'What should you say?' or 'What is the magic word?' The value of politeness is soon learned. At a later stage, children learn that the indirect approach can sometimes work even better. 'What you're cooking smells great' can at times be more effective than 'Can I please have a piece of that cake?'

Innate and learned behaviours – Chomsky, Bruner

In looking at language development, we are going to compare and contrast the views of two eminent theorists who expound different theories about the way in which children acquire language. Noam Chomsky proposed that language development was innate and would develop automatically when children were exposed to their language environment. Jerome Bruner, by contrast, set out a theory that included a role for the language environment in supporting and shaping language learning. These theories to some extent represent the nature versus nurture debate and are discussed below.

Chomsky

A great deal of research in the 1970s and 1980s examined how children develop or acquire language. At first it was assumed that language was something that developed naturally as everyone learned how to speak their own native language. This was called nativist theory. Noam Chomsky (1928–) proposed a *language acquisition device* (LAD), which was characterised as a mysterious 'black box' that was hard-wired for language (Chomsky, 1986). This black box was proposesd by Chomsky as a theoretical construct that represents the genetic ability of humans to acquire language. Thus, this theory proposed that language development was genetically predetermined. The LAD worked by receiving as input the native language around the child and generating sentences in that same language as output.

Broaden your understanding

Language acquisition device (LAD) explained

A nativist theory of language development assumes children have innate knowledge about language. Learners know in advance what language is – this is genetically predetermined – and they can acquire language quickly. Children do not need other people to talk to them (but they need to hear language spoken around them). Instead, all linguistic knowledge is in-built. Evidence for this view of language learning comes from studies that show parents do not provide reliable feedback on whether their children's developing language is grammatical or not. Correction is not given, but children still learn to talk in grammatical sentences. Children are, however, surrounded by people talking and Chomsky proposed that individuals are genetically endowed with a specific facility for language, and this facility only requires linguistic input from a particular language community for children to generate grammatical sentences of that language.

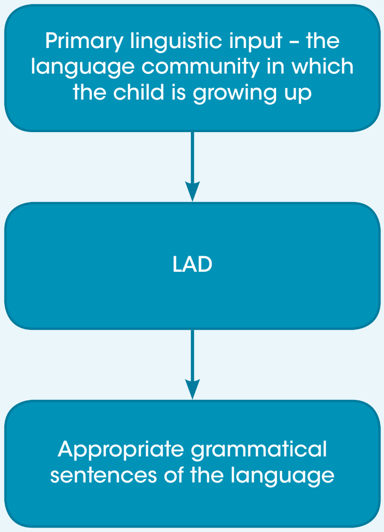


Figure 4.6 Language acquisition device (LAD) (from Garton & Pratt, 1998)

The language acquisition device (LAD) works by assuming that all languages share similarities for sentence construction. These principles are universal and are the assumptions children bring to the task of learning language. Chomsky's theory of language thus assumed that there were universal rules in the LAD that could distinguish grammatical from ungrammatical sentences. Grammatical sentences are those that follow the conventional rules of the language, such as in English when we have a subject (the boy) then a verb (bounced) and an object (the ball). An ungrammatical sentence would read 'bounced the boy the ball'. Other languages have different grammatical conventions such as German where the verb is sometimes at the end of the sentence.

One set of rules was developed to cover the grammatical, or deep, structure of language. These were the universal rules, applicable to all languages. Surface structure rules, on the other hand, described the grammatical structure of each spoken language. Deep structure rules enabled the generation or production of grammatical sentences. It was claimed that people are genetically predisposed to learn this universal grammar, so children naturally learned language. LAD could deal with the surface structure language received (sometimes ungrammatical, erroneous or irregular) and make sure children's output increasingly approximated the language of native speakers.

This theory paid little attention to the social environment in which the child was developing, except to acknowledge that the primary linguistic input came in the form of language being used in the family and in the community. Children were innately predisposed to learn how to talk and how to understand the language around them. It was this shortcoming that led other researchers to propose a substantial role for the social environment in the language development of children, recognising that communication is a fundamental function of language.

Figure 4.7 Mothers talking to their infants helps early language development.

Bruner

By contrast, many believe that children's language development takes place through parents talking to their children. Such learning involves participation in shared activities where words and meanings develop in routines and activities regularly undertaken, like shopping, washing dishes and tending the garden. The notion that adults assist children to learn language is best explained by Jerome Bruner (1915–2016). Based on a longitudinal study of two boys, from 3 months of age until they were about 24 months, Bruner (1983) described the processes through which language was learned. He proposed a *language acquisition support system* (LASS), which essentially described how parents (mainly mothers) guided and supported their children's emerging language through interaction. Not only did the children learn to talk, but they learned the language of the particular social, historical and cultural group in which they were growing up.

According to Bruner, LASS required LAD and vice versa. Language can only develop through interaction with others. There is thus a child component, containing the innate propensity to learn language, and there is an adult component, providing the necessary social and instructional frameworks to encourage talk and to facilitate the learning of language.

Bruner's theory, therefore, proposed that adults (in his research, the mothers), provided suitable interactional frameworks to allow language to develop. This has been dubbed **scaffolding** since it contains an instructional part in the form of a framework that encourages learning. The mother must stay one step ahead of her child. Through the use of extremely well-known, familiar and comfortable routines and activities, she can 'push' the child a little beyond his or her current capabilities to talk more, to use new words, and to learn new meanings. These routines were called **formats** by Bruner. They are micro-interactional patterns and include such activities as meal and bath times as well as familiar games like joint book reading and peek-a-boo. These activities are tightly structured and offer rich opportunities for a mother to raise her expectations about what she considers acceptable in her child's language.

An example of how language development is supported through mother–child interactions is the growth of **reference**. Reference is how people manage and direct each other's attention by linguistic means. Reference develops out of non-linguistic methods of directing attention, such as pointing or turning your head to look at something or someone. In very young children, sounds accompany these gestures and eventually the sounds come to replace the gestures. Reference is highly context-sensitive and takes place in time and space, using words such as 'here', 'this' and 'today'.

Joint attention, the shared focus of two individuals on an object, is first established though eye contact between an infant and his or her mother. Sustained eye contact is often taken by parents as the first sign that the infant recognises them, and it leads to primitive conversations, mainly from the parents' end! From this early eye contact, mothers and their infants develop primitive vocal turn-taking, the child looking and making a noise, the mother looking and talking. Once this routine is firmly established, mothers introduce objects for the infant to look at. So, for example, she may hold a brightly coloured object in-between her line of sight and that of her young child, and look at the object. The infant will follow suit. These routines themselves are accompanied by talk and, gradually, over time, the objects looked at are moved further away. Looking also gets replaced with pointing. In this way, infants gradually associate names of objects with terms to describe their place in time and space. But all the time, mothers are using this routine to enhance the opportunities for their children to learn language.

A second example of the growth of reference was found in book reading. This is a format with a routine structure, requiring the mother and child to sit down together and 'read'. Early books are picture books and much of the reading consists in the mother pointing at things in the pictures (objects, actions) and naming or commenting on them. This activity is particularly beneficial for language learning as well as for literacy.


Getty Images/Tiina & Geir

Figure 4.8 When a child points, the eyes of those around will follow.

Features of a Language Acquisition Support System (LASS)

1. Adults highlight features of the world that are already salient to the child and which have a simple grammatical form.
2. The adult helps the child by encouraging words (or sounds) and gestures that can be regarded as communication.
3. In play that is ritualised (such as peek-a-boo), events can be created by language and then later recreated by language.
4. Once play rituals are routine, further psychological and linguistic processes can be used and generalised to other events. In the example of joint attention, it was noted that early routines such as looking at objects were accompanied by talk and later looking gets replaced with pointing. In this way, infants gradually associate names of objects with terms to describe their place in time and space.

Based on Bruner, 1983

Figure 4.9 Four features of LASS (Bruner, 1983)

As discussed by Bruner (1983) and then later by Garton and Pratt (1998, 2004), by the time book reading appears as a format, children are able to take turns and know many of the conventions of conversations. Book reading shows most clearly how mothers use the format to help children achieve more with their language. So, for example, initially when a mother in Bruner's study pointed to a picture and asked her child what it was, she would accept any noise that signalled the child was looking and listening. Then, as the child develops, the mother's expectations of her child increase.

Broaden your understanding

The beginnings of book reading

The following example adapted from Bruner (1983) shows how the types of language in early book reading used by the mother are quite limited. The responses of the child who was 13 months old in this example are similarly limited but show understanding of the routine.

Mother: Look!
Child: (Touches picture)
M: What are those?
C: (Babbles and smiles)
M: Yes, they are rabbits.
C: (Babbles, smiles and looks at mother)

M: (Laughs) Yes, rabbit.
C: (Babbles and smiles)
M: Yes.

Over time, the mother became more demanding in the answers she found acceptable, providing feedback on the acceptability of the answer given to her and commenting on both the picture and the language used. The criteria of acceptability were constantly moved and the 'bar raised'.

Contrast this routine when the same child was 23 months old with the earlier one.

M: What's that?
C: Ouse.
M: Mouse, yes. That's a mouse.
C: More mouse (pointing to another picture).
M: No, those are squirrels. They're like mice but with long tails. Sort of.
C: Mouse, mouse, mouse.
M: Yes, all right, they're mice.
C: Mice, mice.

Over time, the mother became more like a teacher as the child's contribution to the book reading increased. This also involved the child taking on the questioning role and turning the pages when ready.

Newspix/Tim Hunter

Figure 4.10 Mothers reading to their young children has benefits for language development.

In these two quite different types of routines of joint attention and book reading, the mother is taking the opportunity to turn routines into a language learning lesson. She supports, scaffolds and encourages her child to strive for greater and more accurate language use. She provides the context and the constraints within which the child can demonstrate his or her current language attainment. She is also encouraging further achievement, supporting the child's attempts to use language. She becomes more particular in what she finds acceptable in language behaviour as the child grows older.

Table 4.4 summarises two of the types of format studied by Bruner in the study of reference.

Table 4.4 Activities in the development of reference

Language function	Format	Description
Reference		How people manage and direct each other's attention by linguistic means
	Joint attention	The shared focus of two individuals on an object; it is seen in development when one individual, often the mother, alerts the child to an object by means of eye-gazing, pointing or verbal means
	Book reading	A context within which children learn about books, the meanings associated with words, and the use of language

CHAPTER SUMMARY

Communication

Communication styles

- Three communication styles – assertive, aggressive, passive
- Impact of social background – Bernstein, Labov
  - Bernstein – restricted and elaborated codes
  - Labov – African American Vernacular English (AAVE)
- Gender differences – Tannen
  - Report and rapport talk

Features of persuasive communication

- Elaboration-likelihood model of persuasion
- Routes to persuasion
  - Central – thoughtful consideration of the message
  - Peripheral – focus on cues other than the message
- Source of the message
- Nature of the communication
- Characteristics of the audience
  - Individual differences in evaluating messages
  - Cultural differences in evaluating messages

Features and limitations of theories of language development

- Innate and learned behaviours – Chomsky, Bruner
  - Chomsky
    - Nativist theory
    - Language acquisition device (LAD)
  - Bruner
    - Language acquisition support system (LASS)
      - Adult–child interaction
      - Formats
    - Development of reference
      - Joint attention
      - Book reading in children

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Assertive communication style

2 Elaborated code

3 Rapport speech

4 Nativist theory

5 LASS

Multiple-choice questions

1 A restricted code is one that:
   A relies on a very limited number of words.
   B is out-of-bounds to certain people.
   C stresses the 'here and now'.
   D is used only by English working classes.

2 The language that is characteristic of men is:
   A full of swear words.
   B called report talk.
   C for developing relationships.
   D used privately.

3 There are two routes of persuasion. They are:
   A hard and soft.
   B harsh and gentle.
   C central and peripheral.
   D speaker and listener.

4 Advertisements that work rely on:
   A persuasion.
   B a photo of a good-looking girl or boy.
   C being very colourful.
   D being displayed in prominent places.

5 The language acquisition device (LAD) describes:
   A how the environment supports language development.
   B how children learn language.
   C how sign language is learned.
   D a 'black box' we have in our brains.

Apply and relate psychological understandings

Short-answer questions

1 Describe the elaborated code.

2 List some of the characteristics of the talk of males.

3 Discuss the use of high-profile sportsmen and women in advertisements.

4 Explain how the LAD works.

Extended-answer question

Discuss the importance of early book reading and how it helps children's language development.

UNIT 4

UNIT 4

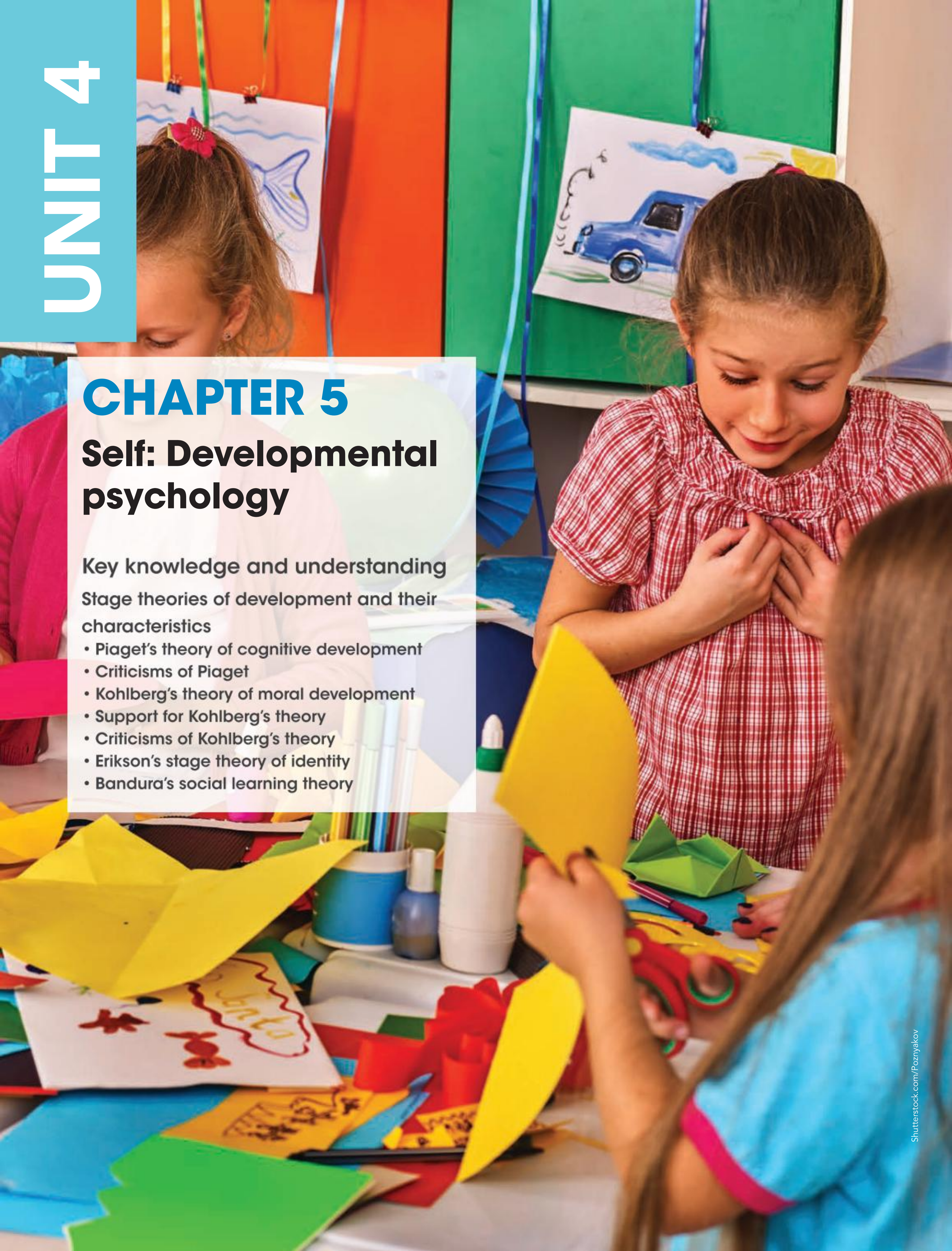
CHAPTER 5

Self: Developmental psychology

Key knowledge and understanding

Stage theories of development and their characteristics

- Piaget's theory of cognitive development
- Criticisms of Piaget
- Kohlberg's theory of moral development
- Support for Kohlberg's theory
- Criticisms of Kohlberg's theory
- Erikson's stage theory of identity
- Bandura's social learning theory



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Developmental psychology

Stage theories of development and their characteristics

Psychologists have, for many years, produced theories of human development. When looking at development from infancy to adulthood, the most popular type of theory has been a stage theory. **Stage theories** describe development in terms of age-related, discrete, qualitatively distinct steps or stages through which all individuals pass in the same set order. While this type of theory has not proven adequate in describing and explaining development in adults, especially older adults (Baltes, 1987), it has shown itself capable of describing what we know, explaining what we observe, and providing testable predictions (hypotheses) when dealing with development through childhood.

Some stage theories have only attempted to cover one aspect of development, such as cognitive development. Others have attempted to be wider-reaching and show how various aspects of development relate to each other. We will now examine some of the better-known stage theories.

Piaget's theory of cognitive development

One of the most influential theories of human development is that of Jean Piaget (1896–1980), a Swiss biologist and psychologist. Early in his career, Piaget became interested in how children think, after administering intelligence tests to children and being intrigued by the reasoning that led to children giving *wrong* answers.

Piaget considered that we build an understanding of our world and develop our thinking skills through active interaction with our environment. This leads to us building concepts or **schemas**, to use Piaget's term. A schema is an idea about what something is and how to deal with it. By adulthood, we have vast numbers of schemas ranging from those for chairs and tables to concepts of love and democracy.

Piaget thought that there were two processes by which we gain and change our schemas and thereby adapt to our changing environment: assimilation and accommodation. In **assimilation**, we interpret new experiences and information in terms of our current understanding (schemas). Sometimes this is done correctly, as when a child who has only seen large dogs is still able to recognise a dachshund as a dog. Sometimes mistakes are made. Three-year-old Shaun had a simple schema for 'ball' that incorporated everything that was roughly round. As a result, he assimilated grapes and olives into his schema called 'ball' and asked for them by that name. The response from his parents soon taught him that his schema was too broad and needed adjusting if he was to get what he wanted! Piaget called this 'adjustment' to fit the particulars of new information **accommodation**. As we interact with our world, we construct and modify our schemas.

Piaget's studies also led him to believe that children's thinking changed with age: children progressed gradually through a fixed sequence of four developmental stages that have different characteristics. The four stages that Piaget described were the sensori-motor stage, the pre-operational stage, the concrete operational stage and the formal operational stage. The characteristics of these stages are described and summarised in Table 5.1.

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Figure 5.1 Infants in the sensori-motor stage understand the world through motor and sensory interactions with it.

Table 5.1 Piaget's stages of cognitive development

Stage	Age	Characteristics of stage	Tests of cognitive stage
Sensori-motor	birth–2 years	Understands world through senses and interaction with it; lacks object permanence – does not realise an object continues to exist if hidden	Hiding object to see if child will look for it
Pre-operational	2–7 years	Egocentric; perceives world from own standpoint	Choices of gift for parent: tie or teddy? Three mountains task (Figure 5.4)
Concrete operational	7–11 years	Can think logically and carry out mental operations if using concrete materials	Conservation (Figure 5.5) Classification Seriation
Formal operational	11 years and up	Capable of both abstract and logical thinking	Pendulum task ('Broaden your understanding' box)

In the **sensori-motor stage**, (birth to 2 years) babies develop their understanding of the world through their sensory and motor interactions with it – by mouthing, touching, looking and listening. At this age, the child seems to live in the present and have little understanding that things continue to exist if they are not within sight. Piaget tested this idea by presenting infants of different ages with an interesting toy and then covering it with his beret to see if they would look for it. Piaget thought that infants did not have an idea of **object permanence** until about eight months of age because before this age they did not look for the toy once it had been covered up.

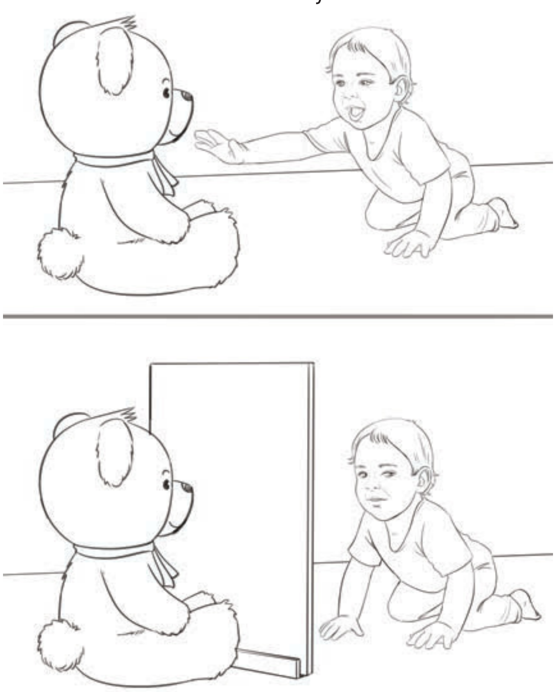


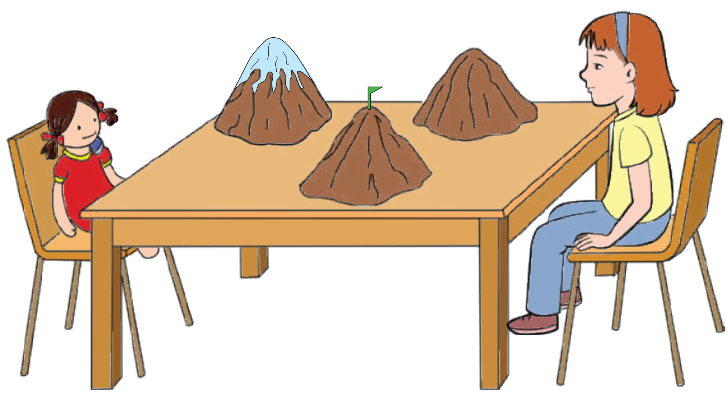
Figure 5.2 Until about eight months the infant will not look for an object that has been covered up or hidden since they have no understanding of object permanence.

Piaget called his second stage of development **pre-operational**, because children of this age are still not able to carry out the mental operations that would allow them to think logically. Four-year-old Susie complained that she did not have enough lemonade. Her mother poured her drink from a short, wide tumbler into a tall, thin glass. Susie was now satisfied that she had enough lemonade. She was unable to carry out the mental process of reversal to understand that the quantity of drink had not changed, only its appearance.

Figure 5.3 When asked which of two containers holds more liquid, a child in the pre-operational stage will choose the tall, thin container rather than the shorter, wider container. In fact, these two containers hold the same volume.

Figure 5.4 In the three mountains task, the child has to imagine what someone on the other side of the model can see.

Piaget's three mountains task



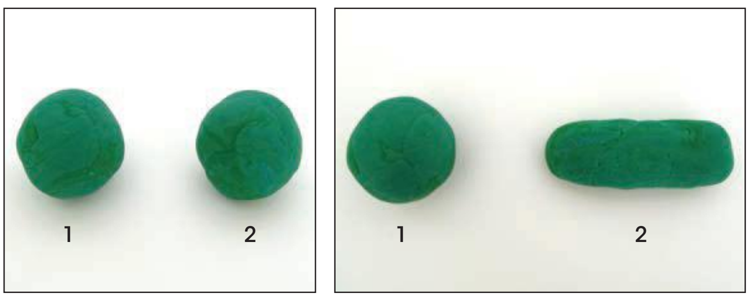


Figure 5.5 A child who can conserve mass will realise that the plasticine ball that has been made into a sausage (ball 2) still contains the same amount of plasticine as ball 1.

During the pre-operational stage, children are **egocentric**. They can only perceive the world from their own viewpoint. Asked to choose a present for their father from a range of alternatives, they are more likely to choose a teddy bear than a tie. When playing hide-and-seek they will think that you cannot see them if they cannot see you. One task that Piaget used to demonstrate egocentrism is known as the three mountains task. In it the child has to sit on one side of a model, such as that shown in Figure 5.4, and determine what the person sitting on the other side of the model can see. Until about six years of age, children cannot understand that another person can hold a different visual perspective from their own. Egocentrism also explains some irritating behaviour, such as children who stand between you and the television screen. They are not being deliberately annoying; they are simply unaware that you cannot see the television. They assume that you can see the television because they can.

By the **concrete operational stage**, children are able to think logically and carry out mental operations, provided they are working with concrete materials – materials that they can experience through their senses.

A key achievement during this stage is conservation. By **conservation**, we mean the understanding that an object does not change its weight, mass, volume or area simply because it changes shape. In checking whether a child understood conservation, Piaget did such things as showing the child two balls of plasticine that were the same size.

He would then roll out one of the balls to make a long, thin sausage shape and ask the child whether the sausage had as much plasticine as the ball or more or less. A child who can conserve knows that there is still the same amount of plasticine, whereas a child at the pre-operational stage will usually say that the long thin sausage now has more plasticine.

Other accomplishments achieved during the concrete operational stage are the ability to **classify**, to group objects or events by features that they have in common, and to **seriate**, the ability to order objects with respect to common properties, such as ordering classmates from shortest to tallest. Towards the end of this stage, children start to be able to use mental pictures of objects and events, rather than having to use concrete materials to help them solve problems.

By about the time children start secondary school, they enter Piaget's last stage – the **formal operational stage**. At this stage, children become capable of **abstract thinking** – thinking that does not rely on being able to see or handle concrete materials in order to reason about them. Adolescents can talk about concepts, such as honesty and morality. They can discuss *possible* outcomes of actions without having experienced them.

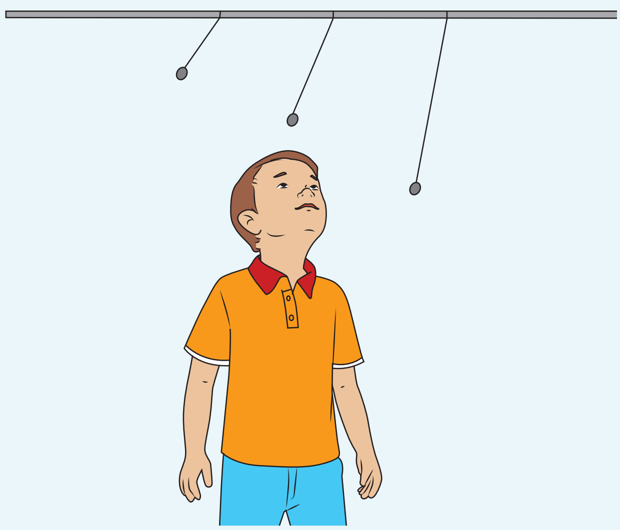
Another key achievement of this stage is **logical thinking**. Individuals develop strategies to work through problems systematically, developing hypotheses and testing them until a solution is found. An experiment used by Piaget to test for logical thinking is the pendulum problem shown in the 'Broaden your understanding' box below.

Broaden your understanding

Piaget's pendulum problem

One experiment used by Piaget to test whether children had reached the level of formal operational thinking made use of pendulums. These varied in weight and the length of string on which the weights were hung. The weights could be dropped from different heights and pushed with different amounts of force. Piaget asked the children to work out which of these factors or combinations of factors affected the rate at which the pendulum swung.

Children at the concrete operational stage typically changed one or more of the factors (weight, height, length of string or force with which they pushed the weight) in a haphazard way to try to work out what affected the rate of the swing. As a result, they rarely reached the right answer. Children who had reached the formal operational stage *systematically* tested the factors to enable them to conclude that it was the length of the string that determined how quickly the pendulum swung.



Piaget thought that other aspects of development, such as social and emotional development and moral development, depended on the level of cognitive development that a child had reached.

Piaget's theory has stimulated a large amount of research. In more recent years, psychologists have questioned some of Piaget's research methods, with their findings suggesting that Piaget underestimated children's understanding of the world.

Criticisms of Piaget

Since Piaget's pioneering work, both theorists and researchers have suggested that there are weaknesses in it.

Some theorists who have been critical of Piaget think that he placed too little emphasis on how children's minds develop through their interactions with others, especially with more competent peers and adults. He often wrote as if the child was a little scientist exploring the world alone. In this respect, he is often contrasted with Lev Vygotsky, whose central theme was that cognitive growth developed from children's social interactions and occurs in a sociocultural context. In his later writings, Piaget did indicate that he thought social interaction influenced the rate at which children moved from one stage to the next, but some psychologists consider that he still underplayed the role of social and cultural influences.

Researchers who have criticised Piaget suggest that his tasks did not always measure what he thought they measured, leading to an underestimation of young minds. They have suggested that some of his findings may be the result of:

- using unfamiliar materials and situations
- using language that breaks conversational rules
- failing to distinguish between competence and performance
- using tasks that measured education rather than development.

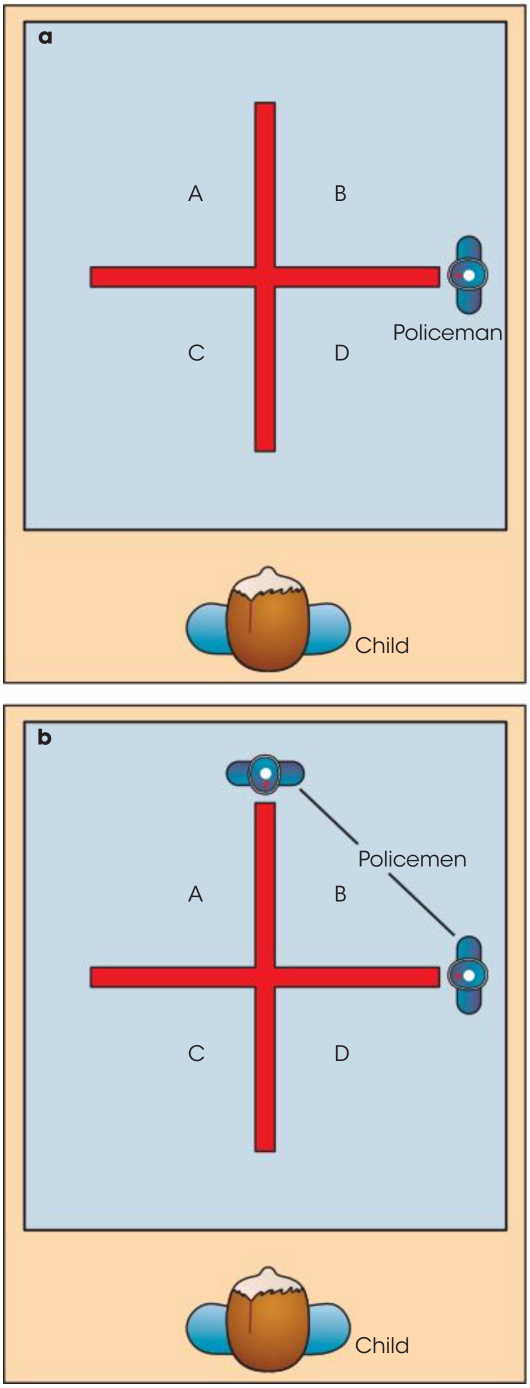
We will look at each of these criticisms in turn.

Use of unfamiliar materials and situations

Some studies have modified Piaget's tasks so that they involve materials and situations that are common to young children. These indicate that the children in Piaget's studies may have failed tasks because of a lack of familiarity with the situation, rather than because they lacked the cognitive skill required. Martin Hughes (cited in Donaldson, 1978) found that children aged between three and a half and five years could take another person's perspective and no longer appeared egocentric when asked to carry out tasks that involved hiding a boy (doll model) 'so that the policeman (doll model) can't see him' (Figure 5.6a). Even when Hughes produced a second policeman, making the task more complex, 90 per cent of children could correctly hide the boy from both policemen (Figure 5.6b).

Donaldson argued that young children pass Hughes' policeman task and fail the three mountains task of Piaget because they are familiar with hiding: the policeman task makes sense to them. By contrast, the three mountains task used by Piaget is more abstract and makes little real-world sense to young children.

Figure 5.6 The layout of Hughes' policeman task. Two walls intersect to form a cross. The child has to put a boy doll (not shown) where the policemen cannot see him.



Using language that breaks conversational rules

Another aspect of Piaget's tasks that has been critically examined is the language used. Michael Siegal (1991) argued that younger children's apparent inability to conserve can be explained by adults breaking the conversational rules that children hold. He thought that problems arise when experimenters ask questions where the answer is obvious, or repeat questions when an answer has already been given. Both of these situations often occur in Piagetian tasks. Since this does not usually happen in everyday conversation, young children are likely to assume that their first answer must be wrong, and so, in an effort to please the examiner, they change their responses. For example, in the study of conservation of mass, the child may be shown two balls of plasticine and asked if they contain the same amount of plasticine. One ball is then rolled into a sausage and the child is again asked whether they contain the same amount of plasticine (as in the original). Siegal considered that children are likely to change their answers, even if they think the balls still contain the same amount of plasticine, simply to please the examiner. Studies that have changed the way in which questions are asked provide support for Siegal's claim.

Failing to distinguish between competence and performance

Related to this issue is the question of whether Piaget was actually testing children's competence – their actual ability to understand a question and correctly complete a task. Piaget tended to assume that if a child failed a particular cognitive task, it was because he or she lacked the competence to perform it. Yet educators have long been aware that there are many factors other than competence that can affect whether a person performs a task successfully. To take our previous example, it is possible for a child to be able to answer a question correctly yet provide a different answer to please the examiner. It is also possible that children are capable of doing the *reasoning* involved in a task but are *unable to explain* the principles involved. As so many of Piaget's tasks rely on verbal responses to questions, lack of skill in verbal expression may mask competence in reasoning.

Broaden your understanding

Egocentric thought

Consider the following situation: The five-year-old who drew the picture here said, 'This is a picture of a *Tyrannosaurus rex* and he is thinking, "I'd like a person on a plate for dinner."'

Piaget claimed that five-year-olds were at the egocentric stage. Do you think that this five-year-old's comments indicate egocentric thinking? Why? Consider the characteristics of egocentric thought. Discuss the reasons for your answer with a friend. You may both have good reasons for coming to different conclusions.

Figure 5.7 A five-year-old child's *T. rex* picture

Measuring education rather than cognitive development

Seagrim and Lendon (1980) reported the findings of the Hermannsburg project, which compared the cognitive performance of children from the Aranda and Loritja people, reared in the isolated Lutheran Mission Station in Central Australia, with other Aboriginal children reared elsewhere and in different circumstances. Intellectual performance was almost exclusively based on performance on Piagetian tasks and included tests of conservation, of classification and of seriation. The Hermannsburg project was longitudinal in nature and was conducted between 1965 and 1978. So as well as the cross-sectional comparative element to the research, some Hermannsburg children were retested over a number of years.

The major aim of the research was to investigate the universality of Piaget's theory; in other words, to test whether the developmental stages as specified in the theory unfolded according to a predetermined pattern or whether they were subject to external pressures. It was claimed that cross-cultural research could begin to answer this question and it was predicted that the various Aboriginal groups, with varying degrees of experience of contact with white culture, would demonstrate differences in intellectual development.

What Seagrim did conclude was that Australian Aboriginal children were as capable as white children in the different types of thinking at similar ages and with similar educational experiences. However, this was only the case if the children had been totally immersed in the white culture (at an age and for a time period, which were both still unspecified). Under all the other circumstances studied, Aboriginal children lagged considerably behind or failed to exhibit the types of thinking tested by the tasks. Nowadays, cross-cultural research in the Piagetian tradition has largely ceased due to the recognition that formal schooling plays a large role in the development of the types of thinking tapped by Piagetian cognitive tasks.

After all the criticisms, you might wonder how Piaget is regarded today. In 1999, *Time* identified him as one of the 20th century's 20 most influential thinkers and scientists. Even now, he is recognised as one of the giants of psychology and that many of the key points of his theory still stand. While research has indicated that Piaget may have been wrong on the ages at which milestones were reached, he was correct in their sequence. His emphasis on children as active beings who construct understanding through their interactions with the world has transformed education and removed the notion of children as empty vessels waiting to be filled. And his theory still provides a platform for research.

Kohlberg's theory of moral development

Lawrence Kohlberg (1927–1987) proposed a stage theory to account for the development of moral reasoning – the reasoning about what constitutes right and wrong that underpins ethical behaviour. According to Kohlberg (1981), there is a universal sequence to moral development, and the stages begin early in childhood. His six stages of moral development were based on the responses of 10-, 13- and 16-year-old boys to various moral dilemmas. These were a refinement and extension of those used by Piaget (Shaffer, 1999). The dilemmas focused on the value of human life and property, the meaning of social rules and laws, the value of honesty, and the importance of upholding contractual agreements with others. One of the dilemmas he used is described in the 'Broaden your understanding' box below.

Broaden your understanding

A moral dilemma

A woman was near death from a unique kind of cancer. There is a drug that might save her. The drug costs $4000 per dose. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means to raise some money, but he could only get together about $2000. He asked the doctor who discovered the drug for a discount or to let him pay later. But the doctor refused, saying that he discovered the drug and wanted to make money from it.

Should Heinz break into the laboratory to steal the drug for his wife? Why or why not?

The reasoning behind the answers given by the children led Kohlberg to propose his six stages of moral reasoning. His interest was not on whether the children approved or disapproved of the theft of the drug but the reasons they gave for their response. Consequently, an answer of yes or no with regards to stealing the drug could be rated as being at the same developmental level. The six stages are described below and an example of typical answers to the Heinz dilemma are provided in Table 5.2 following a summary of the stages.

In Stage 1, a person's judgement of whether something is right or wrong depends on the consequences of the action. You should obey authorities to avoid punishment. The greater the punishment the more 'bad' the act. In Stage 2, the individual obeys rules in order to gain rewards or achieve a desired end – a 'what's in it for me' approach. Kohlberg referred to these first two stages as **preconventional morality** because the person at this stage is concerned solely with themselves and the external consequences of their actions. They have not internalised society's conventions about what is right or wrong.

By Stage 3, behaviour that is considered moral is approved by others or intended to please or help them. In Stage 4, the individual takes their reasoning a step further by considering the perspectives of society as a whole as reflected in law. Kohlberg called these two stages **conventional morality** since the individual who is reasoning at this level tries to obey social rules and laws to maintain social order and be considered a good person.

The person who has reached Kohlberg's Stage 5 considers that laws that express the viewpoint of the majority and are impartially imposed to be social contracts that one is morally obliged to uphold. By Stage 6, a stage that few people reach, the individual defines right and wrong on the basis of their own conscience, applying what they consider to be principles of universal justice. Stages 5 and 6 are at the level of **postconventional morality**, according to Kohlberg, because they depend on principles of justice that are beyond conventions and could be in conflict with written laws (Shaffer, 1999).

Table 5.2 Kohlberg's six stages: their characteristics and application to Heinz' dilemma

Stage	Moral focus	Content/characteristics	Typical answers to Heinz' dilemma
Preconventional			
Stage 1	Punishment and obedience Egocentric	Does not recognise different points of view Confuses perspective of authority with one's own	Heinz should not steal the medicine, because he will go to prison
Stage 2	Individual, instrumental and concrete	Aware of different interests and that these may conflict Instrumental exchange of services, goodwill and fairness	Heinz should steal the medicine, because he will be much happier if he saves his wife
Conventional			
Stage 3	Mutual interpersonal expectations, conformity and relationships	Following rules, living up to the expectations of others, and maintaining trust, gratitude, respect and loyalty	Heinz should steal the medicine, because his wife expects it Heinz should not steal the drug because if his wife dies he can't be blamed; the doctor is the heartless one

Stage	Moral focus	Content/characteristics	Typical answers to Heinz' dilemma
Stage 4	Social system and maintenance of one's conscience	Doing one's duty, taking the view of the system, obeying laws and upholding the social order	Heinz should not steal the medicine, because the law prohibits stealing Heinz should steal the drug because it's his duty to save his wife, but he must take his punishment because he has broken the law
Postconventional			
Stage 5	Rights and social contract	Asserting and integrating basic rights, values and legal contracts Laws as social contracts	Heinz should steal the medicine, because everyone has a right to live, regardless of the law Heinz should not steal the medicine, because the doctor has a right to fair compensation
Stage 6	Universal ethical principles and moral point of view	Commitment to the universal principles of justice Respect for others	Heinz should steal the medicine, because saving a human life is a more fundamental value than the property right Heinz should not steal the medicine, because that violates the rule of honesty and respect

While Kohlberg did not associate ages with the different stages, Stage 1 would be characteristic of children under the age of seven years since they cannot take the perspective of another person. Stage 2 judgements appear around age seven when exchanges become more commonplace. As each stage builds and depends on the previous one(s), the sequence is invariant. Without the knowledge and perspectives acquired at earlier stages, it is impossible to get to the later stages.

Support for Kohlberg's theory

How have Kohlberg's claims held up? If his stages are a true developmental sequence, then we should find a strong positive correlation between age and level of moral reasoning. There are many studies from countries around the world that have found this to be the case (Shaffer, 1999). However, these studies could not show that the sequence in which the stages were reached was invariant, as they used cross-sectional research designs; that is, different people were studied in each age group. To show that the stage sequence is invariant, we need to look at studies that have used a longitudinal design and followed the same people across time. This type of study was used by Ann Colby and her colleagues (Colby et al., 1983), who followed a group of Kohlberg's original participants for 20 years. They found that stages did occur in the order that Kohlberg proposed (Figure 5.8, see next page).

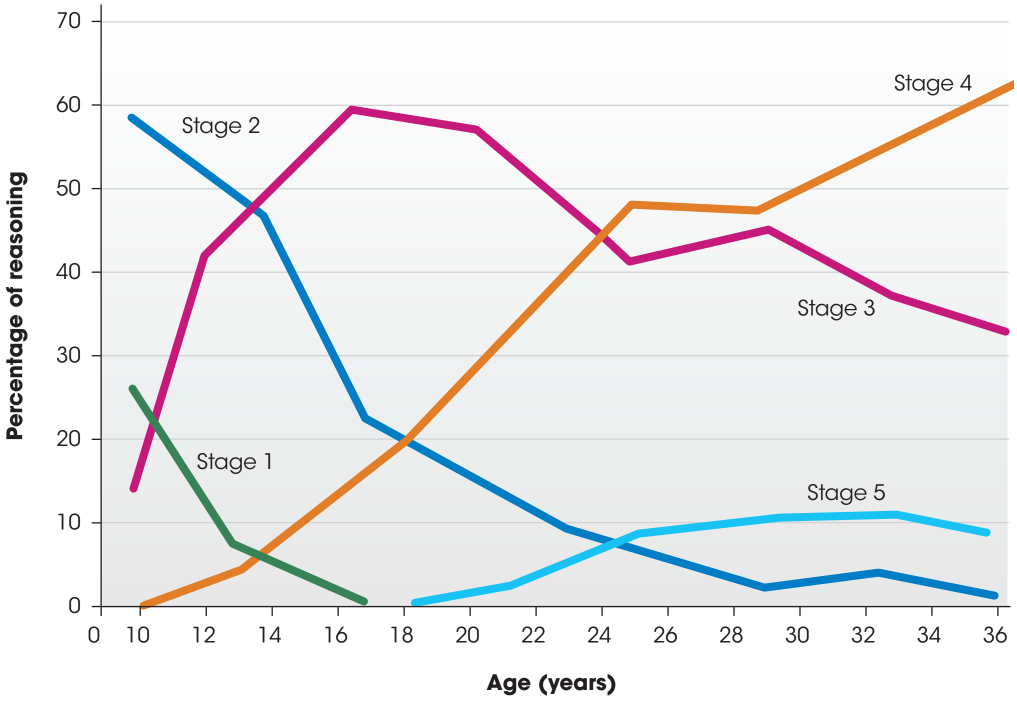


Figure 5.8 Evidence for changes in levels of moral reasoning with age provided by the longitudinal study by Colby and her colleagues

Examining the data in Figure 5.8, we can see that the group of 18-year-old participants, those closest to Year 12 students, showed no evidence of still using Stage 1 moral reasoning, while 20% were at Stage 2, using the 'what's in it for me' approach. The largest percentage (60%) were following Stage 3 reasoning, being aware of and trying to live up to society's expectations. Twenty per cent had reached Stage 4 and took into account the importance of obeying laws to try to maintain law and order in society. None of the participants had reached Stages 5 and 6 – the postconventional level where people make decisions based on their own moral evaluation of the situation. Some theorists and researchers consider that no-one consistently reasons at these stages.

Criticisms of Kohlberg's theory

Kohlberg's theory has not been without critics. They have suggested that the dilemmas and reasoning concerning them show:

- gender bias; and
- culture bias.

Gender bias

Those who have criticised Kohlberg's theory have suggested that the use of only male participants in his original research, and his choice of dilemmas, led him to develop a very Western, male-oriented view of moral development.

Early research suggested that women typically reached Kohlberg's Stage 3, whereas men reached Stage 4. Carol Gilligan (1982) considered that this was due to the different socialisation of girls and boys resulting in different values, rather than males being morally more advanced than females. She argued that males are socialised to be independent and achievement-oriented, encouraging them to see moral dilemmas as a conflict of interest between individuals, which rules and laws are designed to resolve. Gilligan claimed that this led to them adopting a morality of justice (Stage 4). In contrast, girls are brought up to be socially responsible and nurturing, which led them to develop a morality of care (Stage 3).

Gilligan argued that females' moral reasoning was not inferior, simply different. She explored this issue by examining the moral reasoning of a group of 29 American women. She presented them with a real-life moral dilemma: whether or not to continue a pregnancy. She considered that this posed a genuine conflict between personal choice on the one hand and the traditional female values of self-sacrifice and care for others.

From her interviews, she identified three levels of reasoning:

- *Level 1* – self-interest (women justified their responses solely in terms of their own needs and wishes)
- *Level 2* – self-sacrifice (women at this level argued in terms of the rights of others, referring to the wishes of the partner or the rights of the unborn child)
- *Level* 3 – care as a universal obligation

Women reasoning at Level 3 tried to reach a balance between care for others and personal wellbeing. One woman whom Gilligan classed at this level argued: 'The decision has got to be, first of all, something that the woman can live with … or at least try to live with, and it must be based on where she is at and other significant people in her life are at' (Gilligan, 1982, p. 96).

Gilligan's criticisms and her theory have themselves generated considerable discussion. One of the reasons for this is that the supposed sex differences in moral reasoning that stimulated Gilligan's initial reactions and her research have not generally been supported in later research. Reviews of many studies indicate that most studies using Kohlberg's techniques do not show sex differences and, where they do, they are not always in favour of males (Durkin, 1995). Gilligan has also been criticised for basing her own theory on a small number of interviews that were carried out only with women. Nevertheless, Gilligan's work has encouraged later researchers to examine morality in both men and women in terms of both justice and care.

Culture bias

Richard Shweder considered that Kohlberg's research methods led him to 'impose stage classifications upon informants from other cultures that both distort the meaning of what they have to say and fail to take account of implicit structures in their views of their own social order' (Durkin, 1995, p. 498). In a case study with a Babaji, an orthodox Hindu teacher, Shweder presented him with an Indian version of the dilemma of Heinz who is faced with stealing a drug to save the life of his wife. This scenario raises particular issues for a Hindu since Hindu dharma (moral duty) forbids stealing under any circumstances. Shweder asked the Babaji: 'Why doesn't Hindu dharma permit stealing?' The Babaji replied: 'If he steals, it is a sin, so what virtue is there in saving a life? Hindu dharma keeps a man from sinning.' The Babaji's reasoning would place him at about the Stage 3 or 4 using Kohlberg's criteria (following rules, doing one's duty). Shweder argued that Kohlberg's coding system did not allow him to take into account the reasoning of a man with a sophisticated understanding of his own culture (Shweder, 1991). It would appear that in some cultures and religions there are different ideas about what, for example, constitutes universal ethical principles, that would lead members to reason differently from members of another culture with each group considering this difference indicative of a lower level of moral reasoning.

Erikson's stage theory of identity

As children grow and develop, not only is their sense of self and of others developing, they are working out the similarities and differences between themselves and others. In establishing the distinct nature of the self, each individual develops what is termed a unique **sense of identity**, which describes the enduring personality characteristics of each and every one of us.

Erik Erikson (1902–1994) was a famous theorist who described the development of identity not just in childhood but across the entire lifespan. He considered the development of identity to be a series of continual challenges that have to be met by the individual to move successfully to the next phase of life. The search for one's identity is a lifelong process, with the biggest hurdle occurring during adolescence, where the major question to be answered is 'Who am I?' **Identity formation**, therefore, is seen as a continuous challenge with dominant psychosocial crises characterising various phases of life, starting from infancy through to old age. The term **psychosocial crisis** was used because it involves the individual adjusting to society. Erikson's stages in the development of identity are shown in Table 5.3 with approximate ages and some characteristics of the resolution to the crisis of each stage.

Erikson's theory of how identity develops describes conflicts or crises as a normal part of our development. They have to be overcome as the individual develops since successful resolution of these crises can lead to the next stage and to successful resolution of these future conflicts. The stages, regarded as a model of normal personality development, are derived from Erikson's clinical observations of the patients he was treating. Unsuccessful resolution can lead to children, adolescents and adults becoming 'stuck' at a particular stage and then not developing normally. Abnormal personality development could be traced to failure to resolve a particular identity crisis at an earlier stage of development. Although not as influential a theory today as it was when Erikson wrote about it in 1950 and 1968, it is, nonetheless, one of the few theories to adopt a complete lifespan perspective and link development in infancy with development in older age.

Table 5.3 Erikson's stages of identity development

Stage	Crisis	Description and outcome of crisis
1 Infancy, ages 0–1	Trust versus mistrust	Infants are dependent on others for food, warmth and love, and must trust others to provide these. If the infants' needs are met consistently and responsively, then infants will develop a secure attachment to their parent or caregiver and learn to trust others. A failure to bond with a caregiver can lead to mistrust of the world around them.
2 Toddler, ages 1–3	Autonomy versus shame and doubt	Toddlers learn to walk, to talk, to feed themselves and to use toilets, so become autonomous and less dependent on others. Success at becoming independent leads to self-confidence and self-control and mistakes are easily fixed or corrected. Overprotection by or disapproval from parents can lead to shame and doubt in the toddler's ability to be independent.
3 Early childhood, ages 3–6	Initiative versus guilt	Children's social and motor skills become highly developed during early childhood, and the dilemma for these children is to balance the wish to achieve more and take more responsibility while accepting parental control and discipline without guilt.
4 Middle childhood, ages 6–12	Industry versus inferiority	Industry can be regarded as competence and this is achieved through learning at school. Meanwhile, relationships with friends and peers increase. Children who are rewarded for their industry and achieve success at school will develop a sense of competence and mastery, while a failure to achieve competence may lead to a feeling of inferiority.

Stage	Crisis	Description and outcome of crisis
5 Adolescence, ages 12–18	Identity versus role confusion	To answer the question of 'Who am I?' successfully, an adolescent must integrate all the resolutions to the earlier crises and achieve a sense of identity incorporating all the elements of self. This is the major crisis to be resolved for successful transition to adulthood. Failure to resolve the identity conflict can result in role confusion, indecision and avoidance of commitment.
6 Early adulthood, ages 18–40	Intimacy versus isolation	During early adulthood, the achievement of intimacy with another person is important. A failure to develop a sense of identity can mean that a young adult is incapable of forming an intimate relationship and thus sinks into isolation.
7 Middle adulthood, ages 40–65	Generativity versus stagnation	In middle adulthood, the main focus is on work and the maintenance of family relationships. Success in both these areas leads to a sense of accomplishment and leaving a legacy for the future. Failure to resolve this crisis can lead to self-centredness and stagnation.
8 Late adulthood, ages 65 to death	Integrity versus despair	Towards the end of one's life, there is time to reflect on one's contribution and to view it as positive and satisfactory or as disappointing and unsatisfactory. If life is regarded as fulfilled, an older person can view death with a sense of integrity; if not, death will be despaired and even feared.

Bandura's social learning theory

Many early developmental theorists explained changes in children's behaviour as the result of the development of internal structures that changed over time in response to interactions with the environment, and hence, developed stage theories. Albert Bandura (1925–), on the other hand, considered that there was stronger evidence to support the view that much of children's behaviour is the result of them modelling or imitating behaviour they have observed. He referred to this observational learning as **social learning** and he has been particularly interested in how people learn social behaviour.

The role of observational learning and modelling

Bandura considered that children watch other people and copy their behaviour. In this way, children can learn complex social behaviours ranging from aggression and altruism to sex roles. In the original version of his theory, Bandura proposed that children passively took in information from watching the behaviour of others and then simply copied it. His conclusions were based on his studies using a Bobo doll. A Bobo doll is a large inflatable balloon-shaped creature with a weight in the bottom that means it bobs back up when knocked over. In Bandura's studies, this doll was repeatedly knocked over by a female student. She also bashed it, shouting aggressive words and phrases. This was taped

Figure 5.9 As a toddler, success at independence leads to self-confidence.

Source to come

and shown to groups of young children. The children were later allowed to play with the doll and, not surprisingly, they behaved in exactly the same way as the female student. The children imitated just what they had seen on the tape. This was considered an important finding because it demonstrated that the children changed their behaviour without reinforcement or punishment. Bandura conducted many variations of this experiment and, each time, the young children imitated the behaviour of the young female student beating up the clown. This challenged behaviourist learning theory.

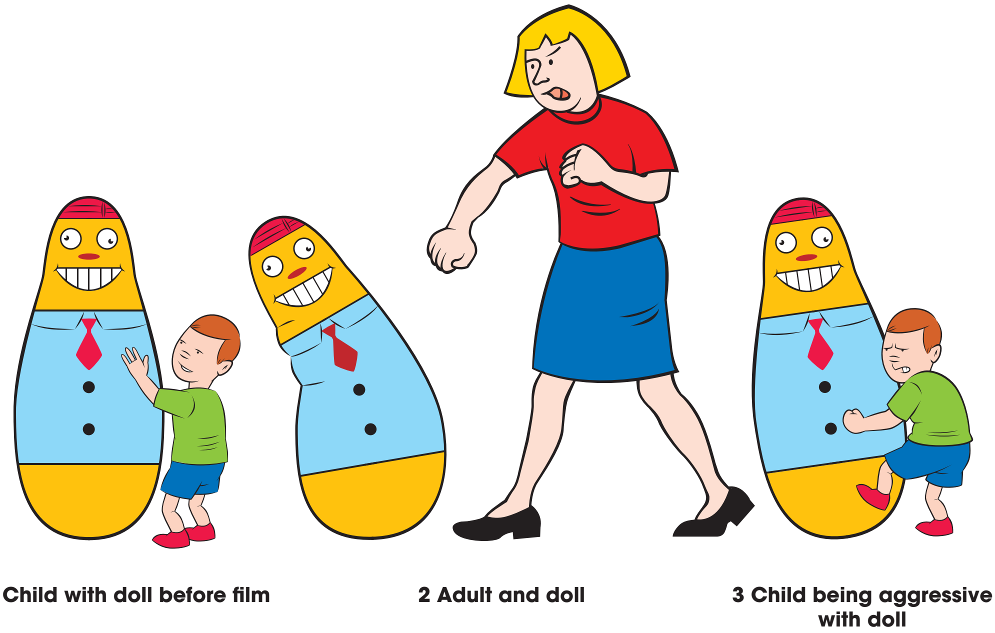


Figure 5.10 Bandura found that children who watched a film of an adult hitting the doll changed their behaviour when left alone with it, imitating many of the behaviours of the adult.

Getty Images/Scott Barbour/AFL Media

Figure 5.11 If the captain of a sporting team acknowledges good play by a team member, others on the team are likely to do so, especially if they admire the captain.

In later versions of his theory, Bandura (1986) acknowledged that learners play an active role in the modelling process, choosing which models they attend to and deciding whether the behaviour they are observing is consistent with their beliefs and values and produces wanted outcomes. It is thus no surprise to find that the people we choose to model our behaviour on change as we grow up. A young child might model their behaviour on a parent or favourite teacher. In the later years of primary school, a popular class member might become a model. If we see the captain of our sporting team encouraging other members of the team when things are not going well, we might decide to copy this behaviour, especially if the captain is someone we admire and the encouragement seems to help team members lift their performance.

Applications of social learning theory and observational learning are found in research on children's aggressive behaviour in playgrounds and in research on the effects of television viewing on children's behaviour.

CHAPTER SUMMARY

Developmental psychology

Stage theories of development and their characteristics

- Piaget's theory of cognitive development
  - Schema
  - Assimilation
  - Accommodation
  - Stages of development
    - Sensori-motor
    - Pre-operational
    - Concrete operational
    - Formal operational
    - Piaget's pendulum problem
- Criticisms of Piaget
  - Use of unfamiliar materials and situations
  - Using language that breaks conversational rules
  - Failing to distinguish between competence and performance
  - Measuring education rather than cognitive development
- Kohlberg's theory of moral development
  - Use of moral dilemmas
  - Levels and stages of development
    - Preconventional morality
      - Stage 1: Obedience to avoid punishment
      - Stage 2: Obedience to gain rewards
    - Conventional morality
      - Stage 3: Obedience to gain approval by others
      - Stage 4: Obedience to social rules
    - Postconventional morality
      - Stage 5: Laws as social contracts
      - Stage 6: Commitment to universal principle of justice
- Support for Kohlberg's theory
  - Positive correlation between age and developmental level
- Criticisms of Kohlberg's theory
  - Gender bias
  - Culture bias
- Erikson's stage theory of identity
  - Sense of identity
  - Identity formation
  - Psychosocial crises
  - Crises of stages of identity formation
    - Stage 1: Trust versus mistrust
    - Stage 2: Autonomy versus shame and doubt
    - Stage 3: Initiative versus guilt
    - Stage 4: Industry versus inferiority
    - Stage 5: Identity versus role confusion
    - Stage 6: Intimacy versus isolation
    - Stage 7: Generativity versus stagnation
    - Stage 8: Integrity versus despair
- Bandura's social learning theory
  - Observational learning/modelling
  - Social learning
  - The role of observational learning and modelling
    - Early theory: watching and copying
    - Later theory: beliefs, values and goals influence choice of models

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Accommodation (according to Piaget)

2 Stage theory

3 Object permanence

4 Formal operational stage

5 Pre-operational morality (according to Kohlberg)

6 Psychosocial crisis

7 Observational learning

Multiple-choice questions

1 Hughes' policeman task tests children's:
   A language development.
   B ability to take another person's perspective.
   C identity development.
   D self-concept.

2 Kohlberg's Stage 5 moral reasoning is rarely reached by:
   A girls.
   B people without Western education.
   C adolescents.
   D all of the above.

3 The ability to classify is an accomplishment of the:
   A concrete operational stage.
   B sensori-motor stage.
   C formal operational stage.
   D pre-operational stage.

4 Erikson considered that the developing individual dealt with the crisis of identity versus role confusion during:
   A middle childhood.
   B late adulthood.
   C adolescence.
   D early childhood.

Apply and relate psychological understandings

Short-answer questions

1 Outline what Piaget meant by egocentrism.

2 Describe the type of psychosocial crisis that Erikson considered a five-year-old child would face.

3 Describe a method used by both Piaget and Kohlberg to determine children's reasoning about justice and fairness.

4 Explain how the language in Piaget's tasks could result in young children failing them.

5 Outline the reasons for Gilligan considering that Kohlberg's theory of moral development was gender-biased.

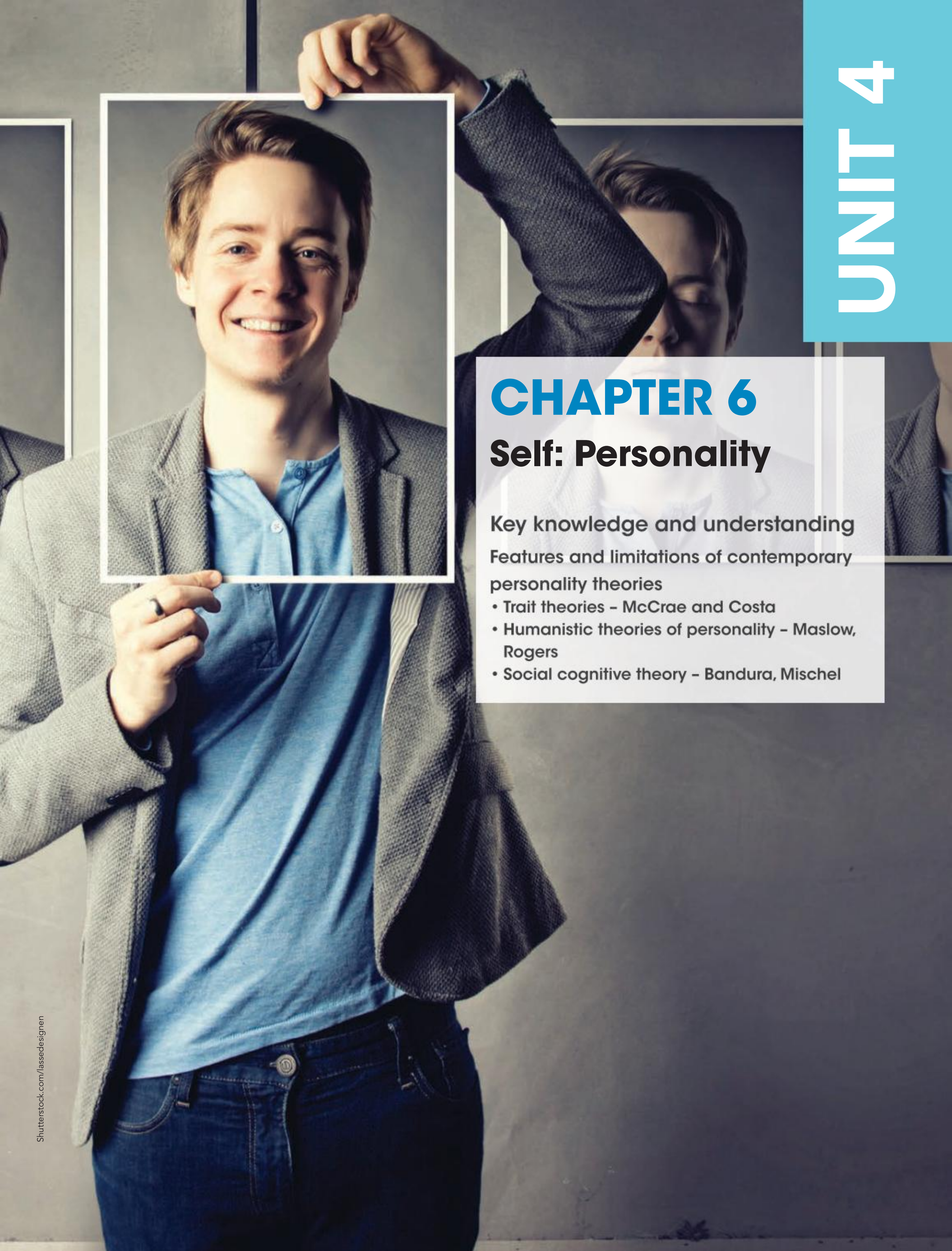
6 Give one example of the type of task that could be used to test each of the stages of cognitive development indicated in the following table.

Stage of cognitive development	Type of task to test stage
Concrete operational	
Sensori-motor	
Pre-operational	
Formal operational	

Extended-answer question

Zak and his friend Dave are 12-year-old boys. Both are considered to be intelligent students by their teacher. However, while Dave offers answers to questions his teacher asks and volunteers to organise a group of classmates to do a project, Zak tries to avoid eye-contact and not be noticed. Indicate how the differences in the boys' behaviour might be explained by Erikson's stage theory of identity and by Bandura's social learning theory.

UNIT 4



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CHAPTER 6

Self: Personality

Key knowledge and understanding

Features and limitations of contemporary personality theories

- Trait theories – McCrae and Costa
- Humanistic theories of personality – Maslow, Rogers
- Social cognitive theory – Bandura, Mischel

Personality

Personality is defined as the characteristic ways in which a person thinks, feels and behaves. Personality makes people who they are. While we all have an understanding of what personality is, it is not a 'thing' that we can directly measure. Like intelligence, personality is a construct that we infer from people's behaviour. Psychologists are interested in better understanding the nature of personality: what it is, whether it is stable or changes over time and how useful it is in predicting behaviour. In Year 11 we looked briefly at some theories of personality and how personality has been measured. In this chapter we will look at some of those theories in more depth and introduce others. In doing so, we will look at the features that distinguish them, how they have been applied and limitations that have been noted.

Features and limitations of contemporary personality theories

Trait theories

Personality traits describe the stable forms of behaviour that people display in any and every situation. Traits are inferred from behaviour and it is expected that people behave in similar ways in different circumstances. Traits can be used to predict future behaviour. The trait approach to personality moves beyond the early type approaches, like that of Sheldon, whom you read about in Year 11, who saw personality characteristics as being related to body types. It categorises people by using more than one dimension. In this way, researchers are in a much better position to capture people's individuality fully.

McCrae and Costa's trait theory of personality

Trait theories largely differ from each other on the number of dimensions that are considered to be important. Eysenck, whose theory we introduced in Year 11, considered that there were three main dimensions of personality: extroversion, neuroticism and psychoticism. McCrae and Costa (1999), on the other hand, considered that there were five dimensions: extroversion, neuroticism, openness to experience, agreeableness and conscientiousness. They described the trait dimension of extroversion as being related to the sociability of the individual and how easy they found it to be assertive and emotionally expressive. The dimension of neuroticism was related to how inward looking the person is and whether their emotions are stable or not. The dimension of openness to experience, as the name implies, related to whether the individual enjoys new experiences and challenges, meeting new people and trying new activities. Agreeableness described how good-natured, cooperative and trusting the person is, while conscientiousness related to level of organisation, dependability and preparedness to work hard. These personality dimensions have become known as the 'Big Five'. They are summarised in Table 6.1 and the extreme end points of each trait dimension are indicated.

Table 6.1 The Big Five factors in personality

Trait dimension	End points of the dimension (low to high)
Openness to experience	Down-to-earth—imaginative Uncreative—creative Conventional—original Unadventurous—daring
Conscientiousness	Negligent—conscientious Lazy—hardworking Disorganised—well-organised Late—punctual
Extroversion	Loner—joiner Quiet—talkative Passive—active Reserved—affectionate
Agreeableness	Suspicious—trusting Critical—lenient Ruthless—soft-hearted Irritable—good-natured
Neuroticism	Calm—anxious Secure—insecure Unemotional—emotional Hardy—vulnerable

More recently, Michael Ashton and Kibeom Lee (2005) have added a sixth factor or dimension (honesty—humility) to the Big Five. The end points of this sixth factor, from low to high, are:

- obsequious/sly—sincere
- deceitful—fair-minded
- greedy—greed avoidant
- boastful/pompous—modest.

They called their model the HEXACO model of personality structure. This name derived from the factors listed in the box below.

The HEXACO model of personality structure

H	Honesty—humility
E	Emotionality (equivalent to neuroticism in the Big Five model)
X	Extroversion
A	Agreeableness
C	Conscientiousness
O	Openness to experience

Both the Big Five and HEXACO theories are trying to describe and explain possible combinations of characteristics and how they predict behaviour. They have been widely used to examine a variety of workplace behaviours such as workplace delinquency, likelihood to sexually harass, or integrity. For example, Heather Jia and her colleagues examined the relationship between a measure of the Big Five traits, together with the presence of a workplace Internet policy and employees' perception of the meaningfulness of their work, and their level of cyberloafing (using the Internet for personal rather than work-related activities) (Jia, Jia & Karau, 2013). They found that two of the Big Five factors, conscientiousness and emotional stability, together with the presence of an Internet usage policy, correlated negatively with cyberloafing, while the Big Five factor of extroversion had a significant positive relationship with improper Internet use.

A meta-analysis by Morten Nielsen, Lars Glaso and Stale Einarsen (2017) of 32 studies that examined the relationship between workplace harassment and the Big Five factor model of personality found that being the recipient of harassment was positively related to the factor of neuroticism but negatively associated with extroversion, agreeableness and conscientiousness. The authors noted that all but one of the studies in their meta-analysis were cross-sectional, so that while they were able to report a correlation between variables, prospective studies would be needed to determine the nature of the association between personality and workplace harassment.

Limitations of trait theories – stability

A claim of all trait theories is that personality traits are stable, enduring characteristics. If there is continuity in personality over time, each of us should be basically the same person that we were 3 or 4 years ago and we should still be basically the same person in 5, 10 or 15 years' time. There is considerable research evidence to indicate that once adulthood is reached, personality is largely stable, but at what age does personality stabilise? Helle Pullmann and her colleagues (2006) conducted longitudinal research over a two-year period with Estonian adolescents ranging in age from 12 to 18 years to look at several aspects of personality stability:

- *Mean-level consistency:* Are there changes in mean scores on each of the traits for each age group over time?
- *Individual continuity:* Do the personality traits of individual participants remain stable over time?
- *Rank-order stability:* Does a person who scores high or low on a particular trait compared with his or her peers remain high or low relative to peers, even if the whole group changes?

Using the NEO Five-factorial Inventory, a measure of the Big Five personality factors, Pullmann and her colleagues found that the mean levels of personality traits among adolescents were very similar to adults from the same population. Moreover, when they compared the different age groups in their sample, they found only modest change in the mean level of the trait scores on three of the five dimensions and no change on the other two dimensions. The level of openness increased and levels of agreeableness and conscientiousness decreased between the ages of 12 and 18 years.

However, while mean-level stability can occur because most of the group remains stable, it can also occur when some of the group change in one direction and others in the group change in the other direction. Was there no mean-level change in neuroticism and extroversion simply because opposite tendencies were offsetting each other? The results from the evaluation of individual-level change indicate that this was not the case. Approximately 80 per cent of individuals in each of the age groups reported their personality traits in a consistent manner over the two years of the study. This finding indicates that the very low change in mean-level of personality traits should be taken at face value. It also indicates that adolescents are very similar to young adults in the stability of their personality traits at an individual level.

Finally, this study looked at rank-order stability to determine the degree to which the relative ordering of individuals on each of the five trait dimensions was maintained over time. They found that by the age of 16 years, the adolescents in their sample had reached the rank-order stability typical of young adults. Although stability levels were lower for the younger adolescents, they were still remarkably high. If a person started high on extroversion relative to the group, he or she usually stayed high.

While this research indicates that personality traits are remarkably stable from adolescence onwards, the question remains as to whether we express our personality consistently across situations. If we consistently report our personality in such a way that we score high on conscientiousness and agreeableness, does this mean that we will behave in a cheerful and helpful way regardless of the task we are doing or the company we are in? Research indicates that this is not necessarily the case. Walter Mischel (1930–) found that conscientiousness in college students could only be predicted with a moderate degree of success (Mischel, 1984). Students who were conscientious on one occasion, such as showing up to class on time, were not always similarly conscientious on another occasion, such as handing assignments in on time. Findings such as this have led some psychologists to question the usefulness of trait-based personality tests. However, in later work Mischel himself, as we will see later in this chapter, considered that those who see personality traits and context as alternative explanations of behaviour are missing the point, much in the same way as those who were involved in the nature versus nurture battles. The 'alternatives' interact.


Newspix/Jay Town

Figure 6.1 Are the people helping the stranded whale likely to score high on conscientiousness, and will they be helpful in other situations?

Limitations of trait theories – utility compared with contemporary type theories

Psychologists and human resources personnel working in large businesses and organisations have, over the past 10 to 20 years, been increasingly using personality measures to determine an individual's suitability for a particular job and the compatibility of workers within teams.

Measurement of personality traits is frequently carried out as part of selection processes for jobs; however, contemporary type theories are also being used in business settings when employers are looking for employees who must work together in teams. Contemporary type theories are no longer one-dimensional, like most of the early ones. People who have the same *cluster* of characteristics or traits are said to have the same **personality type**.

One of the most popular tools used for determining the composition of work teams is the Myers-Briggs Type Indicator (MBTI) (Myers & McCauley, 1985). This personality test was developed by Katherine Cook Briggs and her daughter Isabel Briggs Myers to identify personality preferences. In this test, the test-taker answers 126 forced-choice questions such as the following.

At parties do you prefer to:

a talk to someone you know

b meet someone new.

The Myers-Briggs model is based on preferences that relate to four areas:

1. Where you primarily prefer to direct your energy. If you prefer to direct your energy to the outer world, to deal with people and situations, then your preference is for Extroversion (E). If, on the other hand, you prefer to deal with the inner world of ideas and beliefs, then your preference is for Introversion (I).
2. How you prefer to process information. Here, the alternatives are between Intuition (N), seeing relationships through insight, and Sensing (S), gaining information primarily through the five senses.

3 How you prefer to make decisions. If you prefer to make your decisions on the basis of objective information, taking a detached, analytical approach, then your preference is for Thinking (T). If your preference is to make decisions based on what you value and believe is important in life, then you are a Feeling (F) type.
4 How you prefer to organise your life. The Judging (J) preference is for life that is planned, stable and well-organised. The person who prefers to 'go with the flow' is considered to be a Perceiving (P) type.
When these four preferences are put together they produce 16 personality types (Table 6.2).

Table 6.2 The sixteen Myers-Briggs types and a percentage estimate of the prevalence of each type in the US population.

Population breakdown			
ISTJ 11.6%	ISFJ 13.8%	INFJ 1.5%	INTJ 2.1%
ISTP 5.4%	ISFP 8.8%	INFP 4.4%	INTP 3.3%
ESTP 4.3%	ESFP 8.5%	ENFP 8.1%	ENTP 3.2%
ESTJ 8.7%	ESFJ 12.3%	ENFJ 2.4%	ENTJ 1.8%

Type theories have also been used in health settings. One well-known type theory of personality was developed by cardiologist Meyer Friedman and his colleagues. It was driven by empirical research designed to find out what type of person was susceptible to heart attacks. Their research led them to propose that there are basically two personality types. People with Type A personality are ambitious, competitive, pushy, highly-motivated, busy and impatient. They are also easily irritated and frustrated and can become very angry. By contrast, people with Type B personalities are more easygoing, with low levels of time-urgency, competitiveness and hostility.


Source to come
Source to come

Figure 6.2 Which person is more likely to have a Type A personality?

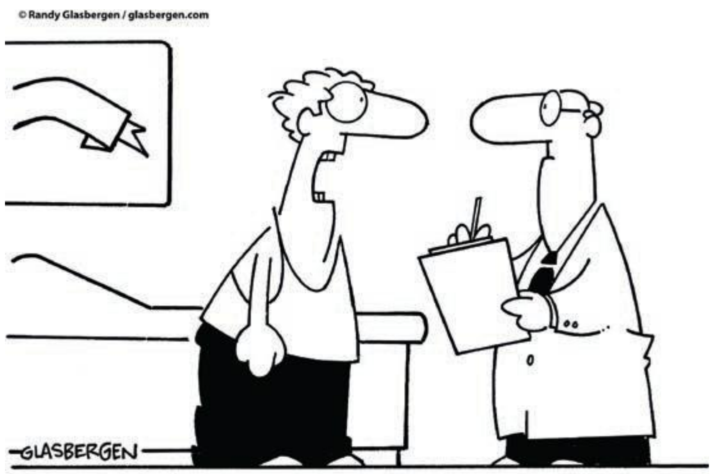
Friedman and Rosenman (1974) carried out a longitudinal study, following 3524 men aged between 35 and 59 years over a period of eight and a half years. At the start of the study they interviewed each of the participants about his work and eating habits. During the interview, they also noted the person's manner of speaking and behaviour. On the basis of this information, they classified the men as having either a Type A or Type B personality. Which group do you think turned out to be more prone to heart attacks?

By the end of the study, 257 men had suffered heart attacks, 69 per cent being Type A. In addition, not one 'pure' Type B – the most laid-back of all – had suffered a heart attack. These findings sparked a lot of interest and further research. Researchers asked whether the findings were reliable – could they be repeated by other researchers? If the relationship between personality type and heart disease was reliable, what aspect of the Type A personality was critical? Was it the competitiveness, the time-consciousness or the anger?

One study that has pulled together much of the recent research on heart disease and personality type indicates that only some components of the Type A personality put a person at risk for heart disease. It is the negative emotion of hostility – reactive anger – that is the major factor in the link between the Type A personality and heart attacks (Myertek, 2001). It has been suggested that Type A people respond more quickly and strongly to stress than Type B people. This results in increased blood pressure and heart rate, which in turn causes more wear and tear on the cardiovascular system.

Another question that researchers have asked is whether it is the personality of the Type A people that puts them at risk of heart attacks or whether it is simply that people with Type A personalities lead less healthy lives. Milligan and colleagues (1997) found that people with Type A personalities have less healthy eating habits, get involved in more accidents and drink more alcohol. This suggests that the link between personality type and health may be an indirect one.

Figure 6.3 Glasbergen cartoon



"I'm learning how to relax, doctor — but I want to relax *better* and *faster!* *I want to be on the cutting edge of relaxation!*"

Researchers who examined the relationship between prognosis in cutaneous malignant melanoma and a wide range of variables (situational, physical, psychosocial and physical) have proposed a Type C personality (Temoshok et al., 1985). They found that while delay in seeking medical attention had the strongest relationship with prognosis, a constellation of characteristics that they considered constituted a Type C personality was also significantly related. The characteristics that they found made up the Type C personality were being passive, bland, helpless and appeasing. Temoshok and Dreher (1992) further developed this theory, suggesting that bottled up emotions weakened a person's immune system and made them more prone to cancer. However, more recent research by an Australian team (Price et al., 2001) with a very large sample of women with breast cancer found no relationship between the development of cancer and personality type. Clearly, there is a range of factors, including type of cancer, that must be considered when examining any possible link between personality type and cancer.

Humanistic theories of personality

Humanistic theories of personality arose in the 1960s in the United States as an alternative to the psychodynamic and behaviourist theories that prevailed at that time. In 1962, when the Association of Humanistic Psychology was formed, its members adopted a set of defining principles. These included an interest in understanding people in terms of their own experiences, not just as an object of study. A central belief was that people are not simply motivated by basic drives or needs or totally shaped by their environment but they have the need to develop their capabilities and try to reach their potential throughout their lives (Atkinson et al., 1996). In humanistic theories, personality results from people striving to achieve their potential.

Maslow

Two psychologists who made big contributions to this theoretical approach are Maslow and Rogers. Maslow (1908–1970) was one of the early humanistic psychologists and his approach was highly influential in providing a different approach to both psychoanalytic theory and learning theory by aiming to provide an understanding of the factors underlying people's characteristic ways of thinking, feeling and behaving. Maslow proposed a hierarchy of needs, starting with basic physiological needs, such as the need for food, water and sleep, through psychological needs such as the need for belongingness, love, and self-esteem, to the need for self-fulfilment and living up to one's highest potential (Figure 6.4). He considered that individuals must satisfy their more basic needs, at least partially, before they are able to address the higher level needs.

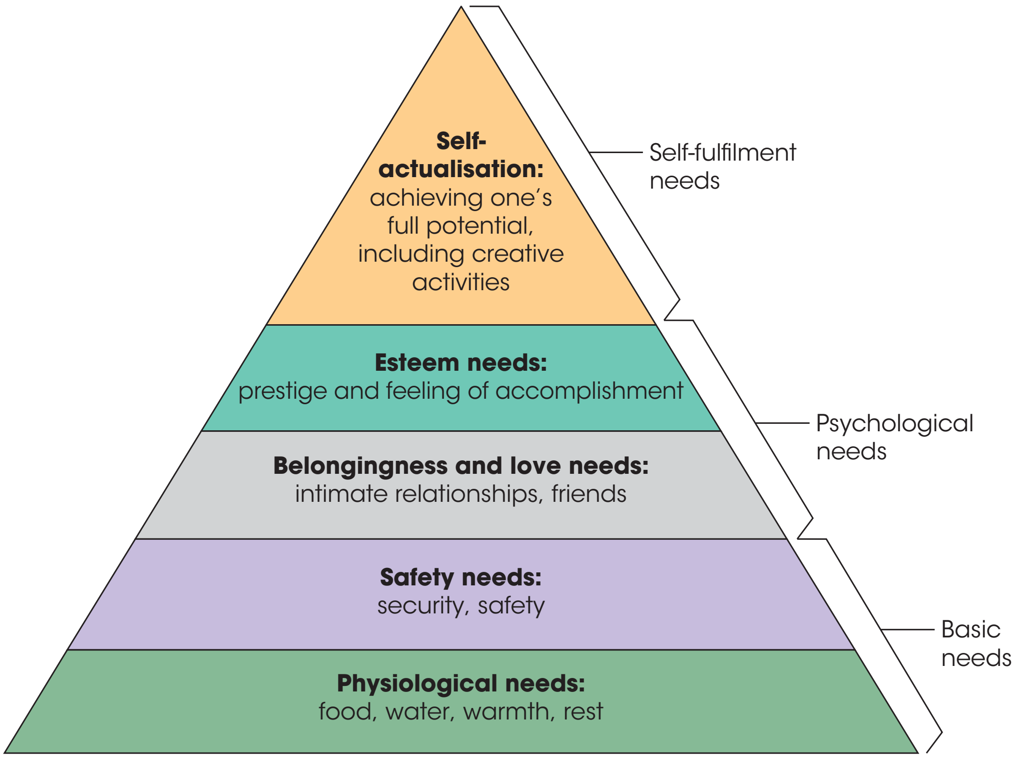


Figure 6.4 Maslow's hierarchy of needs

Maslow was critical of Freud's emphasis on the study of clients with mental health issues as the basis for understanding people and proposed that it was necessary to examine what he called 'good specimens' to understand how people reached their potential, the highest point in his hierarchy (Maslow, 1971). For this reason, Maslow studied self-actualisers: men and women who had made great use of their potential. He initially studied eminent historical figures including Albert Einstein, Abraham Lincoln and Eleanor Roosevelt. From them he developed a list of the personal characteristics of self-actualisers: being idealistic and involved in and working for a cause external to themselves, and devoting their lives to the search for 'being values', ultimate values, such as truth, honesty and goodness (Maslow, 1967). Maslow also identified behaviours leading to **self-actualisation**. These are outlined in Table 6.3. He then went on to study a group of American college students. When he selected a group whom he considered showed the characteristics of a self-actualiser, he found them to be among the healthiest 1% of his population and showing no sign of maladjustment (Atkinson et al.,1996).

Behaviours leading to self-actualisation
1 Experience life vividly with full concentration and absorption
2 When faced with decisions, make the growth choice, not the fear choice
3 Listen to the 'impulse voices' rather than the voices of authority or tradition and let the self emerge
4 Take responsibility for decisions and actions and be honest rather than posing or playing games
5 Dare to listen to yourself and express your opinion even if it is different, nonconformist and unpopular
6 Work to do well at the things that you want to do and be as good as you can be
7 Set up conditions so that peak experiences are likely to occur
8 Be honest with yourself about your strengths and weaknesses; identify your defences and give them up

Based on Maslow, 1967

Table 6.3 Behaviours leading to self-actualisation

Rogers

Another humanistic psychologist who has had a big impact on clinical theory and practice is Carl Rogers.

Carl Rogers (1902–1987) shared much of Maslow's thinking. He believed that people are born good and with the potential for enormous growth, like the seed of a large tree (Rogers, 1961). Important people in our lives help us to grow by providing genuineness, acceptance and empathy, which are like sun, water and nutrients for a tree – necessary conditions for growth. A person who is genuine is honest and open with us, and does not put on a front. An accepting person is prepared to take us as we are, with all our shortcomings; we do not have to change or improve to be valued or accepted. Rogers called this type of acceptance **unconditional positive regard**. A person shows us empathy, the third condition for growth, when they try to see the world from our perspective and understand how we feel. Rogers considered that we needed to experience these conditions from significant people in our lives: parents, teachers or mentors, in order to feel free to make any changes we want to make in ourselves – to grow and to self-actualise.

Central to Rogers' theory was the concept of self or personal identity. If we are to have a **well-adjusted personality**, there needs to be a good match between our ideal self, the person we would like to be, our self-image (the person we think we are) and our true self (the person we really, objectively are). If we value kindness and think of ourselves as a kind person, we need to act with kindness and compassion. While Rogers acknowledged that we are never all we want to be, he considered that the greater the gap between our ideal self, self-image and behaviour, the more likely we are to feel anxious and stressed. Research by Scott and O'Hara (1993) supported this belief. They found that students whose ideal and self-images were discrepant were anxious and depressed compared with students whose ideal and self-images were a better (closer) match.

Humanistic theorists consider that personality cannot be measured using rating scales, tests or inventories of the type we have previously looked at. However, they do use a self-report measure known as the Q-sort. This consists of a stack of cards on which are printed statements such as: 'I try hard to please others', 'If I put my mind to it I can do anything', 'Success is important to me'. Rogers used these cards when working with clients in his clinic to look at the match between the ideal self and self-image. He would ask his clients to arrange the cards twice: once to look at self-image ('Arrange the statements from those most like you to those least like you'), a second time to look at the ideal self ('Arrange the cards from what you would most like to be like to what you would least like to be like'). He considered that the person with a well-adjusted personality would arrange the cards in similar orders. The Q-sort is a flexible measurement technique and provides an insight into a person's self-concept. It does, however, have the same limitations as other self-report techniques in that it depends on the sorter of the cards being prepared to be honest and open, and to share what he or she really believes with the psychologist.

Limitations of humanistic theories

The ideas of humanistic psychologists have had a big impact in areas ranging from counselling through to education and child-rearing. However, they have not been without criticism. One major concern has been with the vagueness of some of the concepts – such as self-actualisation. Vague concepts are very difficult to investigate scientifically. Some critics also suggest that Maslow's description of the characteristics of a self-actualised person – characteristics he found in his heroes – are simply a list of his values. Another person might value different characteristics and see people who had such characteristics as self-actualised people. For example, someone who admired Winston Churchill or Alexander the Great might consider that single-mindedness and motivation to achieve were characteristics of the self-actualised person. It is interesting to note that Maslow himself wrote that his conclusions about self-actualisation are 'in the realm of pre-science, but the affirmations are set forth in a form that can be put to the test. In that sense they are scientific' (Maslow, 1967, p. 280).

Another criticism of the humanistic approach has been that the theory is overly optimistic and fails to take into account human capacity for evil. We need to acknowledge both good and evil in the world if we are to be realistic. Rogers replied to this criticism by saying that he had never known an individual who, when provided with the conditions needed for growth, had chosen 'the cruel or destructive path' (Rogers, 1981, cited in Myers, 2007).

Social cognitive theory

Social cognitive theorists consider that personality by itself does not determine behaviour, that even if it is relatively stable, it only influences behaviour. It is one of the internal determinants, together with beliefs, thoughts and expectations that interact with rewards and punishments (external determinants) to produce behaviour. They emphasised that this interaction occurs within a context such as home, work or school and that this context cannot be ignored. Two psychologists who took this viewpoint were Bandura and Mischel. While their theories differ to some extent, both are thought of as social cognitive theorists. **Social cognitive theory** provides an alternative to psychodynamic and behaviourist theories in explaining human behaviour.

Bandura

Albert Bandura was born in 1925 and has been a prolific contributor to many fields of psychology over almost 60 years. Early in his career he was a behaviourist, but his research on aggression convinced him that simple learning theories could not explain behaviour. His research on observational learning, in which an accomplice punched a Bobo doll, demonstrated that children could learn and later reproduce behaviour they have simply watched, even when the behaviour they were watching had not been reinforced in any way. He concluded that this 'vicarious' learning provided information and motivation that in themselves could be rewarding or punishing. However, the fact that a behaviour had been learned was not, in itself, enough to cause the behaviour to be enacted. For this to happen, the observer had to value the behaviour and also had to have the required component skills to produce the behaviour. Just having seen someone drive a car and wanting to be able to drive one does not make us skilled drivers!

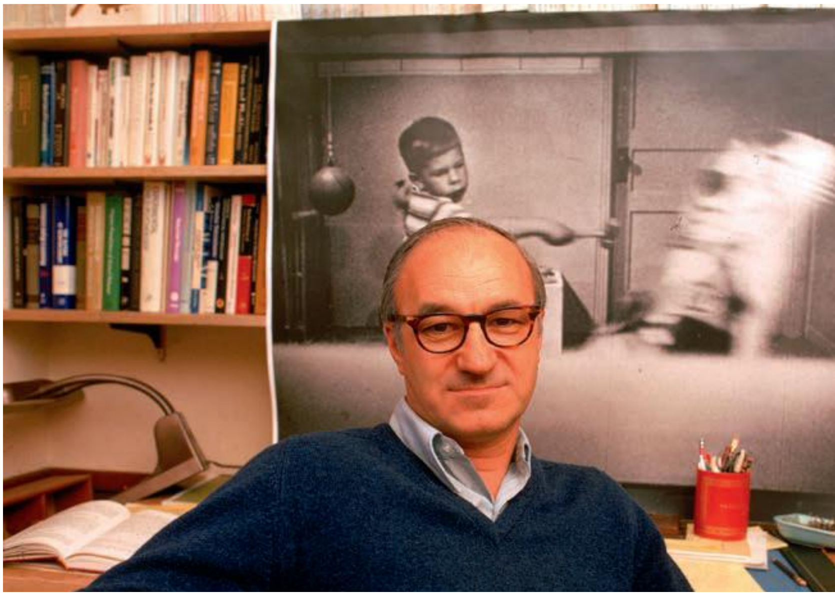


Figure 6.5 Albert Bandura

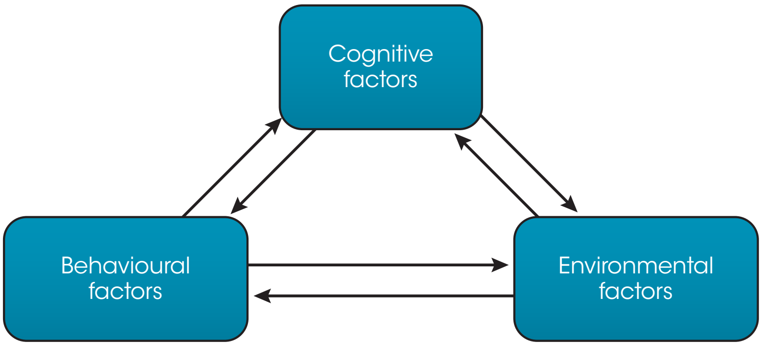


Figure 6.6 Model of reciprocal determinism

In a later version of his theory, known as social cognitive theory, Bandura introduced the idea of reciprocal determinism (Bandura, 1977, 1986). This emphasised that not only is behaviour influenced by what we see and what we think and believe, but the converse is also true. For example, children who have observed their parents effectively resolving disagreements through discussion (behaviour) are likely to believe that this is an effective way to deal with disputes (cognition). So, in the future, this belief is likely to affect their own behaviour when they find themselves in disagreement with another person. However, this interaction occurs within a social context. The same child who has seen discussion as a way of resolving disputes in the home may well witness the school bully getting their way in the playground by aggressive means and decide that in the school context aggression is more effective than discussion. This interaction between behaviours and cognitive and environmental factors is shown in Figure 6.6.

Bandura noted in his studies of observational learning that we not only watch the actions of others, we watch the consequences of those actions, the rules and standards that apply to behaviour in specific situations and the ways in which people regulate their own behaviour. So environmental influences are important, but so are conscious, self-generated goals and standards that influence our thoughts, feelings and actions. In reciprocal determinism, each factor influences the other factors, and is influenced by the other factors in turn.

Bandura was particularly interested in applying his ideas to classroom learning. His theory predicts that learning would be shaped by factors in the environment, especially reinforcements that students and their peers experienced. However, students' own thoughts and beliefs about themselves and their interpretation of what goes on in the classroom would also influence their behaviour. So, students who think they are bad at maths and that they will be ridiculed if they ask a question would be unlikely to ask for help.

These ideas were further developed in Bandura's notion of **self-efficacy**. Self-efficacy is the degree to which you are sure of your own ability and capability to manage and to be effective in meeting the demands of particular situations. According to Bandura, our self system, comprising our cognitive skills, abilities and attitudes, guides how we perceive, evaluate and control our behaviour. We can acquire a strong sense of self-efficacy by mastering new skills and meeting challenges in specific situations. It develops in early childhood as we learn and master new skills, like walking, writing and riding a bicycle, and evolves throughout the lifespan as we meet and conquer new tasks and experiences. People can fail at tasks or activities for which they have the necessary skills because they do not believe that they can do them. Common activities where self-belief is necessary are scuba-diving (when you can already swim), climbing heights such as the Sydney Harbour Bridge, and cooking for a dinner party. Self-doubt and imagining dire consequences can impede or prevent successful achievements.

According to Bandura, our self system is very flexible, and how we regard ourselves and our abilities varies depending on the situations or tasks we face. Similarly, our belief in ourselves will influence the types of challenges we are willing to try, and how persistent we will be in our attempts to succeed or overcome obstacles. When we succeed in mastering a task, our self-efficacy is enhanced. When we fail to manage or deal with a situation or task, our self-efficacy is undermined.

Mischel

As we have seen, Walter Mischel is another social cognitive theorist. He tried to take into account social cognitive factors when considering personality and its impact on behaviour and to reconcile within a single framework both trait and social cognitive approaches to explain human behaviour (Mischel, 2004). He considered that this was necessary to deal with apparent inconsistencies in personality in varying situations; for example, why a person who seems confident in one situation might appear shy and anxious in another. While some theorists considered the two positions irreconcilable, Mischel considered that it was essential to take both the person and the context into account. He wrote:

'In this social cognitive view of personality, if different situations acquire different meanings for the same individual, as they surely do, the kinds of appraisals, expectations and beliefs, affects, goals and behavioural scripts that are likely to become activated in relation to particular situations will vary. Therefore, there is no theoretical reason to expect the individual to display similar behaviour in relation to different psychological situations unless they are functionally equivalent in meaning.' (Mischel, 2004, p. 5) The meaning that an individual gives to a situation is affected both by the individual's personality and other characteristics, such as skills and abilities, and by past experiences, as illustrated in Figure 6.7.

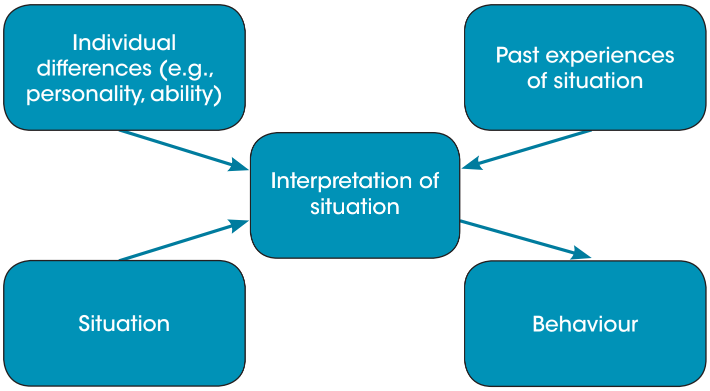


Figure 6.7 Personality impacts behaviour through interpretation of the situation.

While direct research into the role of situations on behavioural variability has been limited, there has been some productive research that has attempted to reconcile them. Mischel and his colleagues (Mischel et al., 2002, in Mischel, 2004), for example, found that a person's level of aggression, when compared with others, changes 'systematically and predictably' in different situations, depending on the individual's interpretation of the situation – an interpretation that is affected by individual differences, including personality, as well as past experiences with the situation. Thus, a person who is among the least aggressive when teased, because he considers himself to be physically weak, or because he has learned from past experience that ignoring teasing is the best way to make it stop, may be among the most aggressive compared with peers when praised, if this is interpreted as a 'trying to get a favour from me' situation.

In studying how personality affected behaviour, Bolger and his colleagues (Bolger, 1990; Bolger & Zuckerman, 1995, in Mischel & Shoda, 1998) found that neuroticism (a Big Five trait) affects reactions to stress through both exposure and reactivity to stressful events, such as conflict with others.

Evaluation of social cognitive theory

Social cognitive theory is well-grounded in scientific research and its concepts have all been empirically tested (unlike concepts in psychoanalytic and humanistic theories). It has been very influential due to its wide applicability and robust theory. Detractors consider that it ignores unconscious influences on behaviour and, as such, is not as rich as humanistic theories that study the whole person including the unconscious elements and irrational behaviour. However, as we have seen, social cognitive theory does explain learning and the influence of beliefs on the self and how these affect and are affected by particular situations.

CHAPTER SUMMARY

Personality

Features and limitations of contemporary personality theories

- Trait theories
  - McCrae and Costa's trait theory of personality
    - The Big Five factors in personality
    - Michael Ashton and Kibeom Lee and HEXACO
  - Limitations of trait theories – stability
  - Limitations of trait theories – utility compared with contemporary type theories
- Humanistic theories of personality
  - Maslow
    - Hierarchy of needs
    - Self-actualisation
  - Rogers
    - Conditions for growth
    - Honesty and genuineness
    - Unconditional positive regard
    - Empathy
  - Limitations of humanistic theories
- Social cognitive theory
  - Bandura
    - Reciprocal determinism
  - Mischel
    - Reconciling trait and social cognitive approaches
  - Evaluation of social cognitive theory

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Unconditional positive regard

2 Self-efficacy

3 Well-adjusted personality (according to Rogers)

4 Personality trait

5 Social cognitive theory

6 Type A personality

Multiple-choice questions

1 A person described as having a Type B personality is more likely than those with other personality types to:
- A have a heart attack.
- B show road rage.
- C develop a melanoma.
- D none of the above.

2 A sixth trait was added to the Big Five by:
- A Freidman and Rosenman.
- B Ashton and Lee.
- C Myers and Briggs.
- D Temoshok and Dreher.

3 Self-efficacy is acquired by:
- A being encouraged by parents and teachers.
- B continually trying hard.
- C mastering new skills and challenges.
- D winning competitions.

4 Mischel's theory tried to reconcile:
- A humanistic and social cognitive theories.
- B psychodynamic and humanistic theories.
- C social cognitive and trait theories.
- D trait and type theories.

Apply and relate psychological understandings

Short-answer questions

1 Outline the evidence for consistency of personality traits.

2 Outline the major criticisms of humanistic theories of personality.

3 Indicate how reciprocal determinism explains human behaviour.

4 Outline the evidence for a link between Type C personality and melanomas.

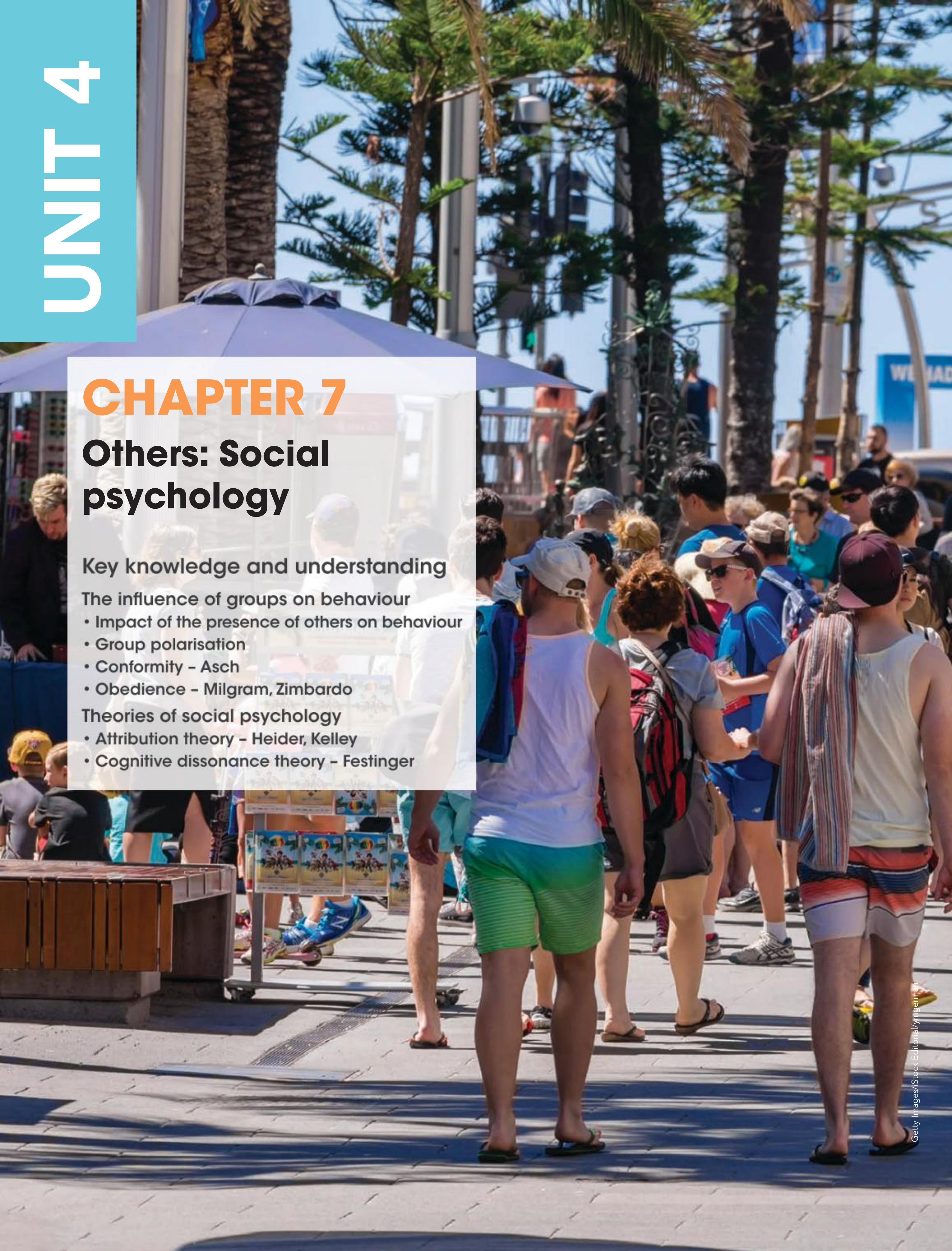
5 Copy and complete the following table naming the trait dimensions and providing two examples of the end points.

The Big Five factors in personality

Trait dimension	End points of the dimension (low to high)

6 Identify one limitation that is common to both humanistic and psychodynamic theories of personality.

UNIT 4



CHAPTER 7

Others: Social psychology

Key knowledge and understanding

The influence of groups on behaviour
- Impact of the presence of others on behaviour
- Group polarisation
- Conformity – Asch
- Obedience – Milgram, Zimbardo

Theories of social psychology
- Attribution theory – Heider, Kelley
- Cognitive dissonance theory – Festinger

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Social psychology

The influence of groups on behaviour

We all have to admit that our behaviour is influenced by others – sometimes for the better and sometimes for the worse. Do you play a better game of tennis when you have an audience or when no-one is watching? You may be able to answer most of the questions in a quiz game you watch on TV, but how do you think you would perform before an audience? And what about that dance routine that you do so well in your bedroom – could you perform it as well on the stage in the school auditorium?

Impact of the presence of others on behaviour

Social facilitation and inhibition

As long ago as 1898, Norman Triplett noticed that cyclists rode faster when they raced against each other than when they raced against the clock, and hypothesised that the presence of others boosted performance (Triplett, cited in Myers, 2007). He tested this idea by asking adolescents to wind in a reel as quickly as they could. He found that their performance was better when they were with another person who was also winding a reel than when they were doing the task alone. He referred to this boost in performance due to the presence of others as **social facilitation**. However, later research showed that the presence of others did not always have this helpful effect. In fact, with complex tasks, the presence of others either as observers or as people doing the same task often led to worse performance – **social inhibition**. These different effects of the presence of others can be understood when we consider that being watched increases our level of arousal. Our heart and breathing rates increase and we can become tense. As Yerkes and Dodson (1908) discovered many years ago, people generally perform best at moderate levels of arousal. Their performance drops off when they are not sufficiently aroused and when they are over-aroused. Consider your own classroom performance when you are bored (under-aroused) or about to take an important test for which you are not well-prepared (over-aroused). When this relationship between arousal and performance is plotted on a graph, it looks like an upside-down U (Figure 7.1a). However, the optimal level of arousal for best performance varies depending on the type of task we undertake. With simple or well-learned tasks, we perform better with a relatively high level of arousal. For difficult or new tasks, we perform better at lower arousal levels (Figure 7.1b).

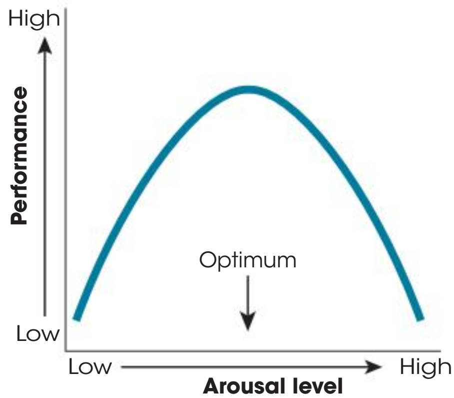


Figure 7.1a The upside-down U curve illustrates the relationship between arousal level and performance found by Yerkes and Dodson.

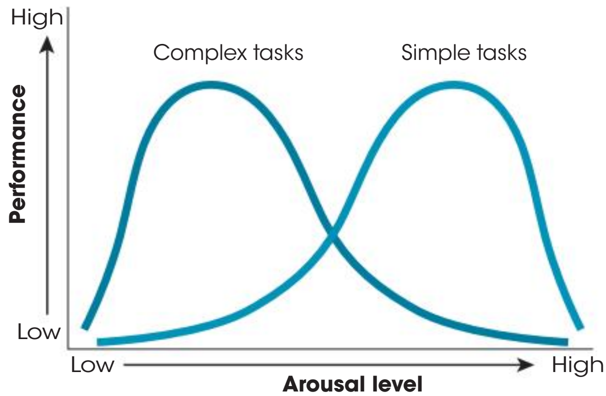


Figure 7.1b Performance peaks at lower levels of arousal for complex tasks, and at higher levels for simple or well-learned tasks.

Newspix/Brett Costello

Getty Images/Miguel Tovar

Figure 7.2 Which athlete's performance is likely to be facilitated by the presence of others?

Diffusion of responsibility

The effects of group membership can have more dramatic consequences. In New York in 1964, there was a brutal murder that received a lot of publicity. Kitty Genovese was walking home when a man attacked her with a knife. She fought the man off and screamed loudly for help. No-one came to her assistance. She briefly escaped, but the man found her and attacked her again. Again she fought him off, and again he attacked her. It took 30 minutes for her to die. The reason the case received so much publicity was that at least 38 people heard her cries for help and yet no-one phoned the police. The media asked 'Why?' This question was also of interest to two social psychologists, Bibb Latane and John Darley, who began carrying out a series of studies.

In one of these studies (Darley & Latane, 1968), individual students were placed in small rooms. They were 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, summarised in Table 7.1, 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. This is known as the **bystander effect**. Darley and Latane thought that this 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.

Table 7.1 Findings from Darley and Latane's 1968 study

Apparent number in group	% of study participants responding to epileptic's distress	% of participants responding quickly
1 + 'epileptic'	100	85
6 + 'epileptic'	62	31

Social influence

Another way individuals are affected by groups is through social influence. Social influence happens when we change our behaviour in response to other people. An Australian study (Platow et al., 2005) has shown that the influence of the groups to which we belong is stronger if we identify with the group. University students listened to a tape of a stand-up comedian telling jokes. Half of the students heard the tape accompanied by 'canned' laughter after each joke; half heard the jokes without the laughter. In addition, half of each group was told that the tapes had been recorded at a show attended by students from their university – a group they identified with. The other half was told that the tapes had been recorded at a show put on for members of a political group – a group unimportant to the students. Students who heard the jokes accompanied by canned laughter supposedly from their fellow students rated them as funnier than the students who thought the laughter came from members of a group that was of no importance to them or who heard no laughter at all.

Peers are usually important to us and can influence us greatly. They are people who interact with us on fairly equal terms. They have similar status. They are usually of similar age and have similar interests, but a peer and a friend is not the same thing. A student attending a particular high school may have many peers but few friends. Peer groups have their own social norms that can cover such things as style of dress, taste in music and attitudes towards such things as alcohol, sex before marriage and bullying. They may also have their own slang terms or expressions that are not understood by others outside the group.

Research studies show the influence of the peer group starts to increase around middle childhood and continues until middle adolescence, when it starts to decline as the influence of close friends on adolescents' behaviour increases. Social influence from peers is often given the negative label of **peer pressure**. By this people mean pressure from the group for individuals in the group to think, feel or behave in certain ways, whether they want to or not. However, peer pressure can be positive, as when your group of peers encourage you to train harder to make a team or work to excel in your studies. In 1986, Brown and his colleagues carried out a study to look at peer pressure on adolescents. Try the activity in the box below to see whether the peer pressures you have experienced are of the same type as those experienced by the students in 1986.

Broaden your understanding

Influence of groups on behaviour

Look at the types of peer pressure encountered by the students in the study by Brown and colleagues (1986). Create the table below in your workbook or folder. Fill in pressures you have experienced over the past month that fit their headings. In the 'Other' column, list any types of pressures on you that are not in the other columns.

Peer social activities	Misconduct	Conformity to peer norms	Involvement with family	Other
e.g., Going to parties	e.g., Vandalism, drug and alcohol use	e.g., Musical preferences, academic work	e.g., Relationship with parents	

If you have experienced different types of pressures than those listed, why do you think this is the case?

Many people think that peers always try to exert pressure in the opposite direction to parents. Although this might be the case in superficial areas, such as dress and taste in music, research has shown that parents and peer groups often agree in more important areas, such as decisions about education and careers, and in judgements about what is 'right' or 'wrong' behaviour.

Not all people react in the same way to peer pressure. People who are 'fringe' members of groups or who are less sure of their standing in the group are more likely to be influenced by peer pressure than other members who have higher standing. They try to gain favour with other members of the group by acting in ways in which they think the group would approve (Kaplan, 2004).

Group polarisation

It has been found that when individuals are in groups with others who hold similar attitudes or beliefs, discussion within the group tends to strengthen opinions. This process is known as **group polarisation**. David Myers and George Bishop (1970) found that when students who were low in racial prejudice talked together about racial issues, their attitudes became even more accepting. However, when highly prejudiced students talked about the same issues, they became even more prejudiced.

Group polarisation can help us understand the processes that can lead to actions such as those of suicide bombers and young men and women joining groups such as ISIS. Terrorists are members of groups whose beliefs become stronger and more firmly entrenched as a result of discussion with like-minded people. Clark McCauley (2002, in Myers, 2007) noted that a terrorist mentality does not come out of thin air; rather, it arises when people with a shared grievance get together and talk in a group in which there are no moderating influences.

Broaden your understanding

Group polarisation

During 2005, there were a number of skirmishes on Cronulla Beach between Anglo-Australians and Australians of Middle Eastern origin. On 11 December, altercations between these groups led to full-scale rioting. Read the following newspaper article on the Cronulla race riots.

Riot fuels world extremist Internet feeding frenzy

As Internet images and descriptions of Sydney's ugly race riot spread across the world like wildfire, hardcore white supremacists are hitting their computer keyboards in all corners of the globe to fan the flames and applaud the anarchy.

Tens of thousands of messages have been posted on neo-Nazi websites by people using confronting pseudonyms and who view the Cronulla rioters as 'heroes'.

'I hope the white Aussies kick their arses,' wrote British and Proud in England. 'It's that kind of passion that Britain needs,' responded Fior Fuil [True Blood] from Scotland. 'Just something to spark off this kind of retaliation.'

After text messaging was able to harness the mob mentality on the weekend, the Internet has taken over to feed fascists and rednecks around the world with accounts of the shameful event.

'I hope they chase them right out and into the belly of a great white,' wrote Erudite of Texas.

Symbols such as swastikas, horned human skulls and guns accompany the words being pasted all over websites like Stormfront – home to White Pride Worldwide.

'Wow,' wrote Blue-eyed Fire. 'Time to look into moving to Australia.'

Expressions like 'the muds' and 'the invaders' are used to describe Lebanese-Australians embroiled in the weekend violence.

There are jokes about the Lebanese race and responses to the overseas messages from White Pride members in Australia, including one who was in the thick of it.

'Cronulla was a great day out and it felt good to be among so many whites and hopefully it starts to happen more often,' Martin wrote.

'Everything was calm until Arabs started showing up.'

A poll was even started on Stormfront which asks whether 'Cronulla is the beginning of the true fight for White Australia?'

'I can't remember a time when racism has been such an issue in Australia, nor a time when so many ordinary white Australians fought back.'

Source: Gary Adshead, *The West Australian*, 13 December 2005. © *The West Australian*

Discuss with your classmates the article on website postings following the race riots in the light of what you have learnt about group polarisation.

Do you think that websites and text messages have increased the likelihood of group polarisation or just changed the way in which it is expressed?

Conformity

While our behaviour may become more extreme when we are with like-minded people, it can completely change when we are with a group who see the world differently from us. Changing behaviour in response to group pressure is known as **conformity**. This process was first studied experimentally in a classic study reported by Solomon Asch in 1955 (see 'Broaden your understanding' box below).

But why do we conform? Why do we adjust our behaviour or thinking towards some group standard? Very few people like standing out and looking different from others around them. When we conform to group standards in order to be part of a group and be accepted by the group, we are experiencing **normative social influence**. Friendship groups in particular exert strong influence on the ways we dress, speak and behave. Breaking social norms can lead to disapproval or even exclusion from the group.

Broaden your understanding

Solomon Asch's study on conformity

Asch's experiment was set up as a simple visual judgement task. In groups of 8 to 10, 'participants' seated around a table were shown two cards. On one, there was a set of three lines of different lengths. On the other, there was a single line.

One by one the participants were asked which of the three lines was the same length as the single standard line. However, unbeknown to the real participant, the others in the groups were not real participants but stooges – confederates of the experimenter. There were 18 comparison trials. For the first few trials, everyone agreed about which line was the same length as the standard, giving the obviously correct answer. But in 12 of the 18 trials the confederates all agreed on an answer that was incorrect, sometimes obviously so. What would the real participant in the study do – give an answer in agreement with the rest of the group or follow the evidence of his or her senses?

Asch found that 75 per cent of his participants agreed with the confederates on at least one trial and 50 per cent echoed the confederates on six or more trials. Only a quarter of the people in the study actually stuck with the evidence of their senses all the time!

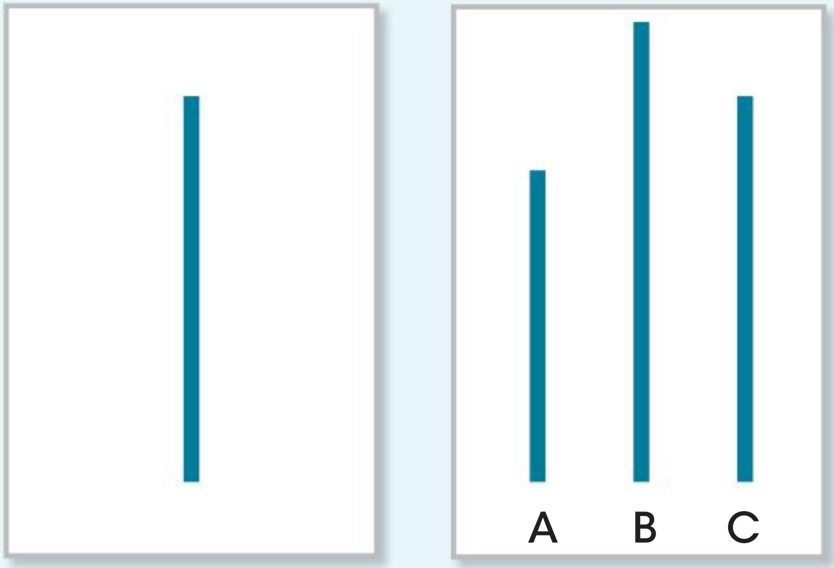


Figure 7.3 Cards similar to those used in Asch's visual judgement task. The card on the left has the reference line and the one on the right shows the three comparison lines.

Getty Images/FotoShoot

Figure 7.4 Young women dressed for a night out – conforming to social standards?

Society requires that some conformity exists so that norms and standards can be established and agreed upon; otherwise, behaviour would be unpredictable. Children are socialised into group norms and expected behaviours in different situations, and parents and teachers are supposed to teach children what is expected. Such authority figures can reflect the social context and the relevant group, social and cultural norms. Consequently, conformity means that people will assume the behaviour of others in any particular social group without explicitly being told how to behave or act.

On the other hand, we also often conform when we are in strange situations, with people we do not know well or in situations that are new to us. We take our cues on how to behave from watching the people around us. This is known as **informational social influence**. We probably all know the saying 'when in Rome, do as the Romans do'. We do not have to be in a foreign country in order to act appropriately, learn from others' knowledge, or not give offence.

Later studies by Asch and other psychologists who have been stimulated by his research have investigated the factors that influence the extent to which we are likely to conform to group pressure. *Group size* has been found to have some effect. Conformity increases with group size up to four. After that, increasing the group size has little influence. Of greater importance is the *degree of unanimity*. When others in the group are unanimous – agree completely – it is difficult to stand out. However, Asch found that if only one confederate disagreed with the others, the amount of conformity by the real research participant was greatly reduced. The presence of another person who shares one's views or who at least does not agree with the others in the group strengthens resistance to conformity.

Asch's classic line-judgement task has been repeated by experimenters in many parts of the world. When British psychologists Rod Bond and Peter Smith (1996) compared the data from 133 Asch-type studies carried out in 17 countries, they found evidence for cultural differences in conformity. The highest levels of conformity were found in collectivist cultures. Lower levels of conformity were found in individualist cultures. Achieving group goals is highly valued in collectivist cultures, whereas being independent and achieving personal goals is valued in individualist cultures, so these findings are understandable.

Obedience

As well as responding to the social pressure of groups, we may also change our behaviour when we are in a situation in which **obedience** is expected. When an authority figure asks us to do something, there is the explicit expectation that we will obey or face negative consequences.

A now famous experiment on obedience was conducted in 1963 by Stanley Milgram. His experiment was to study obedience to authority and was partly derived from interest in, and questions asked about, why Nazi SS officers obeyed orders from their superior officers to gas millions of Jews during the Second World War. Such obedience to authority resulted in millions of deaths – so why did it occur?

Broaden your understanding

Stanley Milgram's experiment

Milgram recruited a range of men to take part in his research on the effects of punishment on learning, with a financial inducement for participation. They were from various occupations and had a range of education levels. They were told that the payment would be made for just turning up and that they could leave at any time. They arrived in pairs and were allocated roles – one of the pair was the 'teacher' and the other, the 'learner'. The learner had to learn lists of pairs of words and the teacher had to administer an electric shock each time the learner gave the wrong answer. After the teacher had watched the learner being attached to all the wires necessary for the shock, he was taken to another room and shown the shock equipment. He was told to administer progressively larger shocks for every mistake made by the learner. Descriptive labels were attached to the shock equipment, ranging from 'Slight shock' (15 volts) to 'Danger: Severe shock' (375 volts), with labels in-between, such as 'Strong shock' (135 volts). Two final switches (435 and 450 volts) were labelled 'XXX'.

The experimenter showed the teacher how to operate the shock generator, and when a lever was pulled, a light came on, a buzzing sound was heard, a voltage meter showed the reading, some clicks were heard and the teacher experienced a very slight electric shock himself. Since the teacher could not see the learner, it was assumed that the shock had been administered.

Milgram conducted several versions of the experiment but, typically, as the learner kept making mistakes, the teacher would administer larger and larger shocks, even when the teacher could hear the learner groan or screech when higher voltages were applied. At 150 volts, the learner would yell out that he had to get out of the experiment as he had heart trouble and refused to continue. The experimenter, in the meantime, kept cool and instructed the teacher to continue administering the shocks. At increasing voltage levels, the learner's distress increased, but the experimenter insisted that the teacher should continue.

So, did the teachers administer the highest level of shocks (450 volts)? Yes, 26 of the 40 participants administered 450 volts, even believing they were hurting someone else. All participants administered 300 volts, but five refused to continue (at this stage, the learner went silent, and no longer responded at all to the shocks).

What went on in this study? The whole experiment was a deception. Forty men were the teachers; the learner, a male, was an actor or stooge, who had been trained to act and react to the shocks. Furthermore, no actual shocks were given. It was all a hoax. Participants were debriefed and reassured that despite what had happened, their behaviour as the teacher was quite normal.

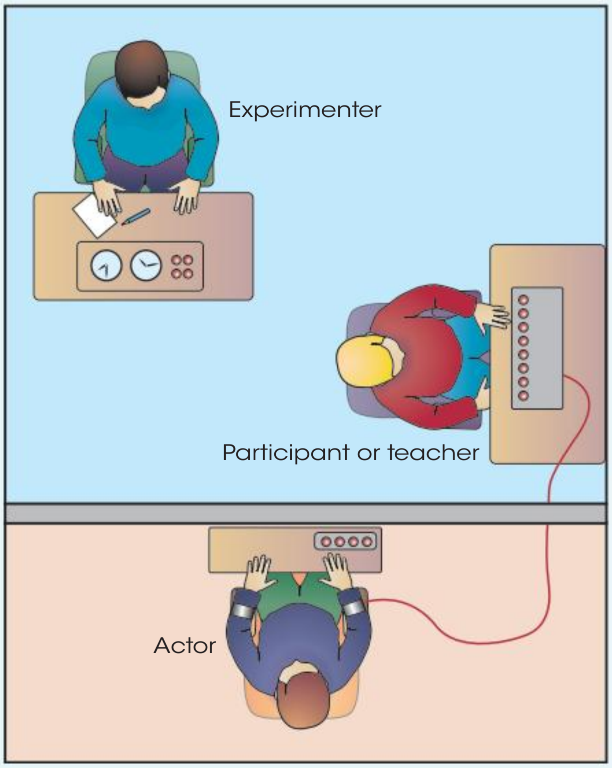


Figure 7.5 Diagram of Milgram's experiment

Figure 7.6 A police uniform indicates the authority of the wearer and increases the likelihood that the wearer will be obeyed.

Milgram was surprised at the extent to which participants obeyed the experimenter's instructions in this and his subsequent studies. The main factors influencing such obedience can be summarised as:

- immediacy or proximity to the victim (who was not seen); subsequent studies had situations where the teacher could see the learner, and obedience dropped
- immediacy or proximity of the experimenter was also influential; removing the experimenter from the same room as the teacher reduced obedience
- authority of the experimenter; in Milgram's experiments, the experimenter was a white lab-coated Caucasian university professor. Conducting the experiment in a non-university setting also reduced the levels of obedience.

The conclusions that have been drawn from Milgram's pioneering research are the reasons psychologists think people obey authority. These are:

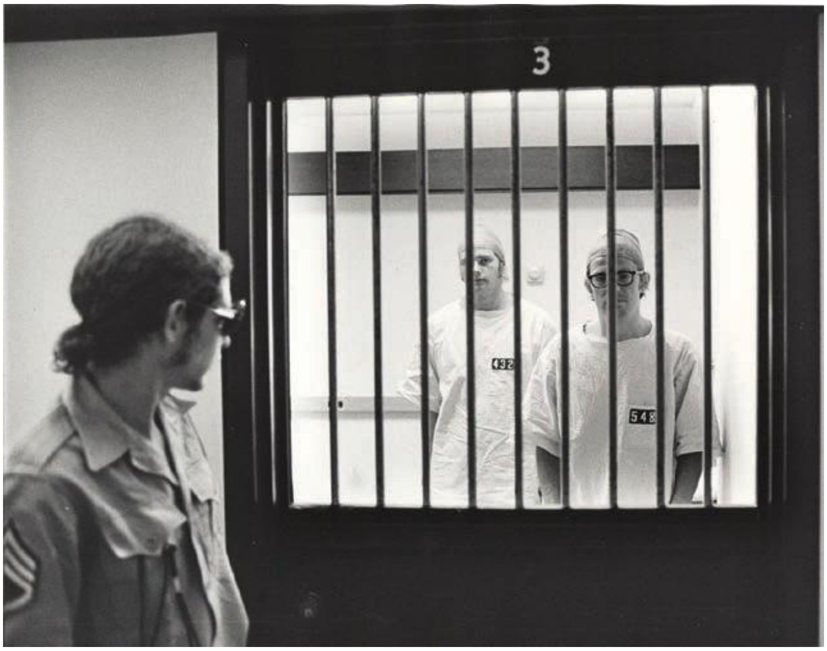
- belief in legitimate authority
- commitment to successful achievement of the experiment
- lack of disobedient role models; conducting the experiment in social isolation meant that social norms or expected behaviours were not present
- lack of personal responsibility; Milgram, as the experimenter, assured the teachers that they were not personally responsible for the distress of the learner. In effect, the teachers were acting on orders, removing any personal responsibility for what happened.

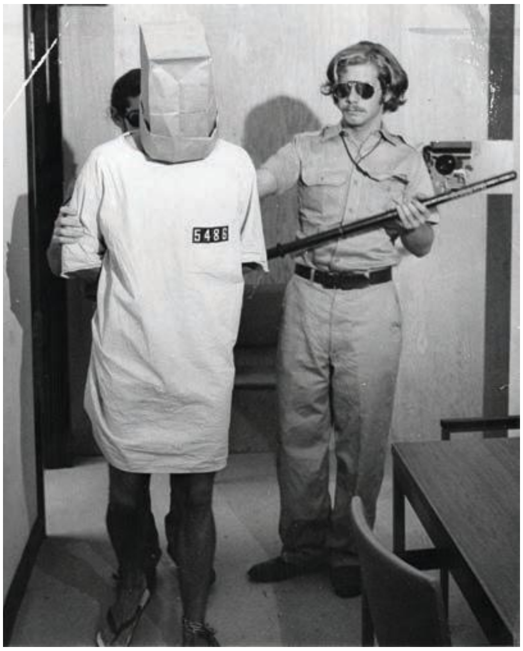
Studies like these help us to understand how atrocities such as those committed during times of war come to be carried out. Milgram's studies also suggest that soldiers would be much more willing to fire a rocket or drop a bomb on a city than they would be to shoot civilians at close range.

Another classic study gives further insights into the role of individuals' *power* and *status* in determining their social behaviour. In the early 1970s, Philip Zimbardo and his colleagues at Stanford University carried out a study to determine the effects of being either a prisoner or a prison guard (Zimbardo et al., 1973). This study is described in full with video clips on Zimbardo's website. In their study, they recruited 70 young male university students through a newspaper advertisement, which sought men who were prepared to participate in a prison experiment for two weeks. From this group, they selected 24 who were judged to be healthy, average young men with no psychological problems. Half of these were randomly assigned to the role of prisoner and half to the role of guard. The prison was set up in the basement of the Stanford University psychology building, complete with cells, security doors and drab surroundings. Guards were issued with uniforms, dark glasses, whistles, handcuffs and truncheons, and were instructed to enforce the rules. Prisoners were stripped, sprayed for lice, issued with smocks with numbers on them and made to share a small cell with two other inmates. In the days that followed, the guards developed rules to keep the prisoners in their place, and, after suppressing an attempted rebellion, they became increasingly brutal in their treatment of the prisoners, humiliating them and subjecting ringleaders to solitary confinement. The prisoners became dejected and dehumanised. Four prisoners had to be released over the first four days of the study as a result of severe negative reactions – crying, hysteria, rage and, in one instance, a severe body rash. After six days the experiment was halted. The assigned roles had become reality for those involved. Zimbardo was concerned that even he was becoming the prison superintendent and was becoming more concerned for the security of his 'prison' than for the study participants.

Zimbardo's Stanford prison experiment

Figure 7.7 'Prisoners' were locked up and 'guards' quickly abused their status and power in Zimbardo's study.





Zimbardo's study made him realise that social roles influence behaviour in more complex ways than he had ever realised. The behaviour of guards and prisoners was not simply a function of prisoners being criminals – as in this instance they were not – but the social environment of the prison and the roles of the participants influenced the way both the guards and prisoners behaved.

Zimbardo's study received renewed publicity in 2003–04 because of its relevance to the behaviour of US guards at Abu Ghraib during the US military campaign in Iraq.

Broaden your understanding

Barbarism theory put into sickening practice in Iraq

A 1970s experiment is in the news again for all the wrong reasons

It has taken 33 years for Professor Philip Zimbardo to take his place in the sun. But even he has been astonished at the level of worldwide publicity he has received because of the parallels between what has been happening at Abu Ghraib prison in Iraq and a study he conducted in 1971.

Since the scandal detailing the sadistic abuse of detainees by US troops broke, Professor Zimbardo has been conducting interviews with media from all over the world. Now he has been asked to testify on behalf of a soldier charged with abusing prisoners in Iraq.

His cause célèbre is a study he conducted at Stanford University in California, where he has been a researcher and educator since 1968, which produced such extraordinary and horrifying results that it had to be halted after six days.

In the study, designed to run for two weeks, he divided 24 college students into guards and prisoners to test the power of social situations to alter behaviour. The students had undergone psychological tests and had no history of crime, drug addiction or psychological disturbance.

However, during the experiment, these ordinary men stripped their 'prisoners' naked, humiliated them, degraded them, put bags over their heads, chained them together and finally, began a descent into sexual degradation.

Professor Zimbardo explained: 'What happened was the guards began telling one group of prisoners, "bend over, you're female camels", and to the other group, "you're male camels, hump them".' The study was halted when four prisoners had emotional breakdowns. 'Doesn't this sound very familiar to what has been happening at Abu Ghraib in Iraq?' he asked.

Professor Zimbardo has been interested in the effect that situational factors have on events since reading William Golding's *Lord of the Flies*, which recounts the story of a group of boys marooned on an island and their subsequent descent into barbarism.

'When people feel anonymous, when they are hooded or painted – as the boys in *Lord of the Flies* were – or in uniform, their individuality is diffused. I believe that the human mind is the most incredible facility but it has the capacity to do or to be anything … In the same world that we have had Mozart and Beethoven and Bach, we have also had Stalin, Idi Amin and Pol Pot.'

Professor Zimbardo believes we have greatly underestimated the extent to which behaviour can be influenced by situation. 'We are social animals and we learn from other people. If the majority is doing it, then that is what is acceptable.'

However, while up to 90 per cent may be blindly obedient, Professor Zimbardo said another group of passive bystanders would not challenge the bad behaviour. They maintained the system with their silent dissent.

'Then there are the few heroes, the people who are able to resist. At Abu Ghraib, there were three heroes – the dog trainer who refused to let his dogs bite the prisoners, a second soldier who reported the abuse to his commander, and a third who not only resisted but took the photos as evidence for his commander.'

Professor Zimbardo believes that prisons throughout the world are veiled in a cloak of secrecy. He cites the example of Guantanamo Bay where there have been 16 suicides in the past three years and, it appears, no public or other investigations into the deaths.

'In Iraq, you had all the negative factors in place – lack of leadership, little or no accountability, no training and the CIA who clearly encouraged the soldiers to do these things,' he said. 'Some of the pictures were staged by the CIA because they planned to show them to other detainees they were going to interrogate. Once the CIA lowered the moral threshold to zero or minus, the soldiers were at liberty to do whatever they wanted to these people they regarded as animals …

'If the pictures we saw are not the final phase, then you move from simulated sodomy to sodomy …'

Professor Zimbardo said US President George Bush insists the prisoner abuse 'does not reflect the actions of good American soldiers. That just illustrates the arrogance of Americans.'

Source: Muriel Reddy, *The Sunday Age*, 16 May 2004.

In the experiments that we have examined, our emphasis has been on group influence on the individual. However, it should be noted that there were always some individuals who resisted group influence. A committed individual or two who hold a minority view can, in some instances, eventually sway majorities. Some of the most influential people of the past century held views that were initially opposed by the majority of people or those in power. Consider Mahatma Gandhi, Nelson Mandela and Martin Luther King.

Broaden your understanding

Individuals committed to positive action

Zimbardo, whose research has shown us how individuals can be influenced to commit terrible deeds, has more recently been looking at what contributes to heroic actions in a project he calls the Heroic Imagination Project. You can view this on his website.

List five people whom you consider to be heroes. Note which, if any, are individuals who, like Ghandi, Mandela and King, resisted group pressure and held views or took actions that were contrary to group expectations and behaviour. For those you listed who do not fit this category, note why you considered these people to be heroes. Do you agree with Zimbardo that we know more about what causes evil behaviour than heroic behaviour?

Zimbardo's Heroic imagination project

Theories of social psychology

Social psychology can be broadly defined as the scientific study of the nature and causes of individual behaviour in social situations. Social psychologists describe and explain how people think, feel and behave in the company of, and in interaction with, others. Social psychologists also investigate how thoughts, feelings and behaviours are influenced by others. It is a very broad field of study, covering a large range of human behaviours, some observable and some inferred.

Historically, social psychology grew out of the German discipline of *Völkerpsychologie*, or folk psychology, in the mid-1800s, which studied the collective, or group, mind, which means a societal way of thinking and behaving. During the early 20th century there was fierce debate about the role of instincts in social life, as well as debate over what constituted the 'group mind'. In 1924, Floyd Allport attacked earlier views of the origins of social psychology, and argued for social psychology to be concerned with the scientific study of individual human behaviour. He proposed the use of a behaviourist approach to the study of social psychology, claiming that social behaviour is derived from the behaviour and actions of others. This was the start of social psychology as we currently know it and led to the study of topics such as social conformity, the facial expression of emotions and the influence of an audience on individual behaviour. These topics would not look out of place in a 21st-century textbook on social psychology.

After the publication of Allport's book, social psychology became a recognised area of study. Important new theoretical developments include the study of social norms (rules that describe how people ought to behave or think they ought to behave) and conformity. Social psychology expanded rapidly in the 1950s, when social psychologists started to look at groups and group membership. Two important theories that were developed at this time were attribution theory and the theory of cognitive dissonance. These theories still influence how we think about the relationship between individuals and groups.

Newspix/Gregg Porteous

Figure 7.8 Australian swimmers Cate and Bronte Campbell endorse Uncle Tobys. To what should we attribute their recommendation?

Attribution theory

Social psychology continued to grow and develop through the rest of the 20th century, with **attribution theory** being a major development to explain how people infer the reasons behind the behaviour of others. Why did your neighbour donate $50 to Save the Children? Was she altruistic? Did someone pressure her? Does she really believe in the work of the agency? Each of these questions relates to attributions – we must decide to which of the possible causes the action should be attributed.

Heider's attribution theory

Fritz Heider, who is usually regarded as the originator of attribution theory, was particularly interested in how people make sense of another person's behaviour. He referred to people as 'action centres' in that they can do something to us that can help or harm us. They have abilities, wishes and sentiments and can act purposefully (Heider, 1958). Through the use of concepts such as intentionality, the inference of wishes and other mental states, Heider argued that perceivers make sense of a huge amount of behavioural data (Malle, 2011) and attribute a cause for it.

If we infer something about the person – their attitude, motives, personality and so on – is responsible for the behaviour, this is an **internal** or **dispositional attribution**. If we conclude that some external cause – peer pressure or threats, for example – is responsible for the behaviour, we call this an **external** or **situational attribution**.

Heider noted that we often take an individual's behaviour at face value and do not sufficiently consider the surrounding circumstances (Heider, 1958). In other words, we favour a dispositional attribution for the behaviour. This bias has become known as the **fundamental attribution error**. Jones and Harris (1967) provided strong support for this attribution bias in a series of experiments in which they asked students to judge the true attitude of a person after reading limited information presented in either an essay or speech by him on a controversial topic. In one of their studies, the students read what was portrayed as the opening statements in a college debate that 'Castro's Cuba is a legitimate member of the family of nations'. (This term, no longer used today, was applied to a group of nations regarded as having equal status under international law.) Speeches either supported or opposed this position. Despite the fact that participants in the study were told that the debaters were assigned which side of the argument they were to take, they still inferred that the debater held an attitude towards Castro that was close to the one they argued in the debate. So we can see that the dispositional attribution was stronger than the situational one.

Attributions and attribution bias have been looked at as ways of understanding a range of behaviour. Crick and Dodge are psychologists who have looked at attributions when studying aggressive behaviour. They differentiate between what they call reactive aggression, an angry response to frustration or provocation, and proactive aggression, which is a deliberate attempt to get a desired goal. They have found that children showing reactive aggression are likely to show attribution bias and interpret situations as hostile when no hostility is intended (Crick & Dodge, 1994). Consider the situation where two children, Toby and Jonas, are running around a corner and bump into each other. Based on previous experiences, Toby has developed a hostile attribution bias, so he thinks Jonas is a nasty person who has deliberately tried to hurt him. We might then expect Toby to push or punch Jonas.

We not only make attributions about the behaviour of others, we also make attributions about our own behaviour. Again our attributions can be dispositional: 'I bought the bag because I really needed it', or situational: 'I bought the bag because the shop assistant pressured me in to it'. Researchers such as De Michele and colleagues (1998) suggest that we distort the facts and make situational attributions to maintain self-esteem. This is known as the **self-serving bias**. So, in our example above, if we know we should not have bought the bag because we used our savings to do so, we succumb to the self-serving bias, placing the blame on the shop assistant and protecting our self-esteem.

Kelley's theory of causal attribution

Kelley's theory (1973) built on that of Heider in trying to explain how people make causal explanations and answer questions about 'why' something happened. In outlining his general model of attribution (Figure 7.9), Kelley stated that attributional research needs to look at the antecedents *and* the consequences of attributions for behaviour to fully understand causal attributions. In other words, researchers need to consider both what happened before and what happened after the behaviour for which an attribution has been made.

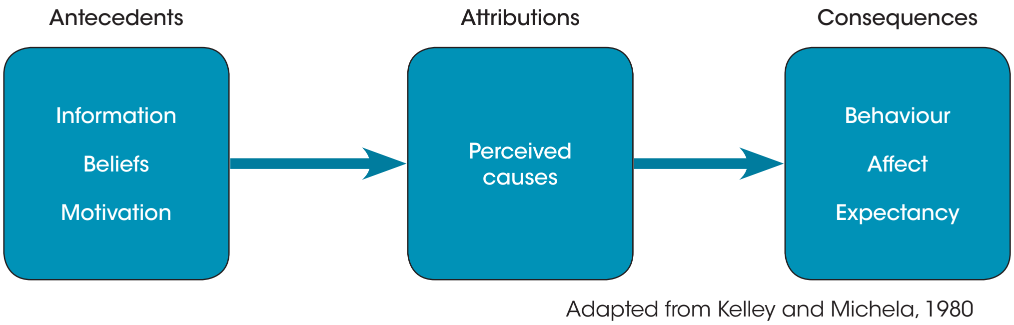


Figure 7.9 Kelley's general model of attribution

Kelley considered that the information that people used could relate to persons, time factors and relevant information about the situation (Kelley, 1973). He stated that most researchers tend to focus on the antecedents–attributions link *or* the attributions–consequences link. So if we take the case of Harry, who has failed his maths exam, and were interested in the antecedents–attribution link, we might consider among the information we gathered person factors, such as whether Harry liked maths, whether he was lazy, whether he had attended a party the night before the exam, and so on. We might also want to consider time factors: had he failed maths tests in the past or usually passed them? We might also want to look at his motivation and consider other relevant information about the situation such as whether it was a particularly hard test. Did many other people fail the exam? If we had the information that Harry was a hard-working and competent student, that he usually passed maths exams and that he was just one of many in the class who failed this one, and we knew that he believed the test would be fair and was well-motivated to perform well, then we would be likely to attribute his failure to the test being too difficult.

If, as researchers, we were more interested in the attributions–consequences link, we might want to find out what the consequences of a failed maths test were for Harry. In this case we might ask whether the test result had any impact on his final grades or whether the test was of no major consequence. We might also ask whether Harry expected to pass or not and whether he cared about the outcome. If we find that the test would have no bearing on Harry's final grades, that he didn't care about the outcome and that he didn't expect to pass, we might attribute Harry's grades to lack of effort on his part.

Limitations of attribution theory

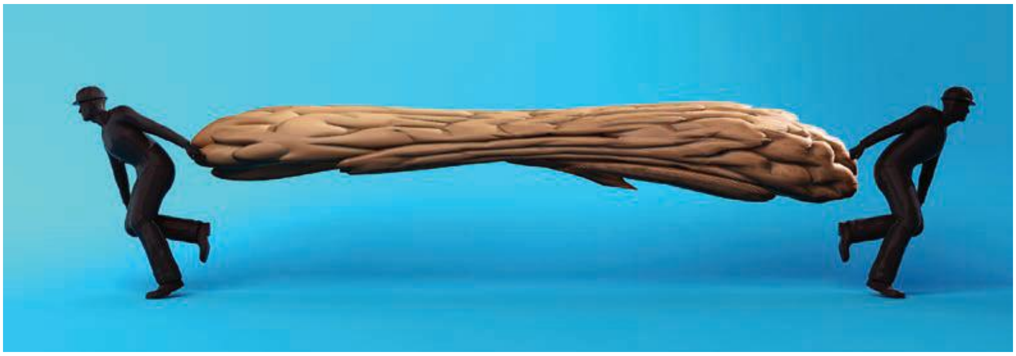
Kelley (1973) acknowledged that there were still issues that attribution theory needed to address, such as why prior beliefs about information, such as stereotypes, affect the intake of information about possible competing causes of behaviour and events. The theory also does not explain why some people prefer simple causal explanations over ones that take into account all of the person, time and situation information. To use our earlier example, some people may well jump to the conclusion that Harry is unintelligent without stopping to consider the surrounding circumstances.

Applications of attribution theory

Following extensive research into the factors involved in attributions, there has been systematic application of the findings in a variety of fields. For example, clinical psychologists have reported evidence that depressed people often overestimate their own role in negative events, leading to depression, and can use this information in treatment (Kelley & Michela, 1983). And educational psychologists are interested in how changing the attributions of both students and teachers for good and bad grades can alter the impact of these attributions on the self-esteem and motivation of the student. The effect of attributions for the performance of sporting teams is of interest not only to the media but also to sports psychologists, when looking at attributions for winning and losing and their impact on players' self-evaluations and motivation as a group (Kelley & Michela, 1980).

Cognitive dissonance theory

Leon Festinger's theory of cognitive dissonance looked at the relationship between cognitions (beliefs and attitudes) and behaviour from a different perspective. Festinger (1957) was interested in the fact that people experience discomfort or psychological tension when they hold two beliefs that are in conflict or when they behave in ways that are inconsistent with their beliefs. Festinger termed this experience **cognitive dissonance** and considered that people attempt to reduce this dissonance either by changing the belief or attitude or by changing the behaviour. A smoker who believes that smoking is bad for his health may decide that the evidence against smoking being a health hazard is flawed or inconclusive (change in belief) or he may join a Quit program (change in behaviour). Both of these alternatives are likely to reduce the dissonance between belief and behaviour.



Science Photo Library/Christian Darkin

Figure 7.10 A stretched brain representing cognitive dissonance, where two competing beliefs exist in the brain

Cognitive dissonance research has provided explanations for some unexpected phenomena. Intriguingly, the dissonance and, hence, attitude change, is greatest when there are no compensating reasons for the change. This is clearly seen in an experiment by Festinger and Carlsmith (1959, cited in Atkinson et al., 1996) in which college students participated in a series of dull tasks. After each participant completed the tasks, half were offered $1 to tell the next participant that the tasks were interesting and would be fun. The other half were paid $20 to do this. All participants did as requested and were later asked to rate how much they enjoyed the tasks. Surprisingly, those who had been paid $1 rated the tasks as enjoyable, whereas those who had been paid $20 rated their enjoyment much lower, at a level similar to that of control participants, who had not spoken to another participant. Festinger and Carlsmith concluded that this indicated that the small incentive led individuals to believe what they had said, whereas those paid the larger amount had a compensating reason for changing their belief.

Broaden your understanding

Cognitive dissonance

Consider the situation: a group of young children are shown some highly attractive toys.

Half the group is asked in a gentle way not to play with the toys. The other half is warned with threats of severe punishment not to play with the toys. Later, they are all asked to rate how attractive they find the toys and how much they would like to play with them. Which half do you think would rate the toys higher? Why?

Applications of cognitive dissonance theory

You are probably aware of public advertising campaigns that have tried to change (with variable effectiveness) behaviour such as smoking, drink-driving and excessive water usage though advertising on TV that appeals to the viewers' fear of the outcome, social conscience and related issues. Since cognitive dissonance theory became well-known there has been research to examine the effectiveness of inducing cognitive dissonance in changing behaviours such as these.

Chris Dickerson and her colleagues (Dickerson et al., 1992) report a study on water conservation in which they aroused dissonance in student users of a university sporting complex by making them feel hypocritical about their showering habits. They manipulated two factors – participants' mindfulness of their sometimes wasteful showering habits and their commitment to pro-conservation habits – to obtain four groups of participants. These were: a mindful only group, a commitment only group, a mindful and committed group (the hypocrisy group that experienced cognitive dissonance) and an unmindful, uncommitted group that formed the control group. They measured the effects of their manipulation by timing the length of the showers that participants took after they had been swimming, without the participants being aware of this. As hypothesised, the hypocrisy group took significantly shorter showers than the other three groups.

CHAPTER SUMMARY

Social psychology

The influence of groups on behaviour

- Impact of the presence of others on behaviour
  - Social facilitation and inhibition
    - Relationship between arousal and performance (Yerkes and Dobson)
  - Diffusion of responsibility
    - Bystander effect
  - Social influence
- Group polarisation
- Conformity
  - Solomon Asch's study on conformity
- Obedience
  - Stanley Milgram's experiment
    - Immediacy/proximity to victim
    - Immediacy/proximity of authority figure
    - Belief in legitimacy of successful outcome
    - Lack of disobedient role models
  - Zimbardo's study
    - Power
    - Status

Theories of social psychology

- Attribution theory
  - Heider's attribution theory
    - Internal/dispositional attribution
    - External/situational attribution
    - Fundamental attribution error
    - Self-serving bias
  - Kelley's theory of causal attribution
    - Model of attribution: antecedents → perceived causes → consequences
  - Limitations of attribution theory
  - Applications of attribution theory
- Cognitive dissonance theory
  - Leon Festinger
  - Applications of cognitive dissonance theory

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Diffusion of responsibility

2 Conformity

3 Self-serving bias

4 Fundamental attribution error

5 Informational social influence

6 Peer pressure

7 Social facilitation

Multiple-choice questions

1 Two psychologists who studied the bystander effect were:
- A Freud and Rogers.
- B Darley and Latane.
- C Milgram and Asch.
- D Platow and Brown.

2 In Milgram's study on obedience, the actors:
- A played the role of the teachers.
- B played the role of the learners.
- C were being given electric shocks.
- D did not obey the experimenter.

3 Milgram's classic study in which participants were prepared to give another person electric shocks if they answered questions incorrectly helps us to understand:
- A conformity.
- B obedience.
- C peer pressure.
- D authoritarianism.

4 Diffusion of responsibility has the following consequence:
- A responsibility to act will be assumed by the police.
- B responsibility to act is shared equally by all present.
- C responsibility to act is taken on by the person in charge.
- D each person present assumes someone else will take responsibility to act.

5 Social psychology had its origins in:
- A British experimental psychology.
- B German *Völkerpsychologie*.
- C American behaviourism.
- D Freudian psychoanalysis.

6 Cognitive dissonance occurs when:
- A there are two competing beliefs in the brain.
- B people seek to reduce inconsistency.
- C contradictory beliefs lead to new thoughts and beliefs.
- D all the above.

Apply and relate psychological understandings

Short-answer questions

1 Explain how the type of task and level of arousal affects performance.

2 Indicate how the idea of diffusion of responsibility helps us to understand the bystander effect.

3 Describe the means by which normative social influence affects the way an individual behaves.

4 Discuss the factors that affect conformity.

5 Outline how group polarisation can provide an explanation for the behaviour of young men joining ISIS.

6 Explain how attribution theory helps us to understand why one person acts angrily when bumped and another just shrugs it off.

Extended-answer question

Briefly describe Zimbardo's Stanford prison experiment. List the ethical issues involved in this study. Indicate whether you think that they are addressed in a way that would enable a current-day human research ethics committee to give permission for the experiment to be carried out. Provide reasons for your decision.

CHAPTER 8

Others: Community, culture and values

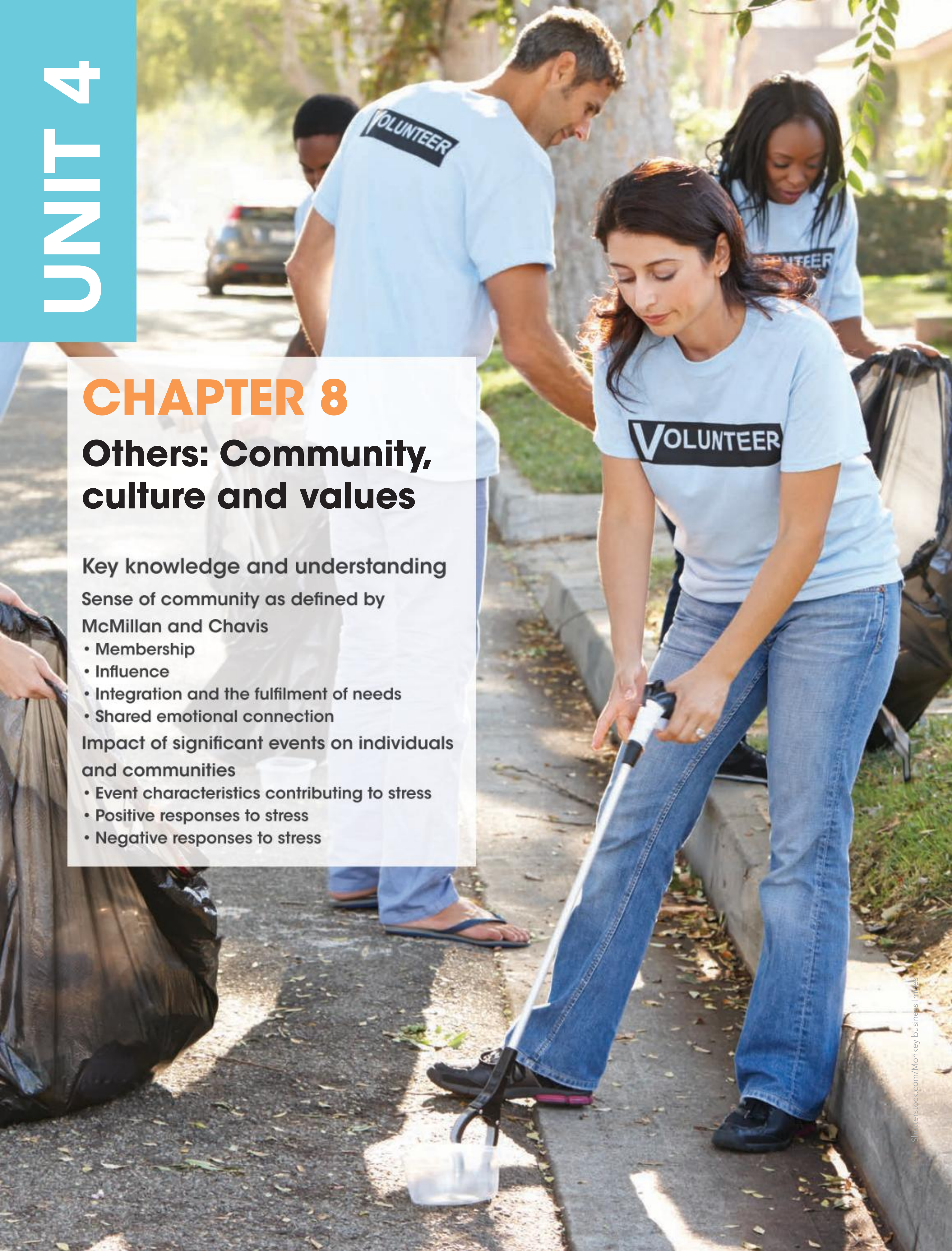
Key knowledge and understanding

Sense of community as defined by McMillan and Chavis

- Membership
- Influence
- Integration and the fulfilment of needs
- Shared emotional connection

Impact of significant events on individuals and communities

- Event characteristics contributing to stress
- Positive responses to stress
- Negative responses to stress



Shutterstock.com/Monkey business Images

Community, culture and values

What do we mean by community? Back in 1975, Gusfield (in McMillan & Chavis, 1986) noted two major uses of the term. The first is a geographical notion such as neighbourhood or town; the second is concerned with quality of relationships within a group without any reference to location. So, we think of a sporting club, a professional group, and an interest group as a community to which we belong. When McMillan and Chavis (1986) developed their theory of community, they thought it applied to both those notions of community.

Sense of community as defined by McMillan and Chavis

McMillan and Chavis (1986) proposed four criteria that had to be met for an individual to feel a **sense of community**, that sense of belonging or attachment to their community that people may have. They relate to membership, influence, fulfilment of needs and shared emotional connection. While McMillan's 1996 paper extends the principles of the original paper, the same four elements appear.

Membership

Membership provides a feeling of belonging, of being a part of something bigger than yourself. It establishes boundaries that divide those who belong from those who do not. McMillan and Chavis proposed five attributes of membership:

- boundaries
- emotional safety
- a common symbol system (such as dress, badges, language)
- a sense of belonging and identification
- personal investment.

They saw these five attributes fitting together and reinforcing each other, as depicted in Figure 8.1.

Boundaries can be important for neighbourhood communities. Sometimes they are obvious, as when gates and fences surround an estate; sometimes they are more subtle, as when gangs put graffiti on walls to mark their territory. Boundaries provide a sense of *emotional safety* by separating 'us' from 'them' and indicating who can be trusted.

Communities often have a *common symbol system*. They may use dress, rituals and language to indicate who is a member. The pranks that were performed on new students or recruits, which used to be common in private schools and military establishments, were designed as initiation for group membership. Language differences can be in-group slang or professional jargon – not just speaking another language. Most of us have experienced the sense of inclusion or exclusion caused by language.

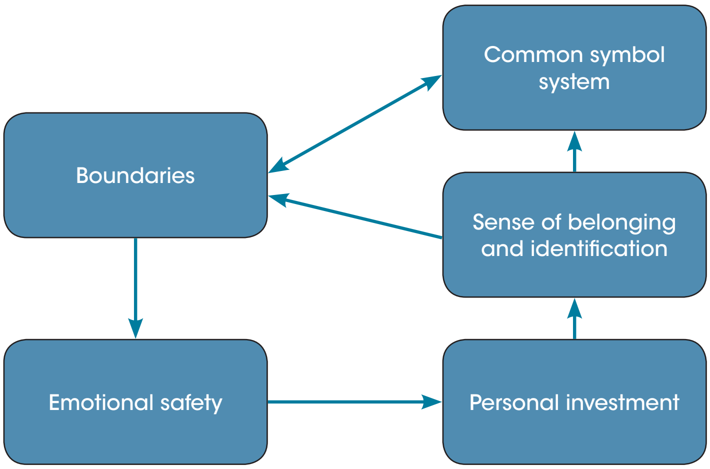


Figure 8.1 Miller and Chavis' attributes of membership (adapted from McMillan & Chavis, 1986)

Corbis/© Bo Zaunders

Getty Images/Robert Daly

Figure 8.2 Dress can indicate who is 'in' or 'out' of the group.

McMillan (1996) considered that membership also provides us with a setting in which we have a *sense of belonging and identification*. This means an environment in which we can be ourselves and where what we express is accepted and valued, as seen through the responses of others in that group. McMillan and Chavis (1986) noted that this sense of belonging and identification facilitated the development of a common symbol system, which defines the community's boundaries. They also considered that a sense of belonging and emotional safety led to *personal investment* in the community, which resulted in members feeling that they had earned the right to be a member.

Getty Images /Bradley Kanaris

Figure 8.3 McMillan and Chavis' theory would suggest that the individuals in this successful team would want to remain group members.

Influence

McMillan and Chavis (1986) proposed that influence is a bi-directional concept. While individuals are attracted to become members of a community in which they have influence, community cohesiveness requires members to be prepared to conform. Conformity and community influence on group members are indicative of the strength of the attachment to the community that is experienced by members. McMillan and Chavis (1986) indicated that the pressure for conformity comes from the needs of the individual and the group for **consensual validation**, that is, an inherent need for the individual to know that the things they experience are experienced in the same way by others, counterbalanced by the group's need for the individual to validate the group's world view.

McMillan (1996) cited research indicating that communities are more cohesive when leaders influence members and when members influence leaders concurrently. People who acknowledge others' opinions and needs are often more influential than those who try to dominate others and ignore their wishes.

Integration and the fulfilment of needs

For any group to stay together, membership of the group must be rewarding. One rewarding aspect of many groups is status, and it has been shown that group success brings members closer together. For a group to do its best work, it needs to be organised. Members need to know each other's strengths and weaknesses; roles and tasks need to be assigned. Members must make sure that crucial tasks are not left undone and that they are not competing for resources or status.

Leaders in both education and business who have tried to foster cooperation have found that an effective way of achieving this is to make rewards for the individual dependent on outcomes by the group. As long ago as 1978, Aronson and colleagues showed that students in cooperative classrooms, who work together to achieve group goals and receive their marks on the basis of the class product, actually learn better than students in competitive or individualistic classrooms. Employers have also adopted this type of approach to improve group productivity. They have provided bonuses to employees when group production targets are met.

When McMillan revised his and Chavis' theory in 1996, he proposed that another way in which individuals can have their needs met is by being members of a group of people with shared values, who think and feel similarly to themselves and with whom they can safely be themselves.

Shared emotional connection

Shared emotional connection, the final criterion in McMillan and Chavis' theory, has two components: contact and high quality interaction. It refers to the feeling that we might have of being connected to another person through a common emotional response to a shared activity or event (that is, to a shared history). This history is forged not only from being together over a period of time, but also by the quality and importance of the interaction. Think of a group to which you feel a strong connection. What has contributed to this feeling? Have you shared some special experience: a project, trip or crazy adventure? When you hear groups of war veterans talk, you are aware that shared experiences in difficult and dangerous times have provided a strong sense of community.

McMillan (1996) considered that shared emotional connection experienced by a community is often represented in art: the stories, music and other symbolic expressions of a community that represent its values and traditions.

Broaden your understanding

Community

Read the following article relating to the anti-coal seam gas protest at Bentley.

Bentley battle won but it's 'just the beginning' in CSG war

The anti-CSG movement gathered at the Bentley protest camp yesterday to celebrate with visiting Greens senators Scott Ludlam from WA and Larissa Waters from Queensland.

Today was supposed to bring a dawn of reckoning, with the threat of riot police and heavy handed politics.

Instead, a galvanised electorate stood united in its defence of land, water and lifestyle.

Yesterday's celebration – at times tinged with a sombre realisation of what lies ahead – was a chance for numerous supporters to unite and express joy that true democracy is far from dead.

'There is a huge buzz here,' said WA senator Scott Ludlam. 'People are in a mood to celebrate and we are amazed by how well organised the protest is.

'But there have been people in meetings all day talking about where to go from here. After all, the exploration licence has been suspended, not extinguished.'

Mr Ludlam said there remained anti-CSG confrontations all across the country and at Bentley there was deliberation on how to take that sense of community here to communities elsewhere.

'People want to know how best to take that sense of community and that sense of defiance and take it to those places that need help,' he said.

'This fight is far from over. The CSG industry wants to sink tens of thousands of wells, not hundreds.

'This is just the beginning.'

Queensland Senator Larissa Waters agreed on that point, saying the inspiration that is now flowing from Bentley's victory will help galvanise protest movements in wherever the threat of a CSG industry lies.

'It is so wonderful to be part of a victory for a change,' she said.

'At Tara the anti-CSG sentiment is still very strong, but the people there are standing against yet more onslaught.

'The joy you get from a win is immeasurable.

'Now it is important to keep this momentum up and turn this suspension into a cancellation.

'There is a real need for people to keep standing together and shut down this last-century industry.

'This is only one step along the way in what will be a very long and important fight.'

Source: Jamie Brown, *The Chronicle*, 19 May 2014

Do you think that this protest group meets McMillan and Chavis' criteria for a community? If you think they give evidence of being a community, list the criteria they have met and how they are demonstrated. If you think they have not met McMillan and Chavis' criteria, indicate what they could have done to demonstrate community membership.

Impact of significant events on individuals and communities

Significant events that result in challenging life crises typically are considered to be stressors: objects or events that result in stress. **Stress** can be defined as a state of physiological or psychological arousal that results from the individual's interpretation of stressors (Le Fevre, Matheny & Kolt, 2003) which can occur at an individual or world level. Individual significant events include those which are distressing (cause negative stress) such as the death of a loved one or one's house burning down. They can also include events that are generally welcomed, but may still be stressful, such as a marriage or the birth of a child. World-level significant events are large-scale events that affect more than an individual; however, they are often sources of stress for individuals. This is true whether the event is negative, such as a hurricane, war or stock-market crash, or whether it is positive, as in the Olympic Games or a new treatment for malaria.

Event characteristics contributing to stress

There are three main factors about events that influence whether or not we experience them as stressful. The first of these is the *predictability* of the event (Katz & Wykes, 1985, cited in Atkinson et al., 1996). While some events, such as the eruption of a volcano, may be stressful, even if they are predictable, it is usually the case that unpredictable events are more stressful and have a longer lasting impact. *Controllability* is a second factor influencing whether we are likely to find an event stressful (Geer & Maisel, 1972). Having no control over events is a major source of stress reported by victims of terrorist attacks and long-term residents of refugee camps (whether voluntary or detained). Finally, whether we *experience threat or loss* also impacts on whether we find an event stressful or not. Many people find even a positive event such as the Olympic Games to be stressful, since it involves many changes and unknowns that may be perceived as threatening. Will it disrupt public transport or cause traffic problems in our city? Will it increase the risk of a terrorist attack?

Broaden your understanding

Association between life events, stress and health

Two of the early researchers to look at the relationship between life events and an individual's stress levels and health were Thomas Holmes and Richard Rahe. In 1967 they developed *The social readjustment rating scale* (Holmes & Rahe, 1967) by examining the medical records of more than 5000 patients looking for a connection between illness and stressful life events. The resulting scale listed 43 events. They gave the event they had arbitrarily placed at the top a score of 500. They asked a convenience sample of 394 participants to 'use all your experience' to consider each event and choose a proportionately larger number for events requiring more intense and protracted readjustment and a proportionately smaller number for those events requiring smaller and less intense adjustment. This process enabled them to reorder the events to form their final scale. This scale provided a value of 100 for the most stressful event and proportionately smaller numbers for events lower on the list. The sum of these scores was used to indicate level of stress and predict likelihood of later negative health events.

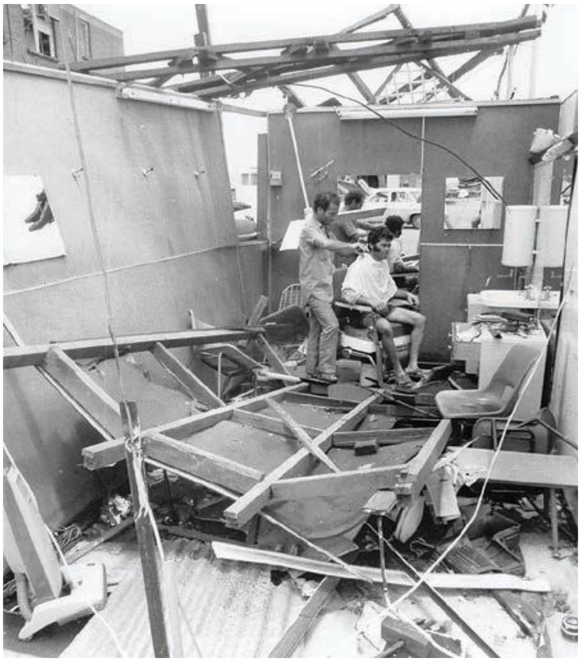
In later years, other researchers used similar techniques to develop life event stress scales for specific groups. In 1980, Rosalee Yeaworth and her colleagues developed a stress scale for teens based on the ratings of participants aged from 11 to 18 years (Yeaworth, York, Hussey, Ingle, & Godwin, 1980). Their starting list was based on personal, family and social changes believed to be stressful to adolescents rather than the histories of adult patients. Below are listed the top 15 life events ranked from highest to lowest perceived stressfulness.

1. A parent dying
2. Brother or sister dying
3. Close friend dying
4. Parents getting divorced or separated
5. Failing one or more subjects in school
6. Being arrested by the police
7. Flunking a grade in school
8. Family member (other than yourself) having trouble with alcohol
9. Getting into drugs or alcohol
10. Losing a favourite pet
11. Parent or relative in your family (other than yourself) getting very sick
12. Losing a job
13. Breaking up with a close girlfriend or boyfriend
14. Quitting school
15. Close girlfriend getting pregnant

Source: Yeaworth et al., 1980

This list was compiled from data from American adolescents many years ago. Do you think that Australian adolescents today would rank these life events in the same order for perceived stress?

Beside each event, list which of the characteristics of stress noted above (predictability, controllability, experience of threat or loss) that you think would apply.



Bruce Howard, Collection of photographs for *Herald and Weekly Times*, Melbourne, 1955–1995, National Library of Australia, vn3076535

Figure 8.4 Showing resilience? A barber tries to continue his business after Cyclone Tracy.

Positive responses to stressful events: Hardiness, resilience and post-traumatic growth

It is important to note that people react differently even when they are exposed to the same stressor. What is it that makes the difference that results in some people appearing hardier or more resilient than others, or even showing growth?

Various psychologists have studied positive reactions to stress and have used different constructs to explain them. Kobasa (1979) thought that personality differences could account for different responses to stress. She carried out a study in which 600 executives and managers were asked to complete two questionnaires. One was a personality questionnaire. The other measured the stressful events and illnesses that respondents had experienced over the previous three years. She divided the respondents into two groups: one that had scored above average for illnesses and the other that scored below average. The number of stressful events experienced by both groups was high. However, when she compared the high stress/high illness group with the high stress/low illness group, she found that the latter group:

- saw change as a challenge, an opportunity to demonstrate mastery
- felt more in control of their lives
- had a sense of direction in both their work and personal lives.

She described this group as showing **hardiness** or having a 'hardy' personality. Her conclusion was originally criticised because it was possible that illness was the cause, not the result, of the personality characteristics. However, she later carried out a longitudinal study (Kobasa et al., 1982) in which she followed a group of executives over a two-year period and found that those identified at the start of the two years as having a hardy personality were less likely to become ill.

The qualities that Kobasa saw in her 'hardy' types are some of the characteristics that have in more recent years been identified with the concept of **resilience**. Other qualities seen in the resilient person are:

- the capacity for making the most of small windows of opportunity
- having a deep-rooted faith in a system of meaning
- having a healthy social support network
- having a wide comfort zone.

But is resilience something we are born with or something we develop? Research based on intervention studies suggests that to some extent an individual's resilience can be trained. Challenge-based personal development programs such as Outward Bound are based on the premise that personal growth and resilience can be taught by combining challenges with support. By facing situations that are difficult or scary with sufficient support to ensure success, we learn that we can deal with something that we earlier would have found impossible. Approximately 45% of Western Australian schools have implemented the MindMatters program (ACER, 2010), developed to promote mental health. One of the four major components of this program addresses resilience and is designed to help students develop the skills to cope with stress and adversity.

MindMatters evaluation report

Community psychologists have found another factor that influences how individuals respond to major stressful events: their sense of community. As McMillan and Chavis noted, a sense of community is the sense of belonging or attachment that individuals have to to their community. Researchers have found that this sense is important to the psychological wellbeing of people of all ages within a community and affects how well they 'bounce back' after an emergency as well as their participation in positive activities in the community.

Broaden your understanding

Stressful lifestyles and their impact on mental health

In recent years, with the mining boom in Australia, psychologists have been studying reactions to the lifestyle of the fly-in fly-out (FIFO) worker to determine what factors in the individual, the family and the wider community are implicated in the responses of individuals and their families to the stressors the lifestyle imposes. The work schedules of the FIFO worker mean that the partner carries most of the burden of managing the home and children and keeping up ties with family and friends. How well do the couples manage this situation? While there have been numerous studies, most of them have been small-scale and have used unrepresentative samples (Meredith, Rush & Robinson, 2014). However, a study by Taylor and Simmonds (2009) gives some insight into the factors that are associated with family satisfaction and healthy family functioning. Their survey suggested that families who showed healthy flexibility (neither rigid nor chaotic), healthy cohesion (neither emotionally disengaged nor enmeshed) and in which communication was good were most satisfied with how their family was functioning.


Fairfaxphotos/Jacky Ghossein

Figure 8.5 FIFO workers and their families face stressors specific to their lifestyle.

Other studies of FIFO workers suggest that external factors, such as workplace cultures, rosters and recruitment factors, also impact on workers, but stress levels can be reduced through the provision of information during the recruitment process so workers and their families have a better understanding of the challenges they will be facing (Meredith, Rush & Robinson, 2014).

Positive responses by communities to negative events

In recent years, researchers have argued that those planning services to respond to emergencies need to think beyond vulnerability and try to understand resilience. What is it that allows communities to recover from disasters and adjust to changes?

Western Australian researcher Julie Ann Pooley (2006) and her colleagues describe how the concept of **community competence** has been used to explain resilience in a community. Competent communities are ones that are able to identify needs and issues, and work cooperatively to carry out plans and achieve goals. If people live in a competent community and have a sense of community (a strong sense of belonging or attachment), the community is considered to be resilient. However, the effects of community resilience on outcomes following a disaster are not direct. In studying the impact of cyclones on communities in the northwest of Australia, Pooley and her colleagues found that the competence of a community and individuals' feelings of attachment to their community led to them having an increased sense of self-efficacy and social networks. These, in turn, led to reduced stress and increased growth.

Mt Lawley Primary School fire

Broaden your understanding

Community competence: Two examples

1 Mt Lawley Primary School fire

View the film footage through the weblink icon.

2 The Hurricane Choir

In mid to late 2005, there was a period of unusually severe hurricane activity in the Atlantic basin and Gulf of Mexico. Hurricane Katrina, which caused widespread destruction in New Orleans, was followed by Hurricane Rita and Hurricane Wilma. Disasters such as this not only result in destruction of the material environment and loss of possessions but can also have a major negative impact on the mental health of individuals and the community as a whole.

With the US Department of Health and Human Services suggesting that up to 50 per cent of individuals exposed to the Louisiana hurricanes of 2005 might have clinical or subclinical mental health problems, there was clearly a need for support. With an emphasis on trying to provide intervention that was culturally appropriate and feasible, the Hurricane Choir project was formed by a small core group of Australian, Canadian and local volunteers.

Hereward Dundas-Taylor

Figure 8.6 The Hurricane Choir

The plan was for this choir, made up of hurricane survivors under the leadership of experienced Australian conductor Martin Meader, to work together over a six-month period. It was hypothesised that participation in the choir would 'assist hurricane survivors to feel increased social support, a greater sense of community cohesion and lead to improved perceptions of coping and optimistic thinking' (Sentiens, 2006). In addition, it was expected that there would be a reduction in mental health problems in choir members.

As the choir organisers were keen to measure the impact of the choir objectively on both short- and long-term mental health outcomes, they obtained the services of a Perth-based health group to monitor changes in participants' mental health, tracking the severity of the symptoms of depression, anxiety and post-traumatic stress disorder (PTSD) using an online monitoring facility (Harvey, Smith, Abraham, Hood & Tannenbaum, 2007). When the project wound up in June 2006 after months of rehearsals and many public concerts, the governor of Louisiana considered that it had been so successful in achieving its aims that he wrote to thank the prime minister of Australia for the work of the Australians involved.

On a piece of paper, list the criteria for a competent community provided by Pooley. For each of the two examples indicate which of these criteria (if any) were met and why you judge this to be the case.

The most distressing forms of stress are often referred to as trauma. As awareness of traumatic stress has increased, many psychologists have studied post-traumatic stress. Far fewer, according to Tedeschi and Calhoun (2004), have examined **post-traumatic growth**. They described post-traumatic growth as the experience of positive change that occurs as a result of the struggle with the new reality that a person faces after experiencing trauma. This is not to deny that the trauma remains a distressing event. They considered that there were five factors that defined the main aspects of post-traumatic growth:

1. greater appreciation of life and a change in previous priorities
2. changed relationships, with greater intimacy and warmth
3. a sense of increased personal strength
4. an awareness of new possibilities and alternate paths for one's life
5. spiritual development.

They wrote that post-traumatic growth differed from the related constructs of resilience, hardiness, optimism and sense of coherence in that post-traumatic growth refers to 'a change in people that goes beyond an ability to resist and not be damaged by highly stressful circumstances; it involves a movement beyond pre-traumatic levels of adaptation' (Tedeschi & Calhoun, 2004, p.4).

Broaden your understanding

Understanding post-traumatic growth

Listen to the speech given by Rosie Batty at the end of her 12 months as the 2015 Australian of the Year.

Copy Tedeschi and Calhoun's five indicators of post-traumatic growth on a piece of paper. Against each point, note any statements from Rosie Batty's speech that you think are suggestive of these indicators.

Newspix/Annette Dew

Figure 8.7 Rosie Batty: An example of post-traumatic growth

Rosie Batty 2015 Australian of the Year acceptance speech

Since the early work of Tedeschi and Calhoun, researchers have attempted to gain a better understanding of the factors that contribute to some individuals showing post-traumatic growth, while others show post-traumatic stress. Gabriele Prati and Luca Pietrantoni (2009) carried out a meta-analysis of 103 studies to determine the contribution of social support, coping strategies and personality factors to post-traumatic growth. They found that coping styles that involved religious beliefs or a positive reappraisal of the situation had the greatest effect on post-traumatic growth. Religious beliefs were of greatest value to women and older people as they sought to make sense of the situation. The provision of social support or the act of seeking social support had a moderate impact on post-traumatic growth, as did spirituality and optimism. Of lesser impact was acceptance of the situation.

Negative responses to stressful events: Post-traumatic stress

As we noted, traumatic events are an extreme form of stress. They involve unexpected and negative incidents that threaten our lives or sense of wellbeing. World events like natural disasters, wars and terrorist attacks fall into this category, as do personal events like assaults and accidents. Following trauma, it is common for people to experience strong physical, cognitive and emotional reactions. Some of the more common reactions are listed below.

- *Physical symptoms*: Disturbed sleep, nightmares, exhaustion, restlessness, headaches
- *Cognitive symptoms*: Poor concentration, disturbances to attention and memory, flashbacks, intrusive thoughts, disorientation
- *Emotional symptoms*: Fear, avoidance, anxiety and panic, depression, guilt, withdrawal and fearfulness

Young children may also regress in their behaviour: wetting the bed, thumb-sucking and being scared of the dark. They may also lose their trust in adults, who have not been able to protect them from the traumatic event.

Newspix/Adam Knott

Figure 8.8 News Ltd journalist Gary Hughes inspects the remains of his property in St Andrews, Victoria, destroyed by bushfire in February 2009.

People vary in the severity of their reactions to their experience depending on the situation, their own resources and the support they receive. While these symptoms are common, they usually subside with support from family, friends and colleagues. However, for some people the event can be so distressing that the symptoms continue and **post-traumatic stress disorder (PTSD)** may be diagnosed. An official diagnosis of PTSD, as stated in the *Diagnostic and Statistical Manual*, 5th edition (APA, 2013), requires that the person meets specific criteria that include:

- past experience of actual or perceived threats to life, violence or serious injury
- presence of distressing symptoms, such as recurring memories, dreams or flashbacks
- persistent avoidance of any stimuli perceived to be associated with the original traumatic event
- negative changes in thoughts and mood associated with the traumatic event
- changes in reactions and responses to stimuli associated with the event, such as angry outbursts without provocation, problems with concentration and sleep disturbance.

PTSD can have a delayed onset, with an individual experiencing symptoms years after the traumatic event. In these instances, there is usually some specific incident that triggers the reaction.

There is ongoing research to try to explain why some people suffer PTSD while others who have experienced the same event do not. Several different factors have been suggested as affecting responses to traumatic events. There is evidence that genetic factors can influence exposure to certain types of trauma (Grabe et al., 2009; Stein et al., 2002). Other researchers have suggested that different pre-trauma factors may make some people more susceptible to PTSD than others. Certainly, early traumatic events such as abuse have been found to make individuals more susceptible to PTSD following a later traumatic event. A third group of researchers suggest that post-trauma factors, such as the availability of social support, contribute to different outcomes. It is possible that all three types of factors may contribute. This is an area in which continuing research is needed.

In recent times, relief workers from organisations such as the Red Cross have learned critical incident stress management and provide counselling to those who have experienced major disasters as part of their standard support practice in an attempt to reduce the numbers of potential PTSD sufferers. Those who do suffer PTSD are usually treated by a combination of psychotherapy and drug therapy.

Negative impact of stressful events on communities: Vulnerable groups

Much of the research on community responses to major events has focused on determining what sections of communities are particularly vulnerable at times of disasters such as cyclones, bushfires and long-term disruptions to power supplies. This type of information is used by agencies whose job it is to cope with emergencies. Analyses following Hurricane Katrina in the southeast of the United States identified socially disadvantaged groups – the poor, black and elderly – as being most vulnerable (Elliott & Pais, 2006). However, Australian research has shown that it is not always these groups that are most affected by disasters. In 1998, a gas explosion at the Esso natural gas plant at Longford caused gas supplies to be severely restricted for several weeks in a wide area of Victoria. Natural gas is widely used in Victorian homes for hot water and gas heating, meaning that residents had to endure cold showers and chilly nights. While it might be expected that the elderly would be most affected by this situation, Buckle (2001–2002) found that they coped better than younger people. He found that their past life experiences in dealing with different resource needs and supplies coupled with their reduced expectations of external help led them to deal with the crisis more easily.

Broaden your understanding

Long-term effects of stressful events

Two examples of stressful global events:

1 *Twin Towers terrorist attack*

Many years have passed since the terrorist attack of 11 September 2001 in the United States in which hijacked aircraft were flown into the Twin Towers of the World Trade Center. There was a huge impact at an individual, community and national level at the time, but what have been the long-term effects?

Note what you think are continuing effects, if any, of this incident at the:

- world level
- national level
- community level
- personal level.

Do you expect these effects to be ongoing?


Getty Images/Spencer Platt

Figure 8.9 The terrorist attack of 2001 on the World Trade Center

2 *The Great Depression*

We probably all know people whose lives appear to have been affected by some major event at a national or international level – a former Olympic athlete, a survivor of a major bushfire or cyclone, a war veteran. We see pictures of the enduring effects of these events. However, to really understand the long-term influence of such events on the lives of individuals and communities, we need well-designed longitudinal research. In 1974, Glen Elder reported on a study of just this type, looking at children of the Great Depression.

The Great Depression started in 1929 and was accompanied by the Wall Street stock-market crash. It lasted through most of the 1930s and was a time of economic downturn throughout the Western world. Australia was hard hit, with unemployment reaching 29 per cent in 1932. Dole queues were a common sight.

In Oakland, in the United States, in 1931, Herbert Stolz and Harold Jones started a study of 167 children aged 11 to 12 years. They were interested in the physical, psychological and social changes that occurred as the study members moved from childhood to adolescence. While the study was not designed at this time to examine the effects of economic deprivation during the Depression, it was able to serve this purpose, as sociometric information was collected. Detailed data was gathered on home characteristics, the father's occupation and other indicators of level of living. This formed the starting point for the longitudinal study reported by Elder. One hundred and forty-five of the original participants were followed up as adults on at least one of three occasions. The first follow-up was in 1953–54 and involved interviews, personality tests and a psychiatric assessment. The second follow-up in 1957–58 and the third in 1964 involved primarily interviews and questionnaires.

In summarising his findings, Elder (1974) noted that there were three enduring effects of the Depression experience of the Oakland group.

- For the group that suffered deprivation, life achievement was more dependent on effort and accomplishments outside the education system than for those from non-deprived families.
- Adult health was negatively related to economic hardship, but only among the children from working-class homes. This finding did not hold for children from middle-class families.
- Values among the offspring of deprived families were consistently conservative.

One common value was the centrality of the family and the importance of children in marriage. Another common value was the importance of job security, although work in itself did not matter more to people who had experienced deprivation.

From this study we can see that major world events can have an enduring effect on both the physical and psychological development of individuals and groups.

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Fairfax photos

Figure 8.10 Dole queues during the Great Depression in the United States (left) and Australia (right)

CHAPTER SUMMARY

Community, culture and values

Sense of community as defined by McMillan and Chavis

- Membership
- Influence
- Integration and the fulfilment of needs
- Shared emotional connection

Impact of significant events on individuals and communities

- Event characteristics contributing to stress
  - Predictability
  - Controllability
  - Experience of threat or loss
- Responses to stressful events
  - Positive responses to stress
    - Hardiness
    - Resilience
    - Post-traumatic growth
    - Positive responses by communities to negative events
  - Negative responses to stressful events
    - Post-traumatic stress
    - Distress
    - Post-traumatic stress disorder (PTSD)
      - Physical, cognitive and emotional symptoms
  - Negative impact of stressful events on communities
    - Vulnerable groups
    - Long-term effects of stressful events

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Stress

2 Consensual validation

3 Sense of community (according to McMillan and Chavis)

4 Community competence

5 Post-traumatic growth

6 Common symbol system (according to McMillan and Chavis)

Multiple-choice questions

1 A 'hardy' personality is a term used to describe a person who:
   A likes outdoor activities.
   B does not get ill very often.
   C sees life as a challenge.
   D does not cry often.

2 Qualities seen in a resilient person include:
   A having a wide comfort zone.
   B being physically strong.
   C having previously experienced hard times.
   D being able to look after oneself.

3 Those who set up the Hurricane Choir thought that it would ease survivors' stress by:
   A providing increased support.
   B leading to more optimistic thinking.
   C promoting increased feelings of community cohesion.
   D all of the above.

4 Positive family functioning in FIFO workers is likely to be experienced if:
   A the stay-at-home partner has a good job.
   B there are no children.
   C the FIFO worker is acknowledged as the head of the household.
   D there is good communication between husband and wife.

5 Theories proposed to explain why some people suffer PTSD, while others who have experienced the same event do not, include:
   A differences in the availability of social support.
   B different pre-trauma experiences.
   C different neurological make-up.
   D all of the above.

Apply and relate psychological understandings

Short-answer questions

1 Indicate how community competence relates to community resilience after an event such as a bushfire.

2 Describe the type of activities that contribute to a feeling of group membership.

3 Indicate why a positive event, such as a wedding, can be experienced as stressful.

4 List the main features of PTSD.

5 Outline the reactions of young children to trauma and provide possible reasons for them.

6 Outline the four characteristics of communities in McMillan and Chavis' theory; provide contemporary examples of each.

7 In a diagram, indicate the relationship between the different attributes of community membership according to McMilllan and Chavis.

Extended-answer question

Bruno and Maria are siblings whose home was destroyed and whose father was seriously injured 12 months ago in a major bushfire in the southwest of Western Australia. Bruno is still experiencing nightmares and finds it difficult to concentrate in school and his grades are slipping. Maria, in contrast, seems revitalised. She seems to have a greater purpose in life and has set up an activity program for the younger children at her school. Provide possible explanations for the different reactions of Bruno and Maria to the same event, drawing on psychological theories relating to trauma.

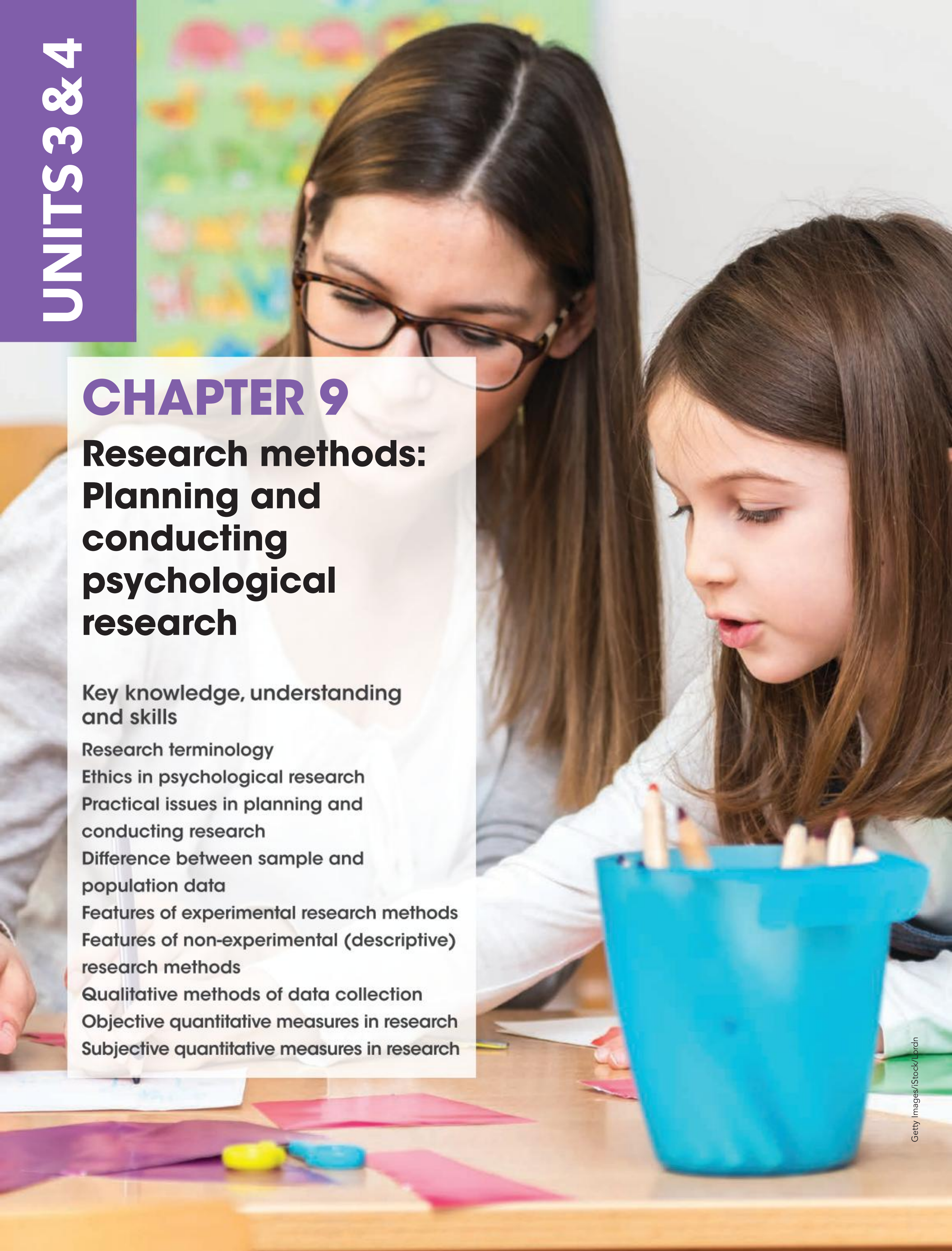
UNITS 3 & 4

CHAPTER 9

Research methods: Planning and conducting psychological research

Key knowledge, understanding and skills

Research terminology
Ethics in psychological research
Practical issues in planning and conducting research
Difference between sample and population data
Features of experimental research methods
Features of non-experimental (descriptive) research methods
Qualitative methods of data collection
Objective quantitative measures in research
Subjective quantitative measures in research



Getty Images/iStock/Lordn

Planning and conducting psychological research

Research terminology

Psychology has a long and distinguished history. The word originates from two Greek words – *psyche*, or mind, and *logos*, or knowledge. Therefore, psychology began as the study of the mind. Psychology involves the investigation of behaviour and the mind and mental processes through scientific methods. Psychology research aims to describe, predict, control and explain behaviour and mental processes. Behaviour is defined as the observable actions of people (and animals) while mental processes are people's thoughts and feelings, which cannot be directly observed. Behaviour and mental processes are linked and influence each other: the way you feel can influence your behaviour and feelings, and the way you behave or feel towards someone else, for example, can affect how you think about them. Likewise, the way you think about someone can influence your behaviours and feelings.

Scientific, non-scientific

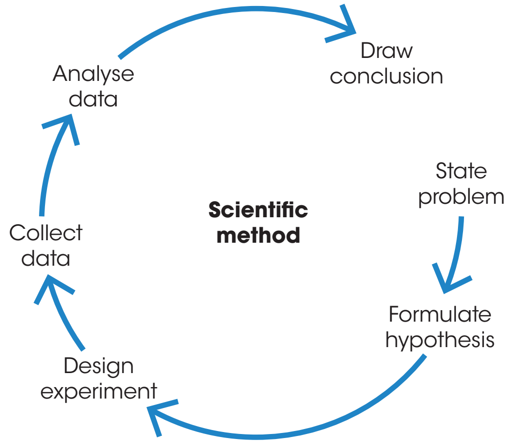
Psychologists are scientists and as such use scientific investigation methods. They ask questions about how and why people behave in certain ways. The **scientific method** – common to all sciences including chemistry, physics and biology – involves a systematic approach to the planning, conducting and reporting of research, usually in the form of experiments with a view to generating knowledge about the world (in psychology's case, about humans). With a scientific approach, researchers collect empirical evidence or data that enables them to draw valid conclusions based on the experiments. That is, the scientific method is based on, concerned with or verifiable by observation or experience.

Psychology is also known as behavioural science. We can describe four goals of psychological or behavioural science research, as shown in Table 9.1.

Table 9.1 Four goals of psychological research

Scientific goal	Functions of the goal
1 Description	Defines the phenomenon, such as memory, to be studied Differentiates between closely related phenomena (we need to be sure what it is we are studying) Records the events that might be useful or interesting to study Describes the relationship between phenomena
2 Understanding	Understands why a phenomenon occurs perhaps by proposing **hypotheses**, which then need to be checked for consistency in causality (cause-and-effect) According to the 19th century philosopher, John Stuart Mill, there are three rules for determining causality: **i** the cause of the phenomenon is consistently related to the effect **ii** the cause must come before the effect **iii** there is no other plausible alternative explanation for the effect
3 Prediction	Uses our understanding of the causes of phenomena to predict behaviour
4 Control	Uses knowledge to influence phenomena (in this case, human behaviour)

Figure 9.1 A diagram of the scientific method



Since the main goal of science is to generate knowledge that can be used to describe, understand, predict and influence the world around us, the scientific method provides the way to get there by the use of objective evidence, sometimes generated through the use of experiments (adapted from Whitley, 2002).

Figure 9.1 outlines the scientific method, which we will discuss in detail throughout the chapter.

Psychology syllabus

According to the Year 12 syllabus, 'Psychology is the scientific study of how people think, feel and act. It aims to answer important questions such as what factors influence human development. … (as) psychology's main aim (is) to understand humans, psychology is rigorous in its use of scientific method. This allows for systematic exploration into the complexities of human behaviour based on evidence gathered through planned investigations.'

Psychology is thus regarded as behavioural science and the research process is essential to the development of theories about human development and aspects of behaviour.

By contrast, **non-scientific approaches** include things such as astrology (belief that the movement of the stars can predict our personality and behaviour), numerology (using significant numbers in our lives such as birth dates to predict future events) and graphology (the interpretation of handwriting to describe personality and behaviour) to explain and even predict human behaviour. These are not based on science and they are often labelled *pseudoscience* to indicate that they do not have any scientific foundation. Other non-scientific approaches to describing and predicting behaviour include faith and religion, common sense and even personally held beliefs.

Experimental, non-experimental

Experiments are conducted to test whether one thing, a phenomenon or a variable, influences or causes a change in another thing or another variable. Experiments are the only way that cause-and-effect relationships can be determined. For example, one might be interested in finding out whether eating a lot of pizza (one variable) causes a change in a person's weight (a second variable). While this might be a very simple cause-and-effect experiment that disregards all the other potential sources of weight change, it can already be seen that experiments can be much more complex than this and we will look at examples later in the chapter.

Non-experimental methods in psychological research often involve observation, the collection of data by carefully watching and recording the behaviours of others. Non-experimental does not mean non-scientific; it just means that the evidence is collected in ways that do not involve experiments. For example, observation can be used in classrooms if you want to conduct research into children's interactions during collaborative learning activities. The data would be the recording of the behaviours.

Other non-experimental methods include interviews (individual or group), where the data is collected through responses to questions; case studies of individual examples of behaviour change; correlational studies, which examine the relationship between two variables; and archival research, where repositories of old material are examined, often in the study of epidemiology or history and other social sciences.

Sample, population

When we conduct research, we do not typically include the entire population. It would practically be impossible to do that. Instead, we use a subset of the population called a **sample** and we make inferences from the sample to the whole **population**. This may not necessarily mean the entire global population, but only a specified population, such as school-aged children or 15-year-olds in Western Australia. Indeed, the population refers only to the entire group of research interest, and may refer to humans, animals or measurable items such as schools or hospitals. If the sample is selected in a scientific way, so as to be representative of the broader population of interest, then the results obtained from the sample can be generalised to the population. That is, we can apply a general conclusion to the whole population from the results from a particular subset (the sample).

Ethics in psychological research

The conduct of scientific research with humans in Australia is governed by the *National Statement on Ethical Conduct in Human Research (2007)*. It is based on the values of respect for human beings, research merit and integrity, justice (fairness) and beneficence (benefits of the research outweighing the risks). The topics discussed in this chapter are based on these values and their application to psychological research.

Role of the experimenter

Experiments assume that an experimenter will be objective to ensure that the researcher has no effect on the behaviour being observed or recorded or on the results. The well-known experimenter effect (Rosnow & Rosenthal, 1997) tells us that the experimenter's expectancies about how participants might perform in a research study, as well as their own values and beliefs, can influence the research process. There are two possible sources of experimenter expectancies (Rosenthal, 1976). These are, first, the research hypothesis, where experimenters generally want to find data that will support it, and second, the data collected early in the research study. If the early data shows a pattern, experimenters generally expect later data will show the same pattern.

The experimenter's expectations can influence what they observe or record in three ways:

1. by treating participants in experimental and control groups differently
2. by giving non-verbal feedback, such as a smile or a grimace, to participants about right or wrong responses
3. by giving verbal feedback (perhaps inadvertently) to correct responses such as 'good' or 'okay'.

To counter these expectancies, it is common practice for researchers to acknowledge any such expectations and potential biases and to put in place strategies to minimise these as far as possible through physical and emotional distance from the study. One way is to script the experimenter's instructions and role and, through rehearsal, ensure that the script is followed consistently. Another way is to minimise the role of the experimenter and his or her contact with participants. Both of these are easier in experimental studies than in qualitative studies, but a detached stance should be the adopted style of a researcher.

Participants' rights

In conducting psychological research, we have to take great care that the human participants have their rights protected. Psychological research has contributed greatly to our understanding of humans and most research carries little risk to the participants. However, human research can involve risks, many of which are unforeseen. Research, therefore, is subject to scrutiny by a human research ethics committee so that participants' rights are protected and all safeguards have been taken, and approved, for the conduct of the research.

Privacy is the right of protection from unwanted intrusion by government or other people into one's affairs. The protection of privacy relates to the type of personal information that is collected, stored and shared and who can have access to that information. Privacy laws in Australia protect any personal information you give to a clinical psychologist, for example, in the course of seeking treatment. It relates to information about you, and the laws also refer to agencies like government departments and their responsibilities to maintain privacy.

The Commonwealth *Privacy Act* came into force in 1988 and covers private sector and government businesses and the health sector. It covers areas such as:

- the storage, use, disclosure and retention of individuals' claims information under the Pharmaceutical Benefits Scheme and Medicare
- privacy standards in the conduct of human medical research in Australia
- the collection, use and disclosure of personal medical information in relation to the conduct of research
- compilation and analysis of statistics relevant to public health, safety or health service management activities
- the collection, storage, use and security of personal tax file numbers by organisations that are authorised or approved to record such information under taxation, assistance agencies (like Centrelink) or superannuation laws.

Current privacy legislation is what is termed a 'light touch', meaning it is not strictly controlling, and deals mainly with the collection, storage and use of personal information and a person's right to amend factual details if they are incorrect.

Anonymity is the protection of people's identity where, when providing information for research, they do not disclose their name. When data is collected in surveys, the people who complete the questionnaires often do not put their name or any other identifying information on them. This is done for two reasons: the experimenter has no need to know these details and anonymity can encourage more honest responding. These surveys are then said to be completed anonymously.

Confidentiality resides in the relationship between a professional such as a psychologist or medical doctor and his or her patient, and refers to the degree of secrecy attached to the information given by the patient or client. Confidentiality thus relates to the degree of secrecy of information disclosed in a relationship; in other words, confidentiality is relational. These professional relationships are built on, and depend on, trust. Confidentiality is a cornerstone legal and ethical concept in the establishment and maintenance of a therapeutic relationship.

Confidentiality is based on the understanding that information given by a patient will not be disclosed to anyone, unless the patient consents to that disclosure or under exceptional, usually legal, circumstances. A similar provision applies to the collection of data, particularly data on health conditions such as rare diseases, where there is the potential to identify participants.

Voluntary participation refers to research participants taking part in studies without being pressured or coerced into taking part. They must give consent based on full information of the research and any implications or impositions on them and they must not be bribed or persuaded to take part based on incomplete or untrue information, unless this is part of the experimental design (in which case, participants must be fully debriefed).

Withdrawal refers to the participants' right to remove themselves from a research study at any time without penalty or disadvantage and without having to give a reason. They must be informed of this option when they consent to participate.

Informed consent procedures

Researchers must obtain **informed consent** from participants. This means that those taking part in any research study should know why it is being carried out and what they will be expected to do. The overarching principle is that participation must be voluntary and based on sufficient information for participants to understand what the research involves and what any possible implications of their participation might be. If telling participants the true purpose of the study before it is carried out would defeat the purpose of the study, then the researcher must make sure that participants do not experience any distress and that they are fully informed about the study after it is completed.

In situations where the participants cannot give informed consent because they are too young or do not have the intellectual ability to understand what they are being told, then consent must be obtained from those who are legally responsible, and can fully understand the research and its implications for them, such as parents or guardians. Any such decision must be in the participant's best interests.

Broaden your understanding

Ethical issues when conducting research with young people

Discussion of working with children draws attention to the ethics of conducting research with young people. Any research requires an understanding that participants have rights and these rights must be preserved by the researcher. Children are a special case, and professional and research codes of ethics require that children have research procedures explained to them clearly, and even after parental consent is given, they must be asked to assent to take part. Researchers have a responsibility to protect participants from harm and additional safeguards are required when working with children. The *National Statement on Ethical Conduct in Human Research (2007)* that governs research in Australia has a section in it on research that details the principles governing the conduct of research with young participants.

Alamy/© Picture Partners

Figure 9.2 Parental permission is required for the conduct of research with children.

There is much debate about who young people are and how they are defined. Legally, in Australia, a **minor** is someone under the age of 18 years and hence parental consent is required for medical operations, for professional counselling and for participation in research (among other things). In Australia, you can legally have sex at 16 years of age and drive at 17 years. But, it can be argued that activities such as counselling represent or mean different things to young people and they should be permitted to make up their minds about, in this case, whether or not they want to take part in someone's experiment or complete an anonymous survey. Much consideration has been made of a young person's maturity to make complex decisions, especially in relation to medical treatment. But the same decision-making processes are applicable to research participation.

Think about the issues below. There are several factors that might be taken into account when adolescents decide to seek medical treatment or take part in a psychological experiment without parental consent. What do you think and why?

- Should capacity to give consent be linked to age?
- Do you think you are mature enough to make up your own mind?
- What are your rights?
- What are the rights of your parents or guardians?

Participants must agree to participate in research studies of their own accord. They must participate voluntarily and must not be coerced into consenting to participate through bribery or offers of rewards, or through threats such as failure on a course or exclusion from a treatment program. They must also be informed that they can withdraw from the study at any time, without giving a reason, and without any penalty (*National Statement on Ethical Conduct in Human Research (2007)*). Consent is often obtained in writing and participants sign a consent form that indicates they have had the research and any implications explained to them.

What is informed consent?

The Australian Psychological Society *Code of Ethics* (2007) contains the following section on informed consent (edited here to reflect informed consent for research rather than a psychological service or procedure – the principles are identical; they are also very similar to those in the *National Statement on Ethical Conduct in Human Research (2007)*).

Psychologists ensure consent is informed by:

a explaining the nature and purpose of the research;
b clarifying the reasonably foreseeable risks, adverse effects, and possible disadvantages of the research;
c explaining how information will be collected and recorded;
d explaining how, where, and for how long, information will be stored, and who will have access to the stored information;
e advising participants that they may participate, may decline to participate, or may withdraw from the research;
f explaining to clients that nothing will happen to any treatment if they decline to participate or withdraw from the proposed research;
g clarifying the frequency, expected duration, financial and administrative basis of the research;
h explaining confidentiality and limits to confidentiality;
i making clear, where necessary, the conditions under which the research may be terminated; and
j providing any other relevant information.

Adapted from the Australian Psychological Society *Code of Ethics* (2007)

Deception in research

It is up to the researcher to explain to the participants what is involved in the research so they can freely choose to take part if they wish and that they understand that the benefits (to themselves or to others) outweigh any risks.

In some rare circumstances, psychologists choose to hide the real reason for the research in order to reduce the likelihood that participants will behave differently. This is because participants know they are in an experiment and perhaps respond according to their interpretation of what effect the experimental manipulation should have on them. Participants are thus told the experiment is about X when the experimenter is really interested in Y. X is made plausible and so participants think it is about X so then there should be no effect on Y, the real variable of interest. For example, participants may be told an experiment is about group decision-making through the discussion of contemporary issues when it is really about prejudiced attitudes.

Under such **deception**, researchers must debrief the participants and explain the real reason for the study and why deception was necessary. Because it is not a usual practice, ethics committees scrutinise such deception applications carefully to make sure the deceit is really necessary and that the participants will not be stressed, distressed or embarrassed. Nowadays, it is not considered acceptable or ethical to cause distress to participants.

Broaden your understanding

Was Milgram's study ethical?

In Chapter 7, we looked at the famous experiment conducted by Stanley Milgram whereby electric shocks of increasing voltage levels were administered by a 'teacher' on a 'learner'. The study involved deception since the 'learner' was an actor, trained to react to the shocks although no actual shocks were given. This study, involving deception, was conducted in the 1960s. Do you think the study could be conducted today? Why/why not?

Professional conduct

Any psychological, medical or scientific research work in Australia must comply with the most recent version of the *National Statement on Ethical Conduct in Human Research (2007).* This is a document that was written and approved by the National Health and Medical Research Council, the Australian Research Council and the Australian Vice-Chancellors' Committee and governs the processes of professional conduct when conducting research with humans. The *National Statement* covers such things as research risk and benefits and obtaining consent, as well as conduct for specific research methods, such as qualitative research and databanks. It also deals with considerations specific to participants, such as pregnant women, children, people with cognitive impairment, intellectual disability or mental illness, or people who may be involved in illegal activities.

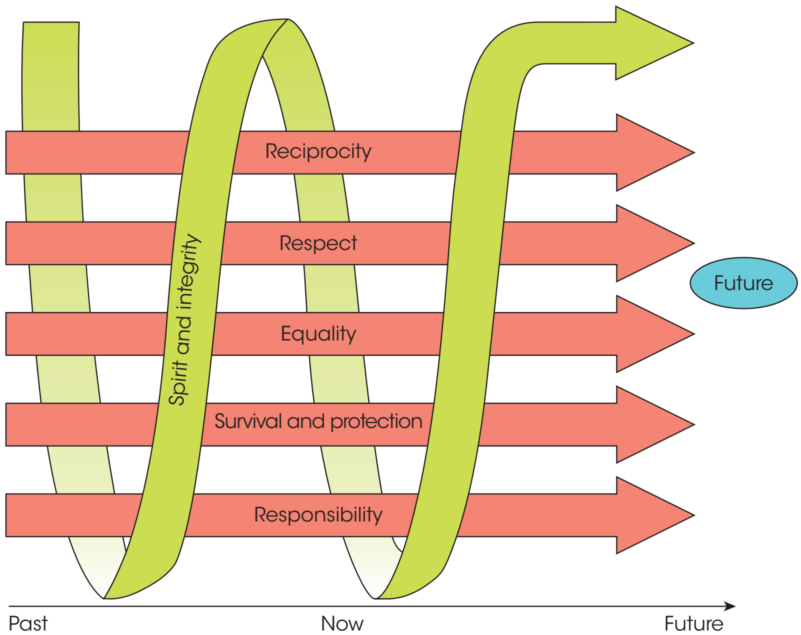


Figure 9.3 Six values for the conduct of research with Aboriginal and Torres Strait Islander peoples

The NHMRC also released *Values and ethics: Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research* (2003), which provides advice about the conduct of research with Aboriginal and Torres Strait Islander peoples. Six values lie at the centre of the guidelines and should inform research activities.

The values are:

1. spirit and integrity
2. reciprocity
3. respect
4. equality
5. survival and protection
6. responsibility.

Diagrammatically, since they are interlinked, the values are represented in Figure 9.3.

Psychologists also need to comply with the Australian Psychological Society's *Code of Ethics* (2007), which has a section on research.

Broaden your understanding

Australian Psychological Society's *Code of Ethics* – research

Psychologists comply with codes, statements, guidelines and other directives developed either jointly or independently by the National Health and Medical Research Council (NHMRC), the Australian Research Council (ARC), or the Australian Vice-Chancellors' Committee regarding research with humans and animals applicable at the time psychologists conduct their research.

After research results are published or become publicly available, psychologists make the data on which their conclusions are based available to other competent professionals who seek to verify the substantive claims through reanalysis, provided that:

a the data will be used only for the purpose stated in the approved research proposal; and

b the identity of the participants is removed.

Psychologists accurately report the data they have gathered and the results of their research, and state clearly if any data on which the publication is based have been published previously.

Both the *National Statement* and the APS *Code of Ethics* explain the professional code of conduct required of psychologists as they undertake research in Australia. These documents require researchers to act according to agreed-upon principles for the ethical conduct of psychological research.

In Australia, the fundamental principle in scientific research with humans is beneficence: the benefits to the person must outweigh any risks. All institutions where research with humans is undertaken (such as universities and hospitals) have a Human Research Ethics Committee that approves all research involving humans. Detailed applications for research must be submitted for approval and the benefits (and risks) of the research need to be justified. The welfare of the human participants must not be compromised. The same, or a different, committee will also deal with applications to conduct research with animals, which, too, is governed by various codes of ethics. There are also separate human research ethics committees for Indigenous research. In WA, it is the Western Australian Aboriginal Health Ethics Committee (WAAHEC).

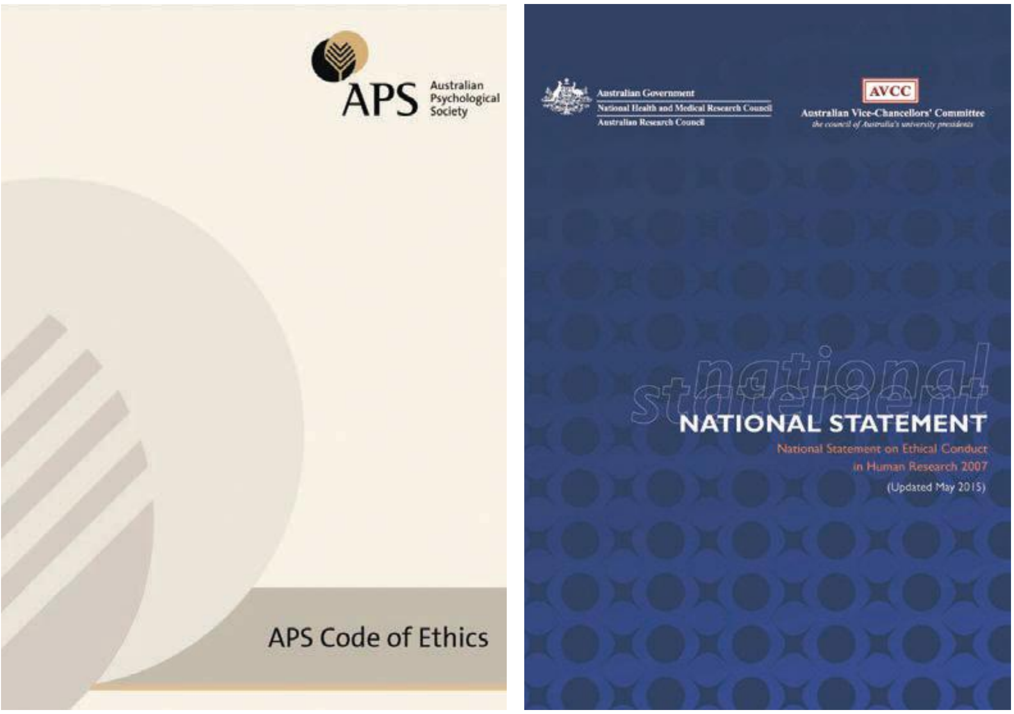


Figure 9.4 The Australian Psychological Society's *Code of Ethics* and the NHMRC's *National Statement on Ethical Conduct in Human Research (2007)*

Practical issues in planning and conducting research

There are seven steps in the psychological research process. These steps are common to all scientific research and are worth recapitulating and elaborating on here. The scientific method ensures data (information in whatever form) is collected and analysed appropriately and that the conclusions drawn are valid (justified by the data) and reliable (able to be replicated, given similar data).

The seven steps are:

1 *Identify a research issue or problem to investigate:* the decision about what topic or question to study and explore. Researchers arrive at research issues in various ways. Some will want to test a theory; others will want to develop an idea or theory or find answers to a practical problem or issue.

2 *Develop the exact research question or hypothesis:* the working out of a specific question for exploratory research or the testing of a specific prediction. The latter is sometimes called the formulation of a hypothesis, that is, making a prediction about the relationship between two variables that can be tested. In scientific research, you make a prediction, based on previous work or a knowledgeable hunch about what the results will tell you. The hypothesis is what you test in the experiment and is often something that has not been tested previously or has been tested but using a different method and/or participants.

3 *Choose a research design and method:* the process or processes you use to collect data. You can choose to do this by experiment, observation, survey, interview or rating scales. The design and method will often be guided by a consideration of what type of data best suits the research question and sometimes will involve a combination of methods, such as an interview followed by an experiment.

4 *Collect data:* the gathering of evidence. You can do this through observation, questionnaire, interviews, recording physiological responses or reaction times, or examining archival files. Often a pilot study is conducted to check that the method chosen is the one that provides the data that is useful to answer the research question.
5 *Examine the evidence:* data analysis and summarising. This may involve the use of simple and/or complex statistical techniques to manipulate the numerical data obtained. If the data is verbal, it may be able to be converted to numerical data for analysis; otherwise, it can be analysed using qualitative techniques such as content analysis, which uses word or phrase frequencies in respondents' answers as key ways of determining important terms and concepts.
6 *Interpret the results:* examine the meaning of the findings. Do they support your hypothesis or answer your questions? To whom do your findings apply? Do they suggest directions for further research?
7 *Communicate the findings:* the reporting and explanation of the findings. Scientists communicate their findings both by writing (reports or journal articles) 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 as well as to the general public and other interested parties.

Difference between sample and population data

Most psychological research relies on the use of a sample, a subset of the population of interest. This is the case regardless of the type of study design. Samples are used in experiments, observational studies, interviews and studies using rating scales. The important feature is ensuring the sample accurately reflects the population of study interest, be it older adults, young children, left-handers, primary schools or medical practices. The actual method chosen depends on what is best to answer the research question or test the hypothesis.

A sample, therefore, must be selected carefully to make sure any results from the study can be generalised or applied to a wider population. Sample selection must reflect the characteristics of the population that are of interest and under study. In studies with children, samples must reflect issues that may be important in the interpretation of the results, such as age, gender (boys versus girls), school attended and family structure. These variables must be taken into account when determining the type of sample and often the size of the sample that will be required if all the variables are to be studied. This is called a **representative sample** insofar as it is the same as, or at least equivalent to, the population from which it is drawn.

Figure 9.5 How representative of the population of all primary school children in Australia is this sample of primary school children who attend the same state school? How representative is this sample of the population of all primary school children in the local area?

Newspix/Valeriu Campan

One way of obtaining a representative sample is through what is called **random sampling**. This type of sampling makes sure every member of the study population has an equal chance of being selected to participate in the study. This can be done in a number of ways. Sometimes the electoral roll is used to identify all the people in a certain geographical area, and names are selected from the roll using a lottery procedure that often involves a numerical sequence. Another way to obtain a random sample is through the use of school registers, hospital attendances (with strict confidentiality rules about the use of any names of people on the lists) and other lists of names and addresses. Again, a sequence of random numbers can be generated and applied to the list to obtain the sample. In real-life research, it is often not as easy as it sounds to obtain a random sample and, for that reason, much research is limited in its ability to be generalised to the general population, although it can still be of scientific importance. Other types of sampling are described in Chapter 10 where they are discussed in the context of ways to reduce error in data.

Features of experimental research methods

Independent and dependent variables

Experimental research methods are based on finding out the causes of behaviour or mental processes. Experimenters need to know a great deal about the phenomenon that they think is worth investigating via an experiment. They need to have a prior understanding of all the potential variables that cause an outcome and about the mechanisms required to trigger the variables. In addition, there needs to be control over the variables that are not relevant to the outcome (for example, the size of a computer screen or outside temperature when looking at the speed of reaction time in a participant). In a simple experiment, one variable is manipulated or altered to examine its effect(s) on a second variable. The manipulated variable is the independent variable (IV) since the experimenter can change it independently. It also causes the changes that might occur on the second variable. The second variable is called the dependent variable (DV) since it may (or may not) change as a result of the manipulation of the IV. It is the effect caused by the changes in the IV. For example, varying the presentation time of an object on a screen to which a person must respond as quickly as possible may lead to changes in the speed of responses. The IV in this case is the variation in the time of object presentation and the DV is the speed of reacting. The DV is usually a numerical value; in this case, it is likely to be milliseconds. Experiments such as this give us information about how quickly people react to changes in their environment and have implications for driving behaviour, for example.

Figure 9.6 Diagram of the process of hypothesis testing

State the null hypothesis (H_0) and the operational hypothesis (H_1). Select a probability (p) level.

↓

Select your sample.

↓

Do the sample results diverge from expectations (H_1)? This requires making a decision about accepted probability levels to determine statistical differences.

↓

Decide whether to accept or reject H_1.

Operational hypotheses

Operational hypotheses are those that guide current research; they are predicted answers to a proposed research question. They are based on a theory that provides the basis for the predicted answer. The **null hypothesis** (which is rarely used unless one wants to show that there are no differences, between girls and boys for example) predicts that there will be no change in the DV after manipulation of the IV, while the experimental or alternative hypothesis predicts that change or difference will occur as a result of the manipulation of the IV. While we test our operational hypotheses by way of experiment, they can never be fully proved since something may occur or intervene that affects the action of the IV. By contrast, a single negative effect can disprove a hypothesis. In both of these cases, we would probably refine our experimental method before discarding our hypothesis.

Controlled and uncontrolled variables

A **controlled variable** is one that is not changed throughout the experiment to ensure that the changes observed are the result of changes in the independent variable. In our example above of testing reaction times, the size of the computer screen would be the same for all the people who take part in the experiment. An **uncontrolled variable** is one that is allowed to stay random since it would have no predicted effects on the outcome. In our experiment, this might be the eye colour of the participants.

Experimental and control groups

Figure 9.7 Imagine you are conducting an experiment at home with your kitten. You wish to test which toy interests your kitten the most in a static position, so you place each toy in the same position in front of the kitten for 30 seconds before replacing it with the next. Which is the dependent variable and which is the independent variable?

Dreamstime/© Natali Antoschenko

In a simple experiment, participants are allocated to one of two groups: the **experimental group** or the **control group**. Those in the experimental group are subjected to the manipulation of the IV while those in the control group are not exposed to any change in the IV. The control group provides a standard against which the behaviour of the experimental group can be compared in order to assess whether the IV has had an effect, or caused a change, in the DV. In our example, those in the control group would view objects on the screen presented at regular intervals compared to the experimental group where the objects would appear at varying time intervals.

The experimental and control groups need to be as similar as possible in characteristics (such as age and gender) that might influence the DV. We know, for example, that reaction time tends to become slower with increasing age in adulthood, so both groups need to be composed of people of the same age. The groups should also be treated the same, except for the application of the IV with the experimental group. On occasions, the same people act as both the experimental and the control groups, except it is then called the experimental and control condition, and their results compared under the two conditions, such as 'before' and 'after' some intervention or manipulation. This is also referred to as a **repeated measures design** since participants' performance is measured and compared under two (or more) conditions.

Placebo and experimenter effects

A **placebo** is defined as a dummy procedure (or pill) given as if it were a treatment. In other words, it is a pretend IV. A placebo is sometimes given to a control group that is blind to its status and thinks it is receiving treatment or an intervention. It is used in medical research where two groups are each given a pill, one of which is of experimental interest to the researchers while the other is the placebo. The effects of each type of pill can be measured in terms of health outcomes. Placebos are used to control the effects of participant expectation. The placebo effect is discussed in Chapter 10.

Shutterstock/Lisa S.

Figure 9.8 Placebo medication must be identical in size, shape and colour to the real medication.

Participant expectation is one form of an extraneous variable; experimenter expectations are another. Participant variables that can potentially affect both the changes in the DV and the outcome in the IV include their personal characteristics, their self-presentation or a desire to look good or perform appropriately, and the demand characteristics or cues given by the experimenter of what is expected from the participants. **Experimenter effects** are the experimenter's own personal variables as well as his or her expectations and behaviours that may bias results due to inaccurate observation, recording or interpretation of the data, or there may be a simple bias in the way the experiment is presented to the participants. We discussed these earlier in the chapter.

Reliability and validity

In the behavioural sciences, we are not just concerned with statistical differences based on the probability level chosen. We also need to be assured that our conclusions are valid and reliable. Reliable conclusions are those that are consistent or stable over time. The **reliability** of a measure is the extent to which you would get the same result if the same measure were given to the same person again under the same circumstances. There are statistical techniques to measure reliability, often used in research studies, and reliability scores are supplied in psychological test manuals. **Validity** refers to the extent to which the results reflect what the measurement instrument says it is measuring. Much of the debate in the measurement of personality relates to the validity of the tests designed to measure it. Accurate conclusions can only be drawn from valid measurement.

Longitudinal and cross-sectional designs

In developmental psychological research, one of the main problems researchers face is that children grow and develop, and inevitably show behavioural change as they become more skilled socially, emotionally and mentally.

To overcome this problem, researchers often use **cross-sectional methods**, which take into account age-related developmental changes by comparing children of different ages during the same time frame. So, if we want to see how children's performance changes with age on a task that requires them to sort plastic blocks that vary according to size, shape and colour, we could examine the performance of five-, seven- and nine-year-olds and see how many ways they could sort the materials.

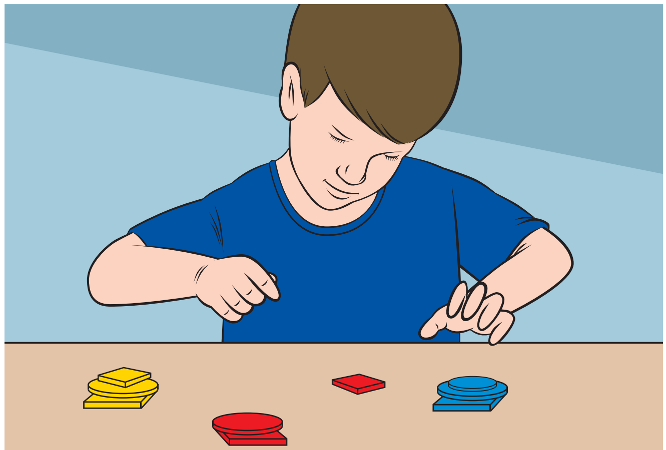


Figure 9.9 A seven-year-old boy sorts blocks of different shapes and sizes according to colour.

Early studies to test Kohlberg's theory used this type of design. Various ethical dilemmas were presented to children of different ages who were asked to indicate how the person facing the dilemma should behave and why they reached their decision. Children's reasoning was then rated according to Kohlberg's criteria for the different stages. By comparing the proportion of each age group who reasoned at each stage level, researchers were able to show that older children were more likely to reason at a higher level than younger children.

However, while this design can tell us there are age differences in performance – such as that more 16-year-olds have reached Stage 5 than 10-year-olds – it cannot tell us that there are developmental differences. That is, we do not know whether the children in the youngest age group will reason like the children in the oldest age group when they are that age. In cross-sectional research, participants at each age level are different people – they come from different cohorts. A **cohort** is defined as a group of people of the same age who have experienced the same cultural conditions and environmental events. While it is likely that the age differences we see in this particular example are due to developmental changes, we cannot be sure. It may simply be that the children in the older age groups have been exposed to a particular educational program that has changed the way they reason. This is known as the **cohort effect**. Despite this limitation, cross-sectional research is still the most frequently used design because it is quick and easy. When there are time and financial limitations to research, the cross-sectional design will be used. In addition, if there is no particular reason to expect cohort differences, we might feel reasonably confident about the results.

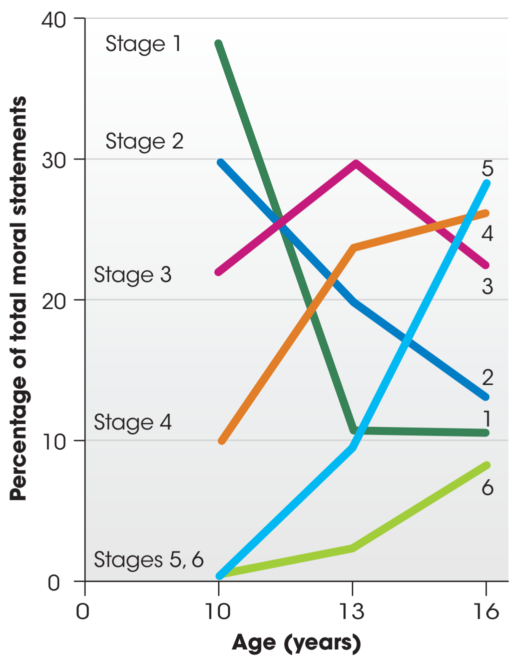


Figure 9.10 American children of different ages are compared on their stage of moral reasoning using a cross-sectional design.

When we use **longitudinal methods** we study the same group of people at different points in time. The total time period may be very brief, over a period of months, but in developmental research it is often over a period of years. We can see this in the study by Ann Colby and her colleagues (Colby et al., 1983) who followed the moral development of 36 males over a 20-year period (see Figure 5.8 in Chapter 5). From this study, we can conclude that the moral reasoning of the participants did develop in the manner predicted by Kohlberg. Since individuals were followed across time we do not have to be concerned about possible cohort effects.

However, longitudinal designs have limitations of their own. Apart from it being very expensive to follow a group of people over a long period of time, researchers also run the risk of 'losing' participants. Participants move and are unable to be traced. If the study goes on long enough, participants may die, which raises the question of whether the survivors are representative of the group. Practice effects can also distort findings. Participants may be getting better simply because they have carried out the same task numerous times.

A further factor affecting interpretation of results from longitudinal studies is the cross-generational problem. Children in longitudinal studies are drawn from one cohort and may have very different experiences at each point in their lifespan from those of children in earlier or later generations. Compare the leisure activities, the length and type of schooling, and family size and structure that you experience compared with your parents or grandparents. It is possible that the developmental profile of your grandparents in areas as varied as hand-eye coordination and vocabulary size may be limited to their generation and not apply to yours.

The longitudinal–sequential design

The **longitudinal–sequential design** combines features of both the cross-sectional and longitudinal design in an attempt to overcome the limitations of each. Groups of participants are followed over time as in a longitudinal study, but at each measurement point a new group is added that is the same age as the first group at the first measurement point. The way this works can be seen in Figure 9.11.

This type of design lets us look for changes in individuals across time, as in a longitudinal design. It lets us look for age differences in behaviour, as in a cross-sectional design, and it lets us check for cohort effects. It is a powerful design, yet to date it has been used in relatively few studies because it is complex and expensive and requires a well-organised research team to track the data.

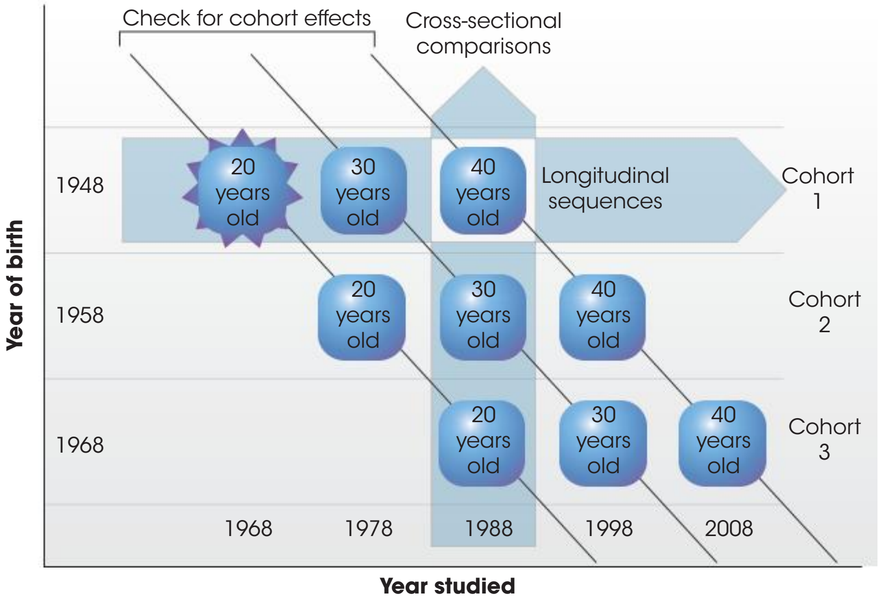


Figure 9.11 In this longitudinal–sequential design, three cohorts, born in 1948, 1958 and 1968, are followed longitudinally from 20 to 40 years of age.

Features of non-experimental (descriptive) research methods

Non-experimental, descriptive research methods are sometimes called passive designs and are related to qualitative methods of research discussed later in the chapter. Unlike experimental research designs they do not involve active manipulation of the phenomena or variables by the experimenter. They are used where the variables of interest cannot be changed for one or more of three reasons:

1 the variables cannot be modified by the experimenter (including such things as gender or age)
2 the variables cannot be modified for ethical reasons (such as alcohol consumption or tobacco smoking)
3 it is not feasible to alter the variables (such as school or classroom placement).

Adapted from Robson, 2011

Non-experimental research designs are used when the researchers wish to understand or describe a phenomenon. They are not used to describe a pattern of results, but instead explain something that naturally occurs. They are a very flexible type of research design. Table 9.2 summarises four types of non-experimental research methods.

Table 9.2 Features, strengths and weaknesses of non-experimental research methods

Research method	Description	Strengths	Weaknesses
Case studies	The selection of a single case (or a small number of cases) of a situation or individual and collection of information via interview and observation.	In-depth studies of a single case in a number of different situations. It can be used for the study of atypical conditions that can lead to generation of hypotheses about relationships.	Results cannot be generalised to others.
Surveys	Questionnaires that aim to obtain information through accurate assessment of what is being measured. They can be administered face-to-face, by telephone or online.	Can be conducted face-to-face, over the telephone or via the Internet and they provide quick answers about people's attitudes and preferences.	Take time to prepare and implement since they involve careful planning and decision-making, well-organised implementation, and coding and analysis. A low response rate and the mood of the respondent may affect the survey findings.
Correlational studies	Research designs that measure the relationship between two or more variables. They are also called relational research designs.	Can be used in cross-sectional studies looking at a number of variables at a single point in time, or they can be used in prediction studies, across periods of time.	Correlation is not causation, so correlational studies do not measure cause-and-effect.
Archival research	The use of records or documents that describe the characteristics of individuals or groups. The records are usually of data collected for another purpose (e.g., census data that can be used for educational research).	Research is naturalistic and non-reactive. Archival data enables researchers to use data collected at one point in time to predict later life outcomes. Researchers can access publicly available data, which can be cheaper than going out and collecting original data.	Datasets may be old. Any consent that is obtained in the first place must apply to the use of the data in later archival studies. Researchers also need to take care not to violate participants' privacy if names are included in the records.

Case studies, surveys, correlational studies and archival research

Case studies provide the opportunity for detailed knowledge about a single 'case' or a small number of related 'cases' (Robson, 2011). There is often no fixed experimental design nor any hypotheses that guide the research. Typically, they involve a single case or situation – an individual or group of interest or concern. The case is studied in context (for example, with children in the home and at school) and uses a variety of data collection techniques including observation and interview (of the case and of others including parents, siblings, peers and teachers). They can be for the study of atypical or unusual conditions that can lead to generation of hypotheses about relationships between variables or phenomena. You learned about Phineas Gage in Year 11 Psychology, and he was considered an interesting case study for damage to the brain.

Surveys are everywhere. Information is collected on preferred brands of washing powder, on political preferences, on which is the current best-selling novel and on how you are welcomed at your bank. Surveys can be conducted face-to-face, over the telephone or via the Internet using such tools as Survey Monkey (a website) and Qualtrics (a survey software). They provide quick answers about people's attitudes to, and preferences for, various goods and services, and are often used to provide feedback to providers of goods and services so that they can plan their marketing strategies. Short surveys are a popular marketing tool.

Unlike short surveys, large-scale psychology surveys take time to prepare and implement, because they involve careful planning and decision-making, well-organised implementation, and coding and analysis. These types of surveys are almost exclusively questionnaires with fixed-choice answers ('yes' or 'no', or rating a response on a 1–5 point Likert scale – see later in this chapter for a detailed explanation of this).

Broaden your understanding

The development of a large-scale survey

From studying Table 9.3, you can see that a well-conducted survey, even on a small scale, requires a great deal of time and effort. These careful steps are important to make sure the surveys are valid and produce meaningful information. There are also disadvantages to surveys – in particular, a typically low response rate (not many people complete the survey or are prepared to be interviewed) and data can be affected by the predisposition or the mood of the respondent on the day.

Table 9.3 Steps in carrying out a large-scale survey and the time required for each step

Activity	Estimated minimum number of days required
Developing the research question, the study design (sample selection for pre-testing and main study) and the initial draft of the questionnaire	20
Informal testing of the draft questionnaire	5
Revising the draft questionnaire	3
Pre-testing the revised draft	3

Activity	Estimated minimum number of days required
Revising the questionnaire again (also possible revision of study design and main study sample)	3
Carrying out the main data collection interviews	30 Depends on the size of the sample, whether telephone, face-to-face or online, and any travelling time between interviews
Coding the data and preparing the data files	10
Analysing the data and writing the report	Depends on the size of the data and the size of the report

Adapted from Robson, 2011

Correlational studies are, as the name suggests, those that look at the relationship between different variables, such as whether boys or girls do better at maths in school. Correlational studies use the particular statistical technique known as correlation that measures the direction and strength of the relationship between variables to be interpreted. Another point to remember is that if there is a relationship between the variables, it is not necessarily a causal (cause-and-effect) one. They are called relational research designs.

The research process is the same as for experimental studies, namely, a research question and a clear idea of what the variables and the relationship are. Correlational designs are generally used in cross-sectional studies looking at a number of variables at a single point in time, or they can be used in prediction studies, such as of academic scores from one time to another.

Archival research involves the examination of previously collected material held by places like libraries, governments, law courts and universities. The records can be of data collected for another purpose (for example, census data, which can be used for educational research). There are three types of archives:

1 statistical (for example, census data, register of births, death and marriages)
2 written and electronic (for example, collections of speeches by a prime minister)
3 responses to national surveys (for example, the Australian National Health Survey).

There are several advantages to using archival data. These include them being naturalistic and non-reactive, which means because the data was sometimes collected for a non-research purpose there are no problems with people knowing they are contributing to research. Archival data

Fairfax photos/Simon Schulter

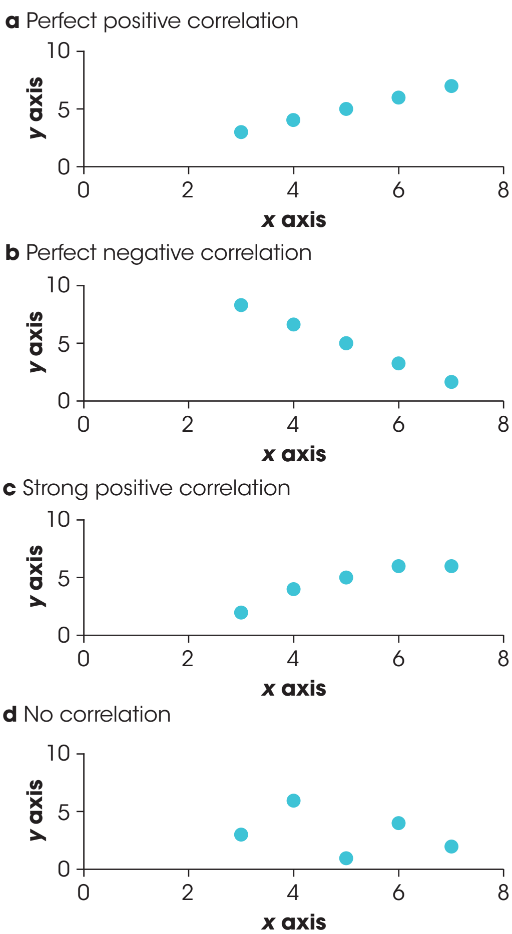
Figure 9.12 Archival research often means reading hardcopy (or printed) material in the place in which it is housed. You cannot take the material home to study it.

also enables researchers to use data collected at one point in time to predict later life outcomes. So researchers can access publicly available data and this can be cheaper than going out and collecting original data itself. There are few ethical issues associated with using archival data except that any consent that is obtained in the first place (which would be the case in the collection of health-related data, for example) also applies to the use of the data in later archival studies. Researchers also need to take care not to violate participants' privacy if names are included in the records. Human research ethics committees pay attention to ethical issues associated with such research. Many of the research studies conducted by the Telethon Kids Institute (TKI) use data previously collected, such as the Hospital Morbidity Data Collection, which collects data of all deaths in public hospitals, and the WA Pregnancy Cohort study (the Raine study), a community-based pregnancy study conducted on children from birth with 11 follow-ups to 22 years of age by researchers. Perth is somewhat exceptional for research since it has a relatively stable population and data can be linked across government and research collections, which enable researchers to study health trends and outcomes at the population level.

Archival research is also often used by historians and writers who reanalyse records to better understand past events that happened in the past. There is a journal called the *Archives of Scientific Psychology*. Visit the website to look at old phenomena with a fresh perspective or look back at eminent psychologists and their work. The history of the Australian Psychological Society (Cooke, 2000) was written by a historian and was based predominantly on the archival documents held by the Society.

Archives of Scientific Psychology

Figure 9.13 Examples of four types of correlation



Behavioural variables (not dependent and independent variables) in correlational studies

Correlational studies are non-experimental methods to investigate the relationship between two or more variables that involve assessing the degree and the type of relationship between these variables. Correlational studies are often conducted when experimental ones would be inappropriate (for example, when studying whether there is a relationship between pre-term birth or low birth weight and academic performance at school). It would be unethical as well as impractical to vary infants' birth weight, so existing information is used to explore the relationship.

Behavioural variables in correlational studies are thus often those that pre-exist and cannot be varied as an IV. Correlational studies typically include variables that cannot be manipulated experimentally, such as gender and age and are often used in developmental psychological research by investigating age differences.

The strength of the correlation describes the relationship, usually as strong, moderate or weak. If the correlation coefficient is calculated, a score of +1 indicates a very strong positive correlation, sometimes termed a perfect correlation, between two variables and one of −1 indicates a strong negative relationship. Such extreme correlations are rare. A positive correlation means that high scores on one variable are associated with high scores of the other variable, while a negative correlation means that when the score on one variable is high it is low on the other. As noted previously, a correlation does not indicate causation in most cases, often because there are other variables involved. So there might be a correlation between the amount of lead left in a pencil and the time spent writing (which could be cause-and-effect), but the type of lead and the pressure applied by the writer might also affect the amount of lead left.

Qualitative methods of data collection

Qualitative methods of data collection provides data that is not expressed in numbers and includes self-report, interviews and focus groups. Interviews are the most common type of qualitative method of data collection and usually involve the researcher asking a series of questions and receiving answers to those questions. We distinguish between structured, semi-structured and unstructured interviews.

Types of interview

There are three types of interview techniques that psychology researchers can use. Researchers may use a combination of these in the one interview.

- **Structured interview** – this involves predetermined questions in a preset order with fixed wording. It differs from a survey only in the use of open-response questions in the structured interview.
- **Semi-structured interview** – this involves predetermined questions, but the order of asking them can be varied by the researcher depending on the circumstances and the answers that are being elicited. Wording of questions can be varied and explanations given if needed. Questions can be omitted or even new ones added if required.
- **Unstructured interview** – this involves a conversation around the researcher's general area of interest. It is informal and casual but often in-depth.

An interview thus may have open-ended questions and is typically focused on a particular area of interest. For example, Salmin (2005) interviewed both gymnasts and ballet dancers about their transition to retirement via a semi-structured interview. Since the experiences of the two groups had some things in common and some things that differed (such as the age of retirement), this form of interview was deemed the most suitable.

In general, qualitative interviews are suitable in the following circumstances (based on Robson, 2011):

- the study focuses on the meaning of a particular phenomenon to the participants
- processes are to be introduced in the future in an organisation, for example, and perceptions of the effects of possible change are needed
- the study is designed to obtain historical perspectives on a phenomenon
- exploratory work is required prior to an experimental study to ascertain the validity of the research
- qualitative data is required to validate the results of a quantitative study and help with interpretation of the results.

Some of the key differences between quantitative and qualitative research are summarised in Table 9.4 (on page 168).

Table 9.4 Summary of differences between qualitative and quantitative research approaches

Quantitative research	Qualitative research
Focus on identifying cause-and-effect relationships between variables	Focus on understanding how people experience and interpret events in their lives
Variables to be studied and methods to be used are determined in advance by theories and hypotheses that remain unchanged throughout the study	Variables to be studied and methods to be used emerge from the researcher's experience in the context and can change over time
Researcher keeps an objective distance from the research	Researcher is integrated into the research along with the participants
Behaviour is studied in an experimental setting, often a laboratory, where behaviour is manipulated	Behaviour is studied in its natural context
Data is numerical	Data is open-ended
Focuses on the average behaviour under study	Focuses on the similarities and differences in experiences and how people interpret these

Adapted from Whitley, 2002

Objective quantitative measures in research – physiological measures

Objective quantitative measures are generally physiological responses and include things such as brain waves, heart rate, body temperature and electrical conductivity of the skin. These were discussed at length in Year 11, where we also looked at how a lie detector works using physiological measures including changes in heart rate, blood pressure and skin conductivity. We will now further consider two of these measures.

Heart rate is a physiological measure of your state of arousal. The greater the rate your heart beats, the greater the state of arousal. Heart rate can be measured directly but is more often done through taking your pulse. A normal resting adult hearbeat is 70 beats per minute. Exercise, the use of stimulant medication or drugs, and fear can increase heart rate.

One way to measure heart rate with which you will be familiar is via a heart rate monitor. These are very commonly used by athletes or people wishing to measure their heart rate as they exercise. These monitors have two parts – a transmitter worn around the chest and a receiver worn like a wristwatch. As the heart beats, an electrical signal is transmitted through the heart muscle in order for it to contract and beat. This electrical activity can be detected through the skin. A more recent development is the activity tracker that can monitor your level of activity such as the distance run and heart rate. Both types of devices have been used to measure heart rate in psychological experiments, such as those that are aiming to find out how to increase exercise among obese adults.

Brain waves can be used as a measure of states of consciousness. There are ways in which brain activity can be measured, most often via an EEG that records the amplitude and frequency of brain waves. The frequency of brain waves is the number of brain waves per second so a higher frequency means more activity. The amplitude of a brain wave refers to the size of peaks and troughs from a baseline of no activity. High amplitude brain waves have bigger peaks and troughs.

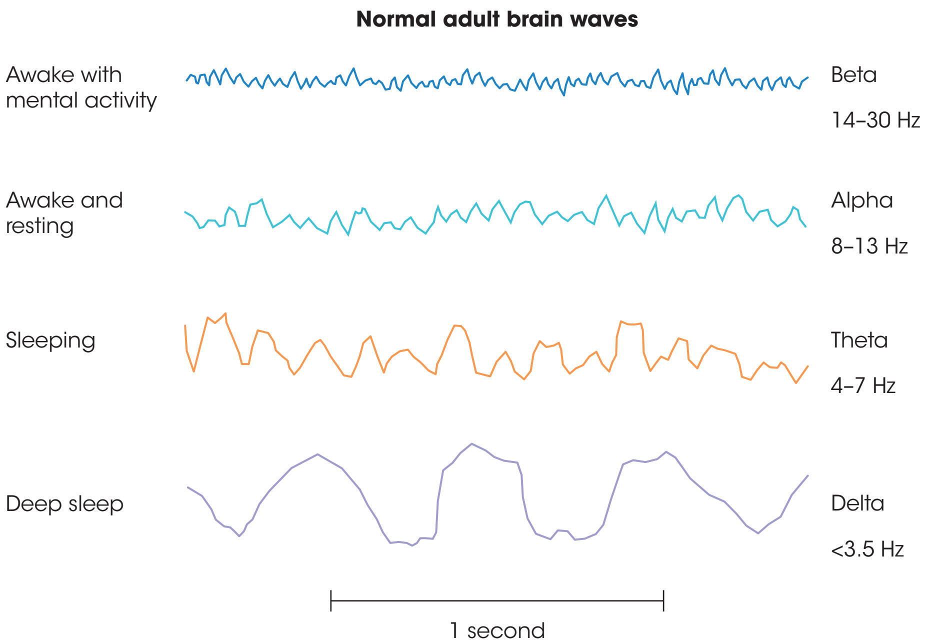


Figure 9.14 Four types of brain waves

There are four types of brain waves, ranging from the most activity to the least activity and this is shown in Figure 9.14 and described in Table 9.5.

Table 9.5 Description of four types of brain waves

Type of brain wave	Description
Beta waves	The brain is aroused and actively engaged in mental activities. Beta waves are of relatively low amplitude, and are the fastest of the four different brain waves and range from 14 to 30 Hz (cycles per second). A teacher or a talk show host would be in beta when engaged in their work.
Alpha waves	Alpha brain waves are slower and higher in amplitude than beta waves. Their frequency ranges from 8 to 13 Hz. A person who has completed a task and sits down to rest is often in an alpha state.
Theta waves	Theta brain waves are typically of even greater amplitude and slower frequency. This frequency range is normally between 4 and 7 Hz. A person who has taken time off from a task and begins to daydream is often in a theta brain wave state. Individuals who run outdoors often are in the state of mental relaxation that is slower than alpha, and when in theta, they are prone to a flow of ideas. It is a state where activities or tasks become so automatic that you can mentally disengage from them.
Delta waves	Delta brain waves are of the greatest amplitude and slowest frequency, typically under 3.5 Hz. They never go down to zero because that would mean that you were brain dead. Deep dreamless sleep would take you down to the lowest frequency, typically 2 to 2 Hz.

Subjective quantitative measures in research – checklists and rating scales

Subjective quantitative measures typically capture opinions and make them easier to analyse statistically. Checklists are lists that are created to aid memory and are usually easy-to-read, question-and-answer fact sheets and, for example, are used when conducting workplace health and safety inspections and looking at issues such as hazards, diseases, ergonomics and workplace promotion. Checklists have little scientific merit and would not usually be a part of any psychological research study.

Rating scales have been developed by psychologists for the study of a range of abilities, attitudes, views and opinions. They can be regarded as versions of questionnaires or interviews. They provide a scale on which an individual's standing on an issue can be measured and they are commonly used for attitude measurement, although the same principles apply to the development of any rating scale.

Rating scales commonly have a number of items, since a single item cannot measure a person's attitude towards terrorism, or refugees, or local government reform. A range of statements is typically used to which a person rates their attitude. Having a set of items means the researcher can pull together the responses and build up a picture of that person's attitude. This means that the statements or items have to be carefully composed or selected so that they are related to the attitude being measured, and they also need to have the assignment of numbers or a scale to particular answers so that meaningful conclusions can be reached.

The most common scale to measure attitudes or opinions is a summated scale, often a Likert scale. This was originally devised by Rensis Likert in the 1930s and is widely used in behavioural research. At this stage, you are unlikely to have the skills necessary to develop a Likert scale but the box below describes the processes involved.

Broaden your understanding

Developing a Likert scale

1. Assemble a pool of items or statements that are related to the issue you are researching. The items should reflect both positive and negative views on the issue, avoiding extreme positions.
2. Decide on a response categorisation system. The most common one is a five-point, fixed-alternative scale such as *strongly agree, agree, neither agree nor disagree, disagree and strongly disagree*, with the weighting (1 to 5) determined by whether the statement is positive or negative.
3. Select a sample of participants and ask them to complete your scale (of at least 50 items ideally, at this stage).
4. Obtain a total score for each participant by summing the value of each response given and ranking the scores.
5. Select items for the final scale using 'item analysis', by measuring the discriminatory power of each statement, that is, its ability to discriminate between the top 25 per cent of respondents and the bottom 25 per cent. (There is a complicated formula used to work this out.)

CHAPTER SUMMARY

Planning and conducting psychological research

Research terminology
- Scientific, non-scientific
- Experimental, non-experimental
- Sample, population

Ethics in psychological research
- Role of the experimenter
  - Experimenter expectations
- Participants' rights – privacy, anonymity, confidentiality, voluntary participation and withdrawal
- Informed consent procedures
  - How psychologists ensure consent is informed
  - Ethical issues when conducting research with young people
- Deception in research
- Professional conduct
  - Compliance with codes of conduct
  - *National Statement on Ethical Conduct in Human Research (2007)*
  - Research with Aboriginal and Torres Strait Islanders peoples
  - APS *Code of Ethics* – research

Practical issues in planning and conducting research
- Seven steps in research process
  - Identify a research issue or problem to investigate
  - Develop the exact research question or hypothesis
  - Choose a research design and method
  - Collect data
  - Examine the evidence
  - Interpret the results
  - Communicate the findings

Difference between sample and population data
- Representative samples
- Random sampling

Features of experimental research methods
- Independent and dependent variables
- Operational hypotheses
- Controlled and uncontrolled variables
- Experimental and control groups
- Placebo and experimenter effects
- Reliability and validity
- Longitudinal and cross-sectional designs
  - Cohort effect
- The longitudinal–sequential design

Features of non-experimental (descriptive) research methods
- Case studies, surveys, correlational studies and archival research
  - The development of a large-scale survey
  - Types of archival material
- Behavioural variables (not dependent and independent variables) in correlational studies

Qualitative methods of data collection
- Differences between qualitative and quantitative research
- Types of interviews

Objective quantitative measures in research – physiological measures
- Heart rate
- Brain waves

Subjective quantitative measures in research – checklists and rating scales
- Developing a Likert scale

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Scientific method

2 Informed consent

3 Sample

4 Independent variable

5 Experimental group

6 Placebo

7 Validity

8 Cohort effect

9 Case studies

Multiple-choice questions

1 In fixed-choice interviews, the researcher asks participants to:
  - A comment on a statement.
  - B complete a rating scale.
  - C respond to a limited range of alternatives.
  - D freely express their opinion.

2 In an open-ended interview, respondents are asked to:
  - A tick a box.
  - B comment fully in response to a question.
  - C answer 'yes' or 'no' to a question.
  - D discuss their answers in a group.

3 A Likert scale is an example of a(n):
  - A subjective quantitative measure.
  - B subjective qualitative measure.
  - C objective quantitative measure.
  - D objective qualitative measure.

4 Privacy refers to:
  - A not disclosing your name.
  - B the degree of secrecy of information between a psychologist and client.
  - C the right of protection from unwanted intrusion into one's affairs.
  - D participating voluntarily in experiments.

5 The psychologists' *Code of Ethics* is best described as a:
  - A legal document that must be followed.
  - B statement of standards designed to guide behaviour.
  - C clear-cut statement of right and wrong behaviour.
  - D tool to help employers of psychologists keep their employees' behaviour in line.

Apply and relate psychological understandings

Short-answer questions

1 Describe the structure of an experiment.

2 Discuss the differences between anonymity, confidentiality and privacy.

3 Discuss when you might use deception in research.

4 List and briefly describe the seven steps in the research process.

5 Describe hypothesis testing.

6 Discuss the strengths and weaknesses of a longitudinal research design in looking at human development.

7 Describe the experimenter effect.

8 Describe two situations in which it would be preferable to use objective quantitative measures rather than subjective quantitative measures.

9 List and briefly describe three types of interview.

10 Discuss the use of surveys.

Extended-response question – Ethical issues in conducting research in Aboriginal communities

Research on Aboriginal and Torres Strait Islander peoples is often conducted from a Western perspective by non-Indigenous researchers. It may serve a non-Indigenous research agenda. To conduct research ethically among Indigenous peoples, we need to understand the values, 'knowledges' and family of those peoples. Familiarise yourself with *Values and ethics: Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research* available from the weblink to answer the following questions.

NHMRC Guidelines

A researcher wanted to photograph some landscapes that were within an Aboriginal community and she sought support from the locals and the elders. But the landscapes were claimed by a different group of Aboriginal people to belong to them and did not belong to people currently living there.

1 What should the researcher do?
   A Take the photographs anyway
   B Mediate between the two groups claiming ownership
   C Engage Aboriginal mediators to help reach a compromise
   D Give up on the research

2 When working with Aboriginal and Torres Strait Islander communities, it is important to obtain consent from the individual concerned and the wider community. This is because:
   A it is important that the research is culturally appropriate.
   B the project is owned by Indigenous peoples.
   C the cultural expertise of the Indigenous people is valued.
   D all of the above.

3 Research on the health of Aboriginal and Torres Strait Islander peoples is vital because it tells us:
   A how well they are assimilated.
   B how many Western values they share.
   C whether they like playing musical instruments.
   D whether their health needs are being met and why or why not.

True or false questions

Are each of the following statements true (T) or false (F)? After reaching your decision, make a brief note to explain your answer.

1 Science is the same as astrology.

2 Simple experiments have an experimental group and a control group.

3 A placebo is a dummy pill given as treatment.

4 A researcher using qualitative methods might undertake an interview to find out about a person's social values.

5 A cross-sectional design lets us look at how individuals change as they age.

UNITS 3 & 4

CHAPTER 10

Research methods: Processing and evaluating psychological research

Key knowledge, understanding and skills

Methods of displaying quantitative data

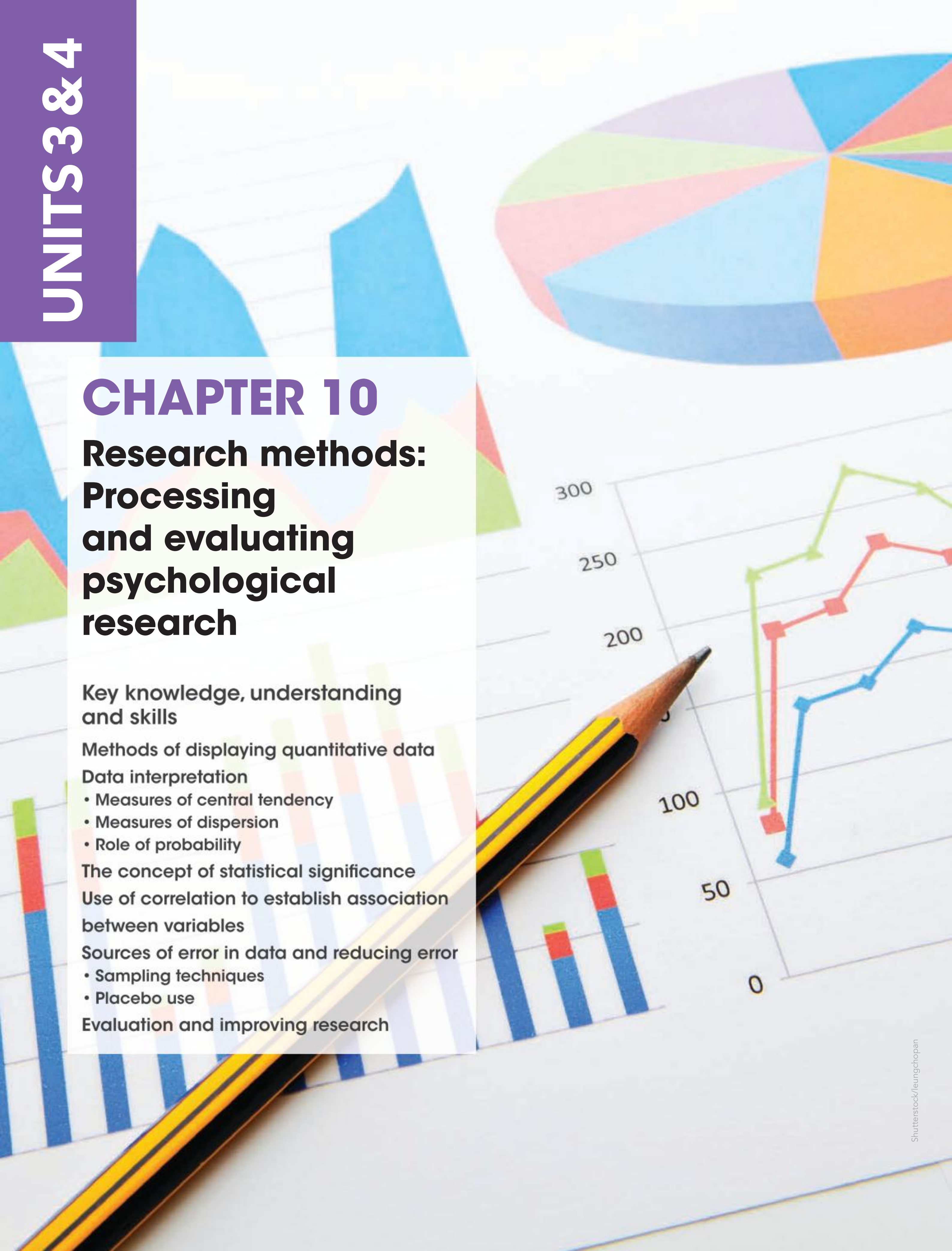
Data interpretation
- Measures of central tendency
- Measures of dispersion
- Role of probability

The concept of statistical significance

Use of correlation to establish association between variables

Sources of error in data and reducing error
- Sampling techniques
- Placebo use

Evaluation and improving research



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Processing and evaluating psychological research

After you have conducted an experiment and tested a hypothesis, you will want to find out whether or not your prediction is supported by the data you have collected. In most experiments, you will end up with numbers (that is, quantitative data) or data that can be turned into numbers. You need to conduct analyses of the data to draw conclusions about the hypothesis. You then need to explain your results and conclusions. Why were these results obtained? What do they mean in relation to the underlying theory? Do they add to the theory? Do they contradict the theory?

Methods of displaying quantitative data – tables, graphs and diagrams

Researchers analyse their quantitative data with statistics, usually using a software package. Prior to the creation of a dataset and formal analyses, some of which can be complex, we need to learn about how to display data and interpret its display.

Data analysis needs to be considered at the experimental design stage so that meaningful data is collected and subsequent analyses are made as simple as possible. For analyses, both by hand and by computer software, you need to create a dataset. This can be done automatically via a computer, or analysed by hand, or it can be created through simple manual entry.

Tables

Datasets are usually organised into rows and columns, where the rows represent a case (or a person) and the columns represent the variables (such as values or scores) under different conditions or responses. Each separate entry is a cell containing data, and the dataset is a matrix. In most cases, before formal statistical analyses, initial exploration of the dataset is useful, since it gives you a 'feel' for the data and what it represents. Graphical displays help, and tables and graphs are common ways to summarise data visually. While tables display the numbers in rows and columns, graphs display the numbers in a chart of relations among two or more numbers by dots, lines or bars.

Broaden your understanding

Creating a data table

Ask everyone in the class to tell their age in months. Make a list of the ages (these are the variables). Organise these from the lowest to the highest, and see how many students reported each one. This represents a data table.

In the activity above, you have been collecting and examining some basic information called summary or descriptive statistics. These statistics allow you to organise, summarise and understand numbers, and to represent important aspects of a dataset with a single number. The first thing you should do is create a table like Table 10.1 (page 176) in your workbook or folder, showing age in months in one column and the frequency of each age in another. Next, list the values and then organise them from lowest to highest. You will note when doing this that there is often more than one student with a particular value or score. So, you may have two values of 188, three of 190 and so on. The resulting compilation of numbers is called a **frequency table** and looks like Table 10.1.

The dataset in Table 10.1 represents the age at which some people reported they walked as babies. As well as showing the range of values, from 9 months to 19 months, we can also check the total of the frequency column, which should be the same as the number of people asked (in this example, 70).

Table 10.1 Frequency table for age at first steps

Age (in months)	Frequency
9	2
10	3
11	5
12	9
13	12
14	11
15	10
16	8
17	5
18	4
19	1
TOTAL	70

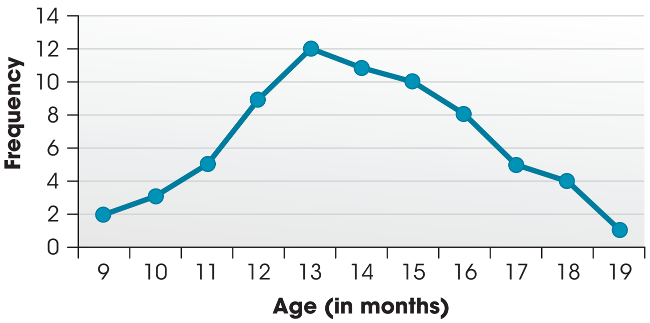


Figure 10.1 Frequency polygon of age when infant took first steps

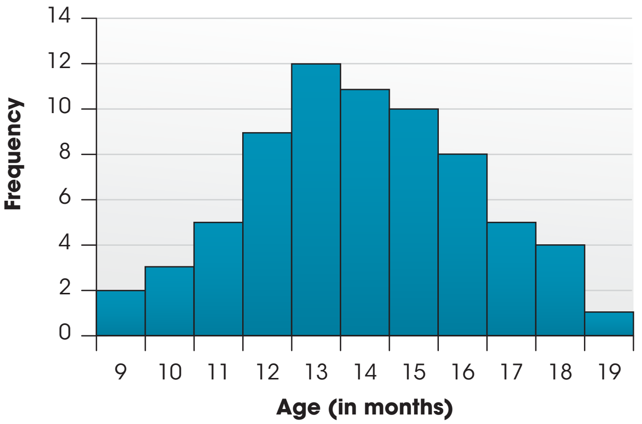


Figure 10.2 Histogram of frequencies of age when infant took first steps

Graphs

The next thing we do with the frequency table is present the scores in a picture, in this case, a **graph**. First we will draw a **frequency polygon** that depicts frequencies over time. This presents the scores by placing a single point for the total values at each age and drawing a line between the points, giving rise to the line drawing in Figure 10.1. This shows us clearly that the most common age is 13 months.

A histogram (Figure 10.2) is where the height of each bar is the frequency of each value in our frequency table. Like the line graph, this pictorial representation lets you see how the scores are distributed. The line chart displays the frequency as a continuous variable while the bar chart displays discrete frequencies.

The shape of the distribution is exactly the same as that in Figure 10.1.

Pie charts

Pie charts depict the proportion of each variable as part of a whole. If we take Table 10.1 and consider three groups of variables – 12 months or under, 13 to 15 months and more than 16 months – we get the pie chart shown in Figure 10.3.

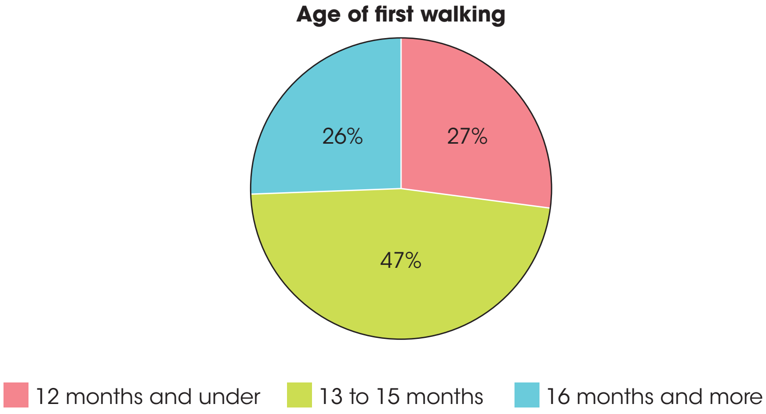


Figure 10.3 Pie chart of age of walking

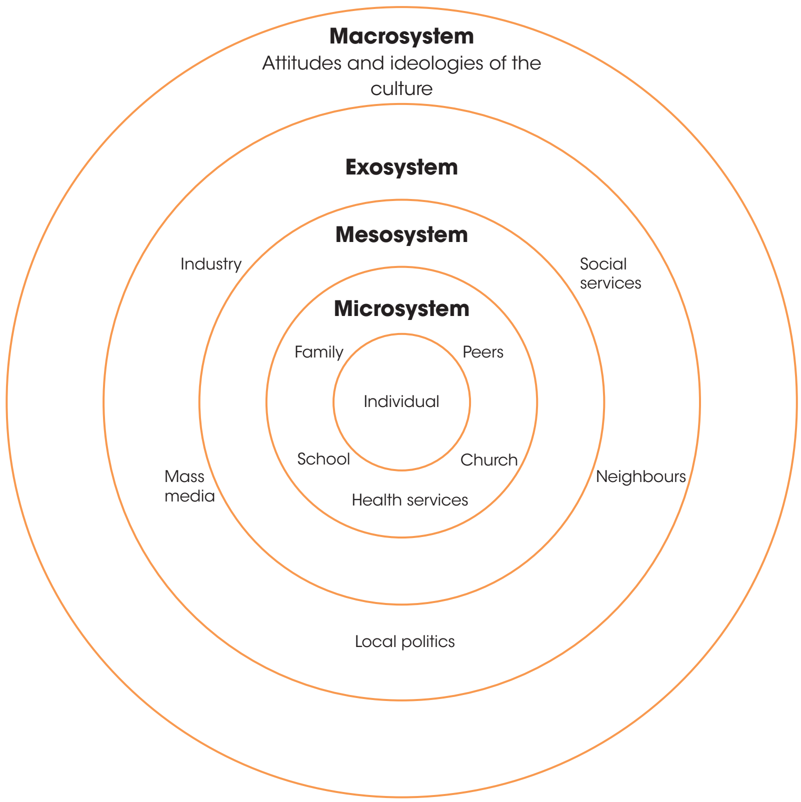
Table 10.2 Summary of types of graphs

Type of graph	Description and purpose
Line graph and frequency polygon	Shows the relationship between two variables by means of lines when variables on the *x* axis are continuous. In the frequency polygon, only the frequency of the variable is on the *x* axis and takes the form of a continuous line between the mid-point of each variable.
Bar graph and histogram	Shows the relationship between two variables by means of bars when the one on the *x* axis is continuous. In a bar graph, the variable on the *x* axis is discrete and is represented by bars with spaces in-between. In histograms, the bars are adjacent and touching and the variable on the *x* axis is continuous.
Pie chart	Shows proportions of a variable as slices of the whole (the pie).

Diagrams

In psychological research, diagrams are often used to show processes that have been followed as part of the research method and sometimes the outcomes. Diagrams often take the form of a model that may be tested or may reflect the final results. An example is the model of influences on human behaviour as developed by Uri Bronfenbrenner (1917–2005), known as the social ecological model of human development. It depicts how the child and the environment in which he or she grows up interact to influence development. Studies can be conducted to examine the various influences, either independently or together, and additional influences can be added with further experiments and studies.

Figure 10.4 Diagram of influences on human development (after Bronfenbrenner)



Data interpretation

Measures of central tendency

There are at least three ways in which the central tendency of a distribution can be described. Theoretically, in a symmetrical distribution with an infinite number of values or scores (in the case shown in Figure 10.1, ages), all three methods should lead to the same answer. This does not happen in psychological experiments that typically have a smaller number of values or scores and where the distribution is rarely completely normal.

If we take our example above of age of first walking, the **mode** is the most frequently occurring value, it is 13 months. Therefore, the mode is the numerical value of the central tendency of the distribution and can be determined quickly and easily by glancing at the values. It is not a very reliable measure unless the number of values is very large.

We can also say that the average, or **mean**, age at which students took their first step is 13.93 months. This was calculated by adding up all the values for all the students (which add up to 975) and dividing this total by the number of students (70). You will have learned about the calculation of the mean in your early mathematics classes. The mean is by far the best measure of calculating the central tendency of a distribution, since it takes into account the value of every variable in the dataset. The mean is not a real value (since it is often a fraction, in this case, expressed as a decimal) but an abstraction based on the distribution. It is more accurate than either the mode or the median.

The **median** is the middle value, in this case, 14 months. This assumes that if all the values were placed in ascending (or descending) order, the score in the middle would be at the top of the distribution. Scores need to be discrete, such as golf scores or age in months when you learned to walk. When there are an even number of scores, the median is calculated by taking the average (mean) of the two scores in the middle. Like the mean, the median takes into account all the values and should be more accurate than the mode, which only takes one single value into account.

If a distribution is not approximating normal, it is judged to be skewed with a lot of small or large numbers. In these cases, even with an infinite number of variables, the mode, mean and median would not be the same.

Table 10.3 Summary of measures of central tendency

Measure of central tendency	Definition
Mode	The most frequently occurring value or score in a distribution
Mean	The average value or score of a distribution
Median	The middle value or score in a distribution

Researchers do not use the range, or spread, very often since it is a crude measure and does not take clumps of scores into account, although it is used in the calculation of measures of dispersion. It is very easy to calculate since it is simply the difference between the lowest and highest values. In a small sample, the extreme values in the range are unlikely to represent the theoretical distribution of all possible values, and as such, the range can be misleading about any tendency of the scores to bunch around the central tendency or to be spread out. As noted, it is used in the calculation of the dispersion measures discussed on the next page.

Measures of dispersion

Describing the shape of a distribution is important for statistical descriptions and analyses. The normal curve is called the bell curve, or the **normal distribution**. An example of a normal distribution, or normal curve, is shown in Figure 10.5 and you can see the scores (using the example of the values of age when first steps were taken of 70 students) in this case form a curve that has the same slope upwards and downwards, with the largest number of scores occurring at nearly 14 months and the lowest at 9 and 19 months.

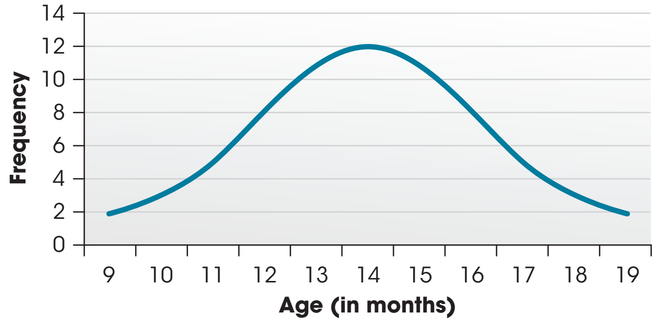


Figure 10.5 Normal distribution or bell curve

The **variance** of scores tells us how spread out the scores are around the mean. It is the square of the standard deviation (see the 'Broaden your understanding' box below). Variance is tricky to explain since it is not directly related to the normal curve.

Broaden your understanding

Calculating the variance and standard deviation

In mathematical terms, the variance is the average of the squared difference of each score from the mean. It is calculated as follows:

1. Subtract the mean from each score to give each score's deviation from the mean.
2. Square each of these deviation scores (multiply each deviation score by itself).
3. Add up all the squared deviation scores calculated in step 2.
4. Divide the total of step 3 by the number of scores (in our example, this would be 70).

Mathematically, the variance can be represented as SD^2 or the standard deviation squared.

It can be represented in the following formula:

$$SD^2 = \frac{\sum(X - M)^2}{N}$$

where X is each score and M is the mean, so $X - M$ is the score minus the mean, then each calculation is squared (^{2}) and finally added together ($\sum$). This is then divided by N, the number of scores.

In our infant age of walking example, the variance is 0.017, which is very small, indicating a limited spread of scores. To some extent, when you are measuring a motor skill that is acquired in infancy, this should not be surprising. A larger number indicates a larger spread of ages. A variance of 0 indicates no spread at all.

The variance is not often used since we do not usually think about the spread of scores in terms of their squared value: we usually think about the scores as the values we have been given. Psychologists prefer to use the **standard deviation (SD)** to describe the spread of a group of scores. It is the square root of the variance and represents the average amount by which scores differ from the mean.

The SD is the square root of the variance, as calculated:

$$SD = \sqrt{SD^2}$$

Most psychological research uses the standard deviation as an expression of the distribution of scores, whether they are, for example, IQ test results, the ages at which infants first walk, or scores on a scale of stress. Many psychological tests assume a distribution where most of the scores are in the middle of the distribution and fewer are at the extremes. A normal distribution, because of its standard shape (the bell curve), can assume mathematical properties, with, for example, 34 per cent of the scores being up to 1 SD above the mean, a further 14 per cent being between 1 and 2 SDs above the mean and 2 per cent being between 2 and 3 SDs above the mean. A similar distribution is noted for scores below the mean. This shows that 68 per cent of scores are between 1 SD above and 1 SD below the mean. This is a very useful statistical property.

Role of probability

Probability is concerned with assessing the chances that a particular outcome will occur under a particular set of circumstances. It is used in psychological research as we conduct experiments with samples and then make inferences to the general population of interest. Inferences based on statistical calculations can be wrong but using the mathematical theory of probability we can estimate the probable amount of that error. We discuss statistical significance later in this chapter.

In the play *Rosencrantz and Guildenstern Are Dead*, playwright Tom Stoppard wrote that Guildenstern flipped a coin 92 times and it came up heads on all 92 tosses. The chances of this happening are $(1/2)^{92}$ – a very small probability indeed. Stoppard urges the audience to consider the role of chance in any outcome. The chances are extremely slim because a coin has an equal chance of a head or a tail in any single toss.

Probability thus depends on the relative frequency of an outcome based on two factors: the outcome must be able to be counted and all possible outcomes must have an equal chance of occurring. Hence the example usually used of a coin toss. In terms of a formula, the probability for outcome *A* to occur is:

$$\frac{\text{Number of possible outcomes favouring } A}{\text{Total number of possible outcomes}}$$

So in a coin toss, there are two possible outcomes, heads or tails, so the probability that the outcome is heads (H) is $H = 1/(1 + 1)$ or 1/2. With a six-sided die, the probability that a four will be the outcome is 1/6, and the probability that a red card will be selected from a pack of cards is 26/52 or 1/2. These are all simple outcomes. More complex rules are applicable for compound events, like predicting three heads out of five coin tosses.

The application of probability theory can be seen when people try to work out the probability in a group of people that two or more will have the same birthday. In a group of one, the probability is 0 and if the group is greater than 365, the probability is 1.0. Surprisingly, to obtain a probability of 0.5, the number of people needed is 23! As groups increase in size from 23, the probability of two people sharing a birthday increases quickly.

Other examples of situations that use probability theory are the probability in roulette of picking a single number or a grouping of numbers that the ball will fall into and the trifecta betting arrangements in horse racing, where the betting is based on correctly picking the order of the first three horses at the finish of the race.

Broaden your understanding

The origins of probability theory

Probability theory had its origins in the 16th and 17th centuries when mathematicians were asked by wealthy patrons to predict the exact probabilities of various outcomes in games of chance. This was obviously in their own financial interest if they were betting on outcomes. Galileo was one of the first to work on the problem and he calculated the exact probabilities for the various possible sums on the faces of three dice tossed simultaneously. As gamblers at the time had thought, the sums of 10 and 11 are more probable than any other possible sum from 1 to 18 when three dice are tossed. This would obviously affect gambling patterns! Pascal was another famous mathematician who worked on probability theory.

The concept of statistical significance

Statistical significance is used to indicate whether a difference between the results for the experimental group and the control group is real, that is, due to the independent variable and not simply due to chance. How do we assess what is an acceptable difference between, say, mean scores between two groups? Researchers use tests of statistical significance, compare mean scores of two (or more) groups, and in general accept that a difference is a true difference due to the independent variable when the probability that it is due to chance is five times or fewer in 100 repetitions of the same study. This results in a *p* (*probability*) value of 0.05 or a 5 per cent (1 in 20) chance that the difference between the two groups' scores was due to the experimental manipulation and hence the hypothesis is supported. Sometimes stricter levels of probability are used, such as 1 in 100 ($p<0.01$) or even 1 in 1000 ($p<0.001$), where the researcher wants to be extremely sure that the differences found are real and not simply due to chance. There are tests of significance that can be used to determine *p* values

As an example, if we return to the normal distribution, we know that around 2 per cent of the population for the particular behaviour under examination falls between 2 and 3 SDs above the mean. For a single person in our research study, there is a probability of 0.02 (or 2 chances in 100) that their score will fall in that region. There is, however, a probability of 0.68 that their score will fall between 1 SD above and 1 SD below the mean – a much higher probability. When testing for **statistical significance**, this is the comparison we make between the distribution of our scores and that of the wider (and possibly only assumed) population. If your results are more extreme (at either end of the distribution) than those assumed by a normal distribution, or by chance, then you can conclude that your results are statistically significant.

Use of correlation to establish association between variables

Correlation is mentioned throughout this textbook and in Chapter 9, where it was explained as describing the association or relationship between variables. Measures of correlation are referred to as correlation coefficients, which describe the strength and direction of the co-relationship between two variables. You might be interested in knowing the relationship between students' scores on their mid-semester exam and their final exam mark. For correlation, there need to be pairs of scores based on a number of participants. The unit of analysis does not need to be individual scores but could be between the size of the class and the number of A grades in each exam. In this case, for each school or university class, there would be the number of students as one score and the other score would be the number of A grades in each exam. The pairing would be on classes rather than individual participants.

There are various correlational methods, depending on the scale of measurement. The most common correlation coefficient is the Pearson correlation coefficient (or Pearson *r*). It is used when both sets of scores are measured on a continuous scale, such as test scores, height, weight and so on. It is used to show the linear relationship between two sets of variables or scores. It is sometimes called the *Pearson product-moment* correlation coefficient (PPMCC) since it involves a statistical technique that requires the covariance (another name for correlation) to be divided by the geometric mean of the variances (which is called the 'product-moment'). When the two variables are measured on an ordinal ranking scale, that is, in ascending or descending order, then the Spearman rank order correlation coefficient or Spearman *rho* is calculated. How likely are we to get a high correlation between variables by chance alone? This is determined by using inferential statistics to evaluate the significance of the correlation coefficient.

Sources of error in data and reducing error

As demonstrated in Chapter 9, there are potential sources of error in data that emanate from the participants and/or from the experimenter. One solution previously identified was the use of double-blind procedures; here, we will look at two other ways to reduce error.

Sampling techniques

A simple way of reducing differences between experimental and control groups is through the use of random allocation. This is done to ensure each participant in the experiment has an equal chance of being selected for either the experimental or the control group and makes all possible combinations of people for a particular sample size equally likely. This can be done through using a series of random numbers (manually selected like Lotto from a random numbers table or through a computer-generated program) to determine group allocation, by tossing a coin, or by drawing names out of a hat. Random allocation is used to allocate participants to groups. Simple random sampling requires a full list of the population for selection of participants into the study, and in reality, that is rare. It uses the same methods as random allocation.

Stratified random sampling involves dividing the population into groups, or strata, where each group has a particular characteristic (for example, males and females). Within each group, there can then be random sampling. In stratified random sampling, it is usual to have the numbers of each group reflecting the relative numbers in the population; with gender, that would be equal numbers of each since males and females are equally present in the population. With other groups, such as different age groups or ethnic groups, the proportions would differ according to their representation in the general population – this is called **proportionate sampling**. **Disproportionate sampling** is occasionally used where small, sometimes rare, groups are oversampled to ensure there is at least some representation of the stratum. This is seen in medical research, where rare disease diagnoses may be oversampled so they can be studied.

One form of sampling that is used in qualitative research is called **snowball sampling**, where the researcher identifies particular individuals of interest ('informants') who are interviewed, and who then provide names of others of interest in the population who may consent to being interviewed for the study. This is also called purposive sampling, since the researcher relies on his or her local knowledge to identify potential participants who typify the relevant informants to discuss a particular topic. This ensures participants are interested in, and can contribute to, the topic, but this may introduce bias.

Most sampling techniques are designed to reduce sources of data error and reduce the likelihood of error when generalising the results from the sample to the wider population.

Placebo use

How can we be sure that the positive effects claimed for some drugs are due to the drug or that intervention procedures 'work'? We often read about cures produced by the most unlikely treatments. In these cases, it is likely that the person's belief in the treatment has led to an improvement in symptoms. It has been shown that patients who take inactive substances or undergo useless procedures may feel much improved, provided that they do not know that the treatment is a fake. This is called the **placebo effect**. The placebo effect is not just due simply to psychological processes. It has been shown that if the use of a placebo reduces a person's anxiety, then physiological changes occur in the body, with, for example, heart and lungs returning to normal functioning and natural immune responses increasing.

Because the placebo effect can be so powerful, researchers trying to test the efficacy of a drug must make sure that reported results are not simply due to this effect. They do this by testing the drug against a placebo. For example, the drug (substance A) and another neutral substance, the placebo (substance B), might both be put into capsules of identical shape and colour. Half of the participants in the study will be given the drug and half the placebo. Participants will not know which they received; that is, they will be blind to the group they are in. Any differences in the effects of the drug should then be due to the drug itself rather than to beliefs about the treatment. In the most carefully designed studies, known as double-blind studies, not only do the participants not know whether they are in the group receiving the drug or the placebo, but the researcher measuring the outcomes also does not know which group the participant is in. That is, the researcher is also blind to the group that the participant is in. This is done to make sure that the researcher's desire for the treatment to work does not lead to bias in the measurement of outcomes. If a difference between the groups occurs, then the researcher checks with the person who assigned the participants to the groups to find out if it was the group of participants on the drug that had the better outcomes.

A more rigid form of double-blind study can be found in **randomised controlled trials (RCTs)**, often regarded as the 'gold standard' in research, particularly medical research, where participants are randomly allocated to the experimental group or to the control group. The argument for RCTs is that they provide the best evidence for the effectiveness of an intervention (for example, an experimental drug or procedure). They are the ultimate in evidence-based research because they can demonstrate whether or not a treatment 'works'.

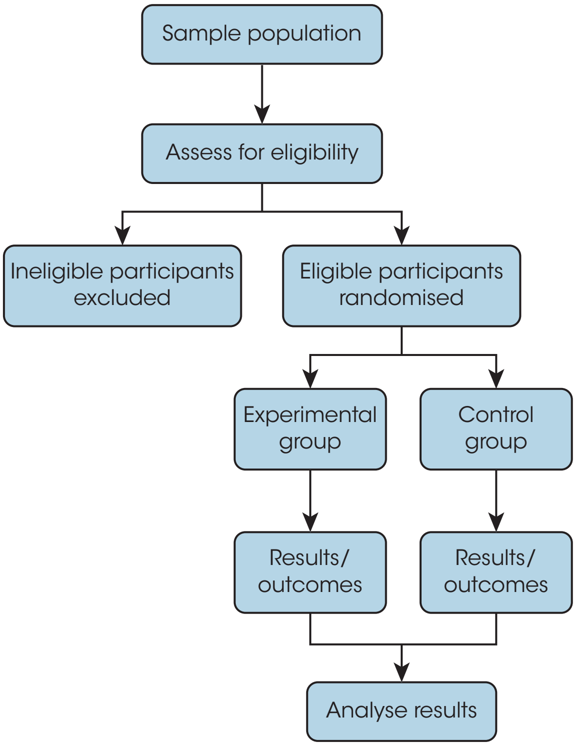


Figure 10.6 Basic structure of a randomised controlled trial, showing a comparison between an experimental group and a control group. The experimenter is blind to which participant is in which group.

Broaden your understanding

The value of RCTs – evaluation of effectiveness and efficacy

There is not total agreement as to the value of RCTs, especially among social researchers who cite ethical and practical issues in setting them up and query the quality of the results when they are ineffective. The ethical question surrounds the allocation of people to groups for treatment, the outcomes or effects of which may be unknown. RCT advocates argue that this is precisely the value of RCTs – they provide valid evidence for the effects in numerical form, and can be quantified and analysed. RCTs are evaluated for their effectiveness (how well the treatment works in real-world conditions) or their efficacy (the performance of a treatment or intervention under controlled conditions such as supervision by a doctor). The distinction between effectiveness and efficacy is poorly understood, even by experts, although there is broad agreement that they represent a continuum. Efficacy research, which is highly controlled and deviates from normal clinical practice including restrictions on patient selection, maximises finding an intervention effect, while effectiveness research better accounts for patients and provides factors in any intervention effects. There is, it is currently argued, a place for both.

Table 10.4 Summary of ways to reduce sources of error in data

Ways to reduce sources of error in data	Description
Random allocation to experimental and control groups	Done to ensure each participant in an experiment has an equal chance of being selected for either the experimental or the control group. It also makes all possible combinations of people for a particular sample size equally likely. This can be done through using a series of random numbers to determine group allocation.
Stratified random sampling	Involves dividing the population into groups, or strata, where each group has a particular characteristic (for example, males and females) with random sampling in each group.
Proportionate and disproportionate sampling	In proportionate sampling, the proportions would differ according to their representation in the general population (such as various ethnic groups). In disproportionate sampling, small, sometimes rare, groups are oversampled to ensure there is at least some representation of the stratum.
Snowball sampling	Occurs when a researcher identifies individuals of interest who are interviewed and who then provide names of others of interest in the population who may consent to being interviewed for the study. This is also called purposive sampling.
Placebo usage	Patients or participants are given inactive substances or undergo useless procedures in order to ensure reported effects are due to the treatment, not just expectations of treatment effects.
Randomised control trial	Participants are randomly allocated to the experimental group or to the control group without their knowledge and the experimenter is blind to their allocation.

Evaluating and improving research

If you are conducting research or want to make sure the research you are reading about is valid, then you need to make sure the results are valid and the research itself is rigorous and reliable. Often, you will begin your research 'journey' by reading articles that may spark ideas for further research or perhaps lead you to ask questions about the content of the research or about the researchers themselves. Evaluation of research, at whatever level, can only lead to improvements in research, whether in the research design, the variables included in the study, the analysis of the data or the interpretation of the results.

Peer review of applications for funding for research as well as for publication in scientific journals is the main way research is evaluated. Peer review is conducted by experts in the same field of research, that is, researchers who are familiar with the theory, the content, the method, the analysis and the interpretation of the data. If they are people with whom the researcher has collaborated or they are competitors, this should be declared if a review is requested. In such cases, then a conflict of interest is noted and these reviewers may play no further role in the peer review. Peer review is the recognised way of getting one's research evaluated and then either funded or published. Publication then leads to further theory development and experimentation, and so the field advances.

Any evaluation of research focuses on the following four general steps:

1 The aims and significance of the work
2 The research method and design
3 The analysis and interpretation of the data
4 The discussion, implications and applications of the research

The *first* step, the aims and significance, looks at the research question(s) being asked, the researcher(s), the literature review (is it thorough, relevant and up-to-date?) and the theoretical foundations of the research. The first step also examines the relevance of the research to current professional practice or knowledge and the potential contribution of the work to the field. To improve research, the aims must be clearly specified and the importance of the research, either theoretical or applied, spelled out thoughtfully.

In the *second* step, the research method and design, it must be clear if the study is descriptive or experimental, qualitative or quantitative, and if there is at least one testable hypothesis or research question. The underlying assumptions must be justified, and usually a pilot study is conducted. All ethical issues must have been considered and the research receive ethics approval from a recognised human research ethics committee. How participants are to be selected and allocated to groups and if there are any inclusion or exclusion criteria for participation must be checked. An example of an exclusion criterion could be speaking a language other than English (in other words, non-English speakers would not be included). The sample size and its appropriateness for the design need to be evaluated, as well as whether the sample is representative of the population of interest. Opportunities for improvement in the second step would follow from careful consideration of the design and its appropriateness for the sample to be selected (and vice versa, the sample should reflect the design selected) as well as ensuring appropriate ethics approval.

The *third* step concerns the analysis and interpretation of the data. The suitability of the analysis, either proposed in the case of a grant application or used in the case of reporting a study, needs careful consideration and can be a point of dispute between researchers and reviewers. For example, a researcher may have used a particular analytical technique, after advice from experts, only to have a paper rejected for publication in a journal on the basis that the analysis used was incorrect for the type of data. This represents a difference of opinion in reviewers and is very difficult to resolve. The results should be comprehensible and presented in such a way that they are clear and able to be interpreted by a reviewer. The results must be realistic and feasible, given the method and analysis. Data representation by way of graphs, charts and tables should offer explanations and enhance the results and need not be repeated in the text (once is enough). Finally, the statistical significance levels (p values) selected (and included) should be correct. To improve the third step would require checking the data analysis was appropriate, the data representations were accurate and reflect the data collected and analysed, and the significance level(s) chosen were appropriate.

In the *fourth* step, the discussion offers an opportunity for interpretation of the results in the context of the original aims and hypothesis. This is the place where discussion of the results should elucidate the initial research questions and tie the research paper together. The discussion should then offer proposals for changes to existing theory or for different interpretations of the results. Things to look out for in the discussion include any weaknesses in the method that may have affected the validity or reliability of the research (such as sample selection), any disadvantages in the method of data collection, and anything that was omitted or should have been included. The discussion also needs to draw conclusions from the interpretation of the results and again relate these, through comparison or by contrast, to prior research and the original theoretical aims. Most studies conclude with recommendations for theory, for policy or for practice (some do two or three of these) and these need to be considered realistically. Many grant applications now require a direct proposal for how the research, however theoretical, has an application for practice or policy to make sure funded research finds its way into a real-life application that benefits the broader community. Opportunities for improvement at this final step include clarification of the theoretical and applied implications of the work and whether the topic requires some further research by expanding the scope of the research, by the inclusion of additional participants or by adding some more variables to be studied.

By evaluating research systematically and critically, improved research can be developed and conducted. This thus ensues psychology remains not only rooted in the scientific tradition, but also contributes to our knowledge of how behaviour and mental processes work and how we can describe and predict human behaviour.

CHAPTER SUMMARY

Processing and evaluating psychological research

Methods of displaying quantitative data

- Tables – representing datasets
- Graphs
  - Line graphs and frequency polygons
  - Bar charts and histograms
  - Pie charts
- Diagrams

Data interpretation

- Measures of central tendency
  - Mode – the most frequently occurring value or score in a distribution
  - Mean – the average value or score of a distribution
  - Median – the middle value or score in a distribution
- Measures of dispersion
  - Normal distribution – curve that has the same slope upwards and downwards
  - Variance – the spread of scores or values around the mean
  - Standard deviation – the square root of the variance and is the average amount by which values or scores differ from the mean
- Role of probability – assessing the chances that a particular outcome will occur under certain circumstances

The concept of statistical significance

- Whether a difference between the results is due to the independent variable and not simply due to chance

Use of correlation to establish association between variables

- Correlation coefficients
- Types of correlation

Sources of error in data and reducing error

- Sampling techniques
  - Random allocation to experimental and control groups
  - Stratified random sampling
  - Proportionate and disproportionate sampling
  - Snowball sampling
- Placebo use
  - Placebo effect
  - Randomised control trials (RCTs)

Evaluating and improving research

- Four steps in evaluating research
  - The aims and significance of the work
  - The research method and design
  - The analysis and interpretation of the data
  - The discussion, implications and applications of the research

CHAPTER REVIEW

Check your psychological understanding

Terminology

Define the following terms:

1 Mode

2 Graph

3 Variance

4 Probability

5 Snowball sampling

6 RCT

Multiple-choice questions

1 If you wanted to show the proportion of students in your class whose favourite leisure activities were reading, listening to music, watching television, playing sport, and other, which of the following would you use?
   A Bar graph
   B Frequency polygon
   C Pie chart
   D Histogram

2 If you wanted to show the amount of time in seconds it took people aged 15–19, 20–24, 25–29, 30–34 and 35–39 to solve a problem, which of the following would you use?
   A Diagram
   B Frequency polygon
   C Bar graph
   D Pie chart

3 A histogram is a kind of:
   A bar chart.
   B line graph.
   C pie chart.
   D frequency polygon.

4 The bell curve shows:
   A the distribution of scores.
   B the variance of scores.
   C the mode.
   D all of the above.

5 If variable A is correlated +0.9 with variable B, this shows that:
   A A causes B.
   B B causes A.
   C A is strongly positively related to B.
   D a high score on A is associated with a low score on B.

6 Stratified random sampling involves:
   A completely random allocation to groups.
   B snowball sampling.
   C random allocation to groups according to strata.
   D oversampling of small groups.

Apply and relate psychological understandings

Short-answer questions

1 Describe three common methods of displaying data.

2 Describe standard deviation and how it is calculated.

3 Outline statistical significance and why it is important.

4 Describe the placebo effect.

5 Outline the basic structure of a randomised control trial.

6 List the four steps in research evaluation.

Investigating in psychology

The following table presents the percentage of successful goal attempts of the goal shooters from six netball teams over the first 10 games of the season.

	Netball game									
Goal shooter	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Carla	52	68	65	73	59	75	72	66	70	75
Jodi	60	72	85	75	90	84	75	68	85	76
Amy	48	52	65	55	68	75	65	75	64	72
Trish	70	65	75	80	84	76	85	76	80	78
Jane	68	75	72	70	75	67	75	77	68	74
Toni	78	56	88	62	90	73	85	68	90	65

1 What was the mean percentage of successful shots for each girl?

2 What was Jane's modal score?

3 The state coach wanted to select a goal shooter for the state team. She was looking for a shooter who averaged over 75 per cent and was consistent (had a low range of scores). Who would she choose?

Answers

There are two areas of questions in the textbook:

- Check your psychological understanding
- Apply and relate your psychological understanding

These answers are 'model answers' based on the text and they contain the key ideas that a student should be able to explain. It is up to the teacher to interpret the students' response(s) and compare them to the answers when deciding how well a question has been answered.

Answers are not given for extended essay answers where students can make a choice of topics and/or they are required to conduct research.

Chapter 1 review, p. 18

Terminology

1 Cerebrum: part of the forebrain, associated mainly with the cerebral cortex, which controls motor and mental activity
2 Brainstem: the lowest part of the brain and connects the brain with the spinal cord. It has four parts – the midbrain, the pons, the reticular system and the medulla oblongata
3 Sympathetic nervous system: manages the body in times of stress or threat and arouses the body to perform, act and react
4 Parietal lobe: located on the top of the cerebral correct, they associated with sensory information such as touch and heat
5 Adrenal glands: secrete adrenaline and noradrenaline to speed up reactions to danger

Multiple choice questions

1 A
2 D
3 D
4 D
5 A
6 B

Short answer questions

1 The four parts of the brainstem are the mid-brain, the pons, the reticular system and the medulla. The mid-brain is at the top of the brain stem and relays messages, via the thalamus, to the rest of the forebrain. It is important in vision and hearing as well as muscular movement. In Parkinson's disease, part of the midbrain has degenerated resulting in the tremors characteristic of this condition. The pons is at the front of the brainstem and is responsible for eye movements, chewing and facial expressions. The reticular system involves neurons that extend from the top to the bottom of the brainstem and leading into the thalamus. It is important in sleep as well as arousal and attention. Epilepsy may involve an abnormality of the reticular system as the signs are convulsions and seizures from reverberations in the reticular system. The medulla is the lower half of the brainstem continuous with the spinal cord. It also links to the pons. It deals with heart rate, breathing and blood pressure.
2 The autonomic nervous system refers to neurons that transmit messages between the brain via the spinal cord to the smooth muscles found in the heart, lungs, blood vessels and glands. It regulates involuntary functions. It has two systems, the sympathetic and the parasympathetic nervous systems, which sometimes seem to work in opposite directions in relation to the same body organs. The sympathetic nervous system generally arouses the body to perform, act and react while the parasympathetic system works to maintain and conserve energy. In an emergency, the sympathetic nervous system activates bodily systems to react to the threat, crisis or disaster. The parasympathetic nervous system calms the body down to maintain and conserve energy. It slowly returns your body to normal functioning – your heart rate goes down, you start to breathe normally and you start to salivate again. In general, it produces the opposite effects to the sympathetic nervous system but the two systems work together to make sure automatic and voluntary behaviours are carried out.
3 The cortex is divided into a number of lobes, each associated with different functions or behaviours. The frontal lobe is characterised by the primary motor cortex and Broca's area. The frontal lobe is associated with thinking, decision-making, feeling and behaviour. It also coordinates many of the functions of other lobes and determines the behavioural response. The parietal lobe is responsible for bodily sensations mainly touch

and other skin sensations such as temperature and pain. It also processes these bodily functions. The parietal lobe is also involved in spatial awareness and some aspects of speech and the parietal association cortex enables individuals to read, write and solve mathematical problems. The occipital lobe is primarily responsible for visual functions of the eyes. It has to provide very quick responses to the visual environment. It is also involved in both visual perception and colour recognition. The temporal lobe is located at the base of the cortex and is important in auditory perception such as hearing as well as language and speech production and memory.

4 Hormones are chemical messengers produced by endocrine glands. These hormones travel through the bloodstream and affect other parts of the body such as the brain. When they act on the brain they influence our interest in food and sex, influence our moods and affect our growth. The endocrine system has other glands. Hormones produced by your adrenal glands help prepare us to deal with emergency situations and trigger what is known as the 'fight or flight' response. Our thyroid glands have formed and started to produce the hormone thyroxin by the fourth month after conception. This hormone is necessary for the brain and nervous system to develop properly. The pituitary gland is usually considered to be our most important gland as it triggers the release of hormones from all the other glands. In addition to this, it also produces a growth hormone that stimulates the growth and development of body cells. This hormone is necessary for normal growth and development.

5 Heroin is a narcotic or opiate. Opiates mimic endorphins, the body's painkillers and when used medically, alter patients' reactions to pain by reducing the brains' perception of pain. Opiates such as morphine are used medically to give relief from pain and because it is used sparingly and not very often, patients rarely develop an addiction to morphine. Heroin is usually taken intravenously and when injected into a vein, reaches the brain very quickly creating a feeling of euphoria followed by feelings of calm and peacefulness. Withdrawal from heroin produces unpleasant side-effects such as fevers, cramps and gastro-intestinal problems.

Chapter 2

Terminology

1 Sensory register: also known as sensory memory, is memory retained for a very brief period, usually less than one second

2 Declarative memory: the 'what' of remembering

3 Motivated forgetting: forgetting because we do not wish to recover the memory

4 Classical conditioning: learning through the association of two stimuli

5 Punishment: a consequence that causes a behaviour to occur less frequently. It too can be positive or negative

Multiple choice questions

1	D	**7**	B
2	B	**8**	A
3	D	**9**	B
4	C	**10**	A
5	C	**11**	D
6	A	**12**	B

Short answer questions

1 There are three main ways of measuring what a person has remembered: recall, recognition and relearning. Recall questions ask you to retrieve information from memory without any prompts or cues. For example, the question, 'Who won the 2014 AFL Grand Final?' asks you to recall information. Most would probably find it easier to answer this if given a list - Fremantle Dockers, Hawthorn, Sydney Swans or West Coast Eagles - and then asked, 'Who won the 2014 AFL Grand Final?'. This type of question relies on recognition, identifying the correct information from a number of alternatives. There is a lot of research that shows that people find recognition easier than recall. The most sensitive measure of memory is re-learning. Psychologists have devised a technique called re-learning or the method of savings to see if any information has been retained in memory. This method involves a person re-learning information he or she has previously learned. If the information is learned more quickly the second time, it is assumed that some information must have been retained.

2 A telephone number that you have just looked up in order to use it would go into short term memory (STM). Rehearsal enables information to be retained in STM longer than would be usual

(that is, longer than 30 seconds). Maintenance rehearsal is when you are remembering a telephone number for immediate use and you may say the number out loud or in your head. Another way that STM capacity can be increased is through the use of chunking, whereby material is combined into larger, meaningful group. The larger group is based on patterns or regularities in the information being processed. We often chunk telephone numbers into three – one the first two digits of the area code, then the next four, then the next four.

3 The phonological loop is part of the Working Memory model developed by Baddeley and Hitch which consists of two 'slave' systems for short term maintenance of information and one 'central executive' responsible for organising information and coordinating the slave systems. The slave systems are the articulatory or phonological loop and the visuo-spatial sketchpad. The articulatory loop stores phonological information (the sounds of language) and rehearses it silently, so we can remember a multi-digit password number as long as it refreshed in the rehearsal loop.

4 Cognitive behaviour therapy (CBT) works to treat depression in three ways:
   - If you are depressed, you may feel hopeless, a lack of energy, empty and/or anxious. These feelings make it difficult to think positively about yourself, your relationships with other people and life in general. CBT helps you to look at situations from another angle by reviewing how you managed certain events and situations in your life.
   - CBT helps to focus on the positive things. If you are experiencing depression it is likely that you will not be doing many of the things that you used to enjoy. Doing things that are less fun makes you feel sad which in turn makes you feel less like doing something fun. In this situation it is important that someone supports and helps motivate you.
   - CBT helps to manage your problems which can feel overwhelming when you have depression. CBT will help give you strategies for managing problems both small and large so they do not get on top of you.

5 Systematic desensitisation is the application of classical conditioning to fears and phobias in humans. Fears and phobias are regarded as undesirable behaviours and the idea is to replace them with more productive and desirable behaviours, usually a more appropriate response to the frightening situation or events, such as going to the dentist or fear of spiders. The first part of therapy is to practise relaxation. In spider phobia for example, the process of systematic desensitisation involves drawing up a list of the most fear-provoking situation (a spider crawling up your arm, for example) to the least (a picture of a spider) and the psychologist gradually introduces these, from least fearful to most, during therapy. This is called graded exposure so that the person is first taught to relax generally, then is exposed to the least frightening situation or event and practices the relaxation techniques until he or she is comfortable enough to proceed to the next least-frightening, and so on, until able to relax with a live spider crawling up his or her arm.

Chapter 3 review, p. 62

Terminology

1 Negotiation: the process by which parties who have some shared and some opposing interests strive to reach agreement

2 Counselling: professional support given to help solve problems

3 Maternal deprivation: refers to the state of a child after separation from or loss of the mother

4 Strange situation: a measure that involves a child is a series of episodes involving the mother and a stranger

5 Parenting: the style of interaction between a parent and child which can influence the child's behaviour

Multiple choice questions

1 D
2 C
3 D
4 C
5 D
6 D
7 D

Short answer questions

1 Three ways to resolve conflict are:
   - Imposed solutions which are dictated solutions. Sometimes one party is stronger and will impose a solution. At other times a third party may impose a solution. Imposed solutions usually lead to one party winning. This type of solution usually leads to one party being dissatisfied and the underlying conflict unresolved.
   - Distributive solutions involve compromise or mutual concessions. This type of solution can be seen in industrial disputes where wages may be set at a level somewhere between that desired by employers and employees.

- Integrative solutions are often called win-win solutions because both sides can benefit from the decision reached. Finding an integrative solution is more difficult than reaching a compromise as it involves understanding both parties' motives, values and goals. This type of solution tries to ensure that the motives of each party are addressed rather than focussing on explicit demands.

2 According to John Bowlby, children who were always close to their mothers would have avoided predators and thence grow up and have children of their own. Bowlby believed there was an optimum time (a 'sensitive period') when infants became imprinted on their mothers. Imprinting refers to the precise and permanent learning that occurs very early on in an infant's life (it occurs in animals too) to form a bond, usually with the mother. This bond is termed attachment. In Bowlby's theory, mothers have a biological need to be close to their child which is why they respond to cries and smiles. Bowlby's was the first theory of attachment to consider the pair and not just the infant. Bowlby warned of the dangers to children of failure to experience a warm and reciprocal relationship with their mother, namely the inability to form healthy relationships when older. Bowlby believed that there should be a primary bond which was much more important than any other (usually the mother). Bowlby suggested that the nature of monotropy (attachment as a close bond with just one attachment figure) meant that a failure to initiate, or a breakdown of, the maternal attachment would lead to serious negative consequences. Bowlby used the term maternal deprivation to refer to the separation or loss of the mother as well as failure to develop an attachment.

3 Researchers study whether a mother and infant are securely attached using the Strange Situation. This measure involves the infant in a series of episodes with his/her mother and a stranger. The episodes are:

i An observer introduces the parent and infant to an experimental room in which there are appealing toys and then leaves the room.

ii The mother sits in the room while the infant explores the room and plays.

iii A stranger comes into the room. At first she is silent, then she speaks to the mother and then approaches the infant.

iv (First separation). The mother leaves unobtrusively. The stranger is left with the infant and gears her behaviour to that of the infant.

v (First reunion). The mother returns, greets and/or comforts the infant and the tries to re-engage the infant in play. The stranger leaves the room.

vi (Second separation). The mother leaves the room, saying bye-bye. The baby is left alone.

vii The stranger re-enters the room and gears her behaviour to that of the infant.

viii (Second reunion). The mother returns, greets the infant and picks the infant up. The stranger leaves quietly.

Ainsworth believed that by observing the infants' reactions during the separations and reunions in an unfamiliar environment, they could be classified into one of three attachment categories:

Type A, anxious-avoidant infants, showed their insecurity by ignoring their mothers, failing to look at her and not trying to be close to her.

Type B, secure infants, used their mother as a secure base from which to explore the room.

Type C, anxious-resistant infants, showed their insecurity by resisting their mothers, such as by clinging to her but also kicking and pushing away.

Ainsworth considered that the type of attachment relationship formed between mother and child depended on how sensitive and responsive the mother was to her child's signals and that the nature of this relationship was shown through the infants' responses to the stresses of the Strange Situation.

4 Researchers carried out an analysis of studies involving 32 samples from eight different countries to look for similarities and differences within and between cultures in attachment. They found evidence of all three types of attachment in all cultures and they found that differences within cultures were greater than differences between cultures. Comparing countries, there seemed to be some patterns of differences. While Type B, secure attachment, is the most common type in all countries, Type A is relatively more common in Western European countries and Type C more common in Japan and Israel. Do the different proportions of attachment types indicate that cultural differences in child-rearing lead to differences in attachment, or is the Strange Situation a culturally inappropriate tool to use in some countries? Another study suggests that early child-rearing practices can indeed lead to differences in the proportion of each attachment type. It had been observed that a high proportion of children raised in traditional Israeli kibbutzim demonstrated insecure attachment to their mothers. This was considered likely to be due to the infants' sleeping arrangements. In the traditional kibbutz infants are moved to an 'infants' house' at six weeks of age. Here they are cared for by a small group of professional carers, with mothers visiting to feed and bathe them. This means that there is no stable relationship with an adult available to them at night. Researchers compared the attachment behaviour of children reared in traditional as compared with home-based kibbutzim. In home-based kibbutzim the environment is basically the same as in the traditional kibbutzim with the exception that the children sleep in their parents' homes. The study used Ainsworth's Strange Situation. It was found that children from the traditional kibbutzim showed a significantly higher level of insecure attachment to their mothers – 52 per cent as compared with 20 per cent of children from the home-based kibbutzim.

5 (There are four styles of parenting so any three of them)
- Parents who use an authoritarian parenting style demand obedience from their children. They set many rules and give few explanations for them. They are not interested in alternative viewpoints that their children may have. They often use power or withdrawal of love to enforce their rules. They are therefore both demanding and strict with high expectations of compliance to parental rules and demands.
- Authoritative parents set limits for their children. However, their demands are reasonable and they make sure that their children understand the reason for the rules they set. They are also more responsive to their children's viewpoints, and as their children get older, try to involve them in the decision-making process. Authoritative parents are warm and responsive in their interactions with their children yet expect that their children will follow the rules that have been set. They expect mature, independent and age appropriate behaviours from their children.
- Permissive parenting provides acceptance of children but few rules or guidelines. Children's activities are not closely monitored and parents rarely try to control their behaviour. Children are allowed to express themselves as they please. It is sometimes referred to as Indulgent parenting as they are non-directive and lenient.
- Uninvolved parenting is displayed by parents who have either rejected their children or who are so overwhelmed by the stresses in their own lives that they have no time or energy left for their children. Consequently, their approach is extremely lax. They do not set limits, enforce behaviour or show interest in their children. It is sometimes termed Neglectful parenting as it is 'hands off' and detached.

6 Refer to the Broaden your understanding box on page 58

The definition of a family is not simple. There are complexities associated with parental separation, divorce and re-partnering (or remarriage), some of which are reflected in the various family combinations. And there are also issues such as grandparenting, teenage mothers, Aboriginal families and communities and maintaining a work/family balance. Families historically have assumed responsibility for the care of children. Children generally grow up and develop in families, and members of families influence, directly and indirectly, children's development, their behaviour, their feelings and their ways of thinking. Families can protect children from the wider community and society and give them access to broader social experiences. But families can also pose risks for children by not providing optimum conditions for development. The traditional definition of family has changed in the past few decades. Reasons for the changing structure of families include the change in workforce participation by women with children, the reduction in the number of children in families, the increased mobility of the workforce and changing family membership as partners divorce and remarry, as new children are born and as grandparents die.

Chapter 4 review, p. 80

Terminology

1 Assertive communication style: the expression of beliefs, feelings, opinions and thoughts in an open respectful manner that does not violate the rights of others

2 Elaborated code: language using complex, precise sentences

3 Rapport speech: a type of talk preferred by women to establish and maintain relationships

4 Nativist theory: used to describe behaviours that re genetically determined

5 LASS: Language Acquisition Support System: describes how parents guide and support their children's emerging language through interaction

Multiple choice questions

1 C
2 B
3 C
4 A
5 B

Short answer questions

1 According to Basil Bernstein, people from working and middle classes used different kinds of language codes. People from middle classes use an elaborated code that develops ideas in relation to personal experiences. An elaborated code has the following characteristics:
   - Use of complex precise sentences
   - The meaning is clear from the sentence
   - More use made of descriptive words
   - Explanations are given to encourage compliance
   - Reference is made to past and future events
   - Abstract ideas and future possibilities are discussed

2 Male talk is characterised as report talk, which is the type of talk used in public speaking. When telling jokes or stories, or imparting information, males are comfortable with holding centre stage. They use talk as a way of gaining and holding the attention of their audience and to negotiate and maintain status.

3 High profile sportsmen and women are used in advertising because research suggests that we are likely to accept the word of people with expertise in an area, even without assessing the validity of their claim. Sportspeople are often regarded as trustworthy unlike politicians who, in an election campaign will often try to convince us that their opponents are untrustworthy, by referring to broken political promises and so on.

4 A nativist theory of language development assumes children have innate knowledge about language, they have a language acquisition device (LAD). Learners know in advance what language is – this is genetically predetermined – and they can acquire language quickly. Children do not need other people to talk to them but they need to hear language spoken around them. All linguistic knowledge is in-built. Evidence for this view of language learning comes from studies that show parents do not provide reliable feedback on whether their children's developing language is grammatical or not. Correction is not given, but children still learn to talk in grammatical sentences. Children are, however, surrounded by people talking and Chomsky proposed that individuals are genetically endowed with a specific facility for language and this facility only requires linguistic input from a particular language community for children to generate grammatical sentences of that language.

Chapter 5 review, p. 98

Terminology

1 Accommodation (according to Piaget): changing our schemas to include new experiences and information that cannot fit into existing schemas
2 Stage theory: development in terms of age-related, discrete, qualitatively distinct steps or stages through which all individuals pass in the same set order
3 Object permanence: the concept gained by infants that an object continues to exist even when it cannot be seen
4 Formal operational stage: the period between 12 years of age and adulthood when people develop the ability to think about abstract concepts
5 Preconventional morality (according to Kohlberg): refers to the first two stages of morality during which the individual is concerned solely with themselves and the external consequences of their actions
6 Psychosocial crisis: a term used by Erikson to describe the major adjustments to society that individuals must make at each stage of the development of identity
7 Observational learning: learning through watching others and copying their behaviour; sometimes called modelling or imitation

Multiple-choice questions

1 B
2 D
3 A
4 C

Short-answer questions and answers

1 Egocentrism is a characteristic of Piaget's preoperational stage in which young children can only perceive the world from their own viewpoint. For example a pre-operational child may choose to give to his/her father rain-boots as a present, if the child likes wearing rain-boots and jumping in puddles when it rains.

2 Erikson considered that the identity crisis faced by a 5-year-old child was that of initiative versus guilt. Children of this age want to achieve more than when they were younger and take more responsibility but they need to balance this with accepting parental control and discipline without feeling guilt.

3 Piaget and Kohlberg both attempted to study children's reasoning about fairness and justice by presenting them with moral dilemmas and noting their responses about how they would respond to the dilemma and why they would behave in these ways. They used the reasoning provided to categorise the level of development that the children have reached.
4 One of the reasons that Piaget's tasks have been criticised in more recent times is because the language used by the experimenter may mask the child's reasoning ability. Siegal considered that Piaget's questioning often broke the conversational rules that children hold. For example a question may be asked when the answer is obvious, or it may be repeated when an answer has already been given. As this does not happen in everyday conversation the child assumes the first answer must be wrong and changes it in order to please the examiner, not because he/she is incapable of reasoning correctly.
5 Gilligan considered that Kohlberg's theory of moral development was gender biased because women typically reached his Stage 3 whereas men typically reached Stage 4. Gilligan considered that this was due to the different socialisation of girls and boys leading to different values and hence different moral reasoning. She argued that males are socialised to be independent and achievement-oriented encouraging them to see moral dilemmas as a conflict of interest between individuals which rules and laws are designed to resolve, leading them to adopt a morality of justice (Stage 4). Girls, on the other hand, are brought up to be nurturing and socially responsible, leading them to adopt a morality of care (Stage 3). Gilligan thus thought that females' moral reasoning was different – not inferior.
6

Stage of cognitive development	Type of task to test stage
Concrete operational	Conservation, e.g. does the child realise that pouring a liquid into a different shaped glass does not change its volume
Sensori-motor	Object permanence e.g. does the child look for toy that has been covered up?
Pre-operational	Perspective taking, e.g. three mountain tasks. Does the child realise that a person sitting on the opposite side of the model of the mountains does not see the same features as they do?
Formal operational	Logical thinking, e.g. the pendulum problem. Can the child systematically test the factors of weight, height, length of string and force of pushing to determine what effects how quickly the pendulum swings?

Chapter 6 review, p. 113

Terminology

1 Unconditional positive regard: accepting people for what they are without any expectation of change
2 Self-efficacy: a belief that one has the ability to achieve an effective outcome
3 Well-adjusted personality (according to Rogers): achieved when there is a good match between our ideal self, the person we would like to be, our self-image, the person we think we are, and our true self, the person we really, objectively are
4 Personality trait: a characteristic, stable way in which a person thinks, feels and behaves
5 Social cognitive theory: a theory that contends that personality by itself does not determine behaviour; that even if it is relatively stable, it only influences behaviour
6 Type A personality: characterised by quick and strong response to stress

Multiple-choice questions

1 D
2 B
3 C
4 C

Short-answer questions

1 The evidence for consistency in personality traits is mixed. Studies such as that of Pullman and her colleagues showed that approximately 80% of adolescents ranging in age from 12–18 showed similar personality profiles on the NEO Five-factorial Inventory after two years. On the other hand, Mischel (1984) showed that how we express

our personality may vary across situations. He found that students who were conscientious in one situation such as showing up to class on time might not be conscientious in other situations such as handing in an assignment on time.

2 Humanistic theories of personality have been criticised because some of their concepts, such as self-actualisation, are very vague, which makes it very difficult to study them scientifically. Other critics suggest that the characteristics of the self-actualised person given by theorists such as Maslow are simply lists of characteristics found in the theorist's heroes. A further criticism has been that the humanistic theories are over-optimistic and fail to take into account an individual's capacity for evil.

3 Reciprocal determinism is an explanation of human behaviour that considers it to be determined by the interaction of cognitive and environmental factors with behaviour. Bandura, who supported this position, noted that while we watch the behaviour of others and learn from the consequences of those actions (environmental factors), we are also influenced by conscious self-generated goals and standards (cognitive factors).

4 People with a Type C personality are considered to be passive, helpless and appeasing. Temoshok and his colleagues found that people with this personality type had a worse prognosis in malignant melanoma and suggested that bottling up emotions weakens a person's immune system and makes them more vulnerable to cancer. However, research by Price et al casts doubt on this conclusion as they found no relationship between breast cancer and personality type. This suggests that the link between Type C personality and melanomas needs further investigation to explain the reason for the association.

5

The Big Five factors in personality	
Trait dimension	**End points of the dimension (low to high)**
Openness to experience	Unadventurous --------- Daring
Conscientiousness	Lazy --------- Hard-working
Extroversion	Reserved --------- Affectionate
Agreeableness	Ruthless ------ Soft-hearted
Neuroticism (Emotional instability)	Calm --------- Anxious

6 One limitation that is considered common to both humanistic and psychodynamic theories of personality is that neither lend themselves to scientific investigation. Both contain concepts that are difficult or impossible to define operationally, such as self-actualisation (a humanistic concept), and repression (a psychodynamic concept). This makes it difficult to measure or manipulate them and hence to test hypotheses about them.

Chapter 7 review, p. 131

Terminology

1 Diffusion of responsibility: the assumed reduction in responsibility to provide assistance in an emergency if other people are present

2 Conformity: a change in behaviour and attitude as a response to group pressure

3 Self-serving bias: the distortion of facts to maintain self-esteem

4 Fundamental attribution error: a mistake, commonly made in trying to understand people's behaviour, of attributing what is seen to the person rather than to the situation

5 Informational social influence: the pressure on individuals when in strange situations to behave in the manner of those around them

6 Peer pressure: social influence from peers to think, feel or behave in certain ways

7 Social facilitation: improved performance due to the pressure of others

Multiple-choice questions

1 B
2 B
3 B
4 D
5 B
6 D

Short-answer questions

1 The relationship between arousal and performance looks like an upside-down U when plotted on a graph. People generally perform best at moderate levels of arousal. Their performance drops off when they are under or over aroused. However, level of arousal interacts with type of task to affect our performance. On simple tasks our level of performance is improved by being aroused, so having someone watch or compete against us is helpful. A boost in performance due to the presence of others is known as social facilitation. However, with complex tasks the presence of others as either observers or as people doing the same task often leads to over-arousal and hence worse performance. This is known as social inhibition.

2 The term bystander effect was coined to describe the situation that occurs when many people are present at or aware of an emergency but no one goes to help. Darley and Latane considered that this was due to diffusion of responsibility. If a person is alone, he or she accepts responsibility. If several people are present each assumes that one of the others will do something to help so he or she does not need to take responsibility.

3 Normative social influence refers to the fact that people are influenced by the groups they belong to, conforming to the standards of the group, its norms, so they do not stand out from other members. Friendship groups, in particular, exert strong social influence on the ways we dress, speak and behave. If we do not conform to group behaviour and break social norms we risk disapproval or even exclusion from the group.

4 Conformity involves changing behaviour in response to group pressure. Society requires that some conformity exists and standards accepted otherwise life would be completely unpredictable. Children are socialised into group norms and expected behaviours by parents and teachers. As we get older we tend to conform to the standards of groups we belong to in order to be accepted as part of the group. However, we often conform when we are with people we do not know well or in situations that are new to us. In these situations, we take our cues from the people around us. Research by Asch and other psychologists have found a number of factors that affect the extent to which we are likely to conform. These include group size and degree of unanimity. Conformity increases with group size up to four. However, unanimity is a more important factor. If others in the group are unanimous it is hard to stand out. Culture also affects degree of conformity. Highest levels of conformity are found in collectivist cultures and lowest levels in individualistic cultures.

5 When individuals are in groups with others who hold similar attitudes or beliefs, discussion within the group tends to strengthen opinions. This process is known as group polarisation. David Myers and George Bishop (1970) found that when students who were low in racial prejudice talked together about racial issues, their attitudes became even more accepting. However, when highly prejudiced students talked about the same issues, they became even more prejudiced. So, young men who are prejudiced against others for racial or religious reasons can become even more prejudiced when they talk, either face-to-face or on-line with others who hold similar views. This helps us to understand the processes that lead to actions such as joining ISIS.Terrorists are members of groups whose beliefs become stronger and more firmly entrenched as a result of discussion with like-minded people. Clark McCauley (2002, in Myers, 2007) noted that a terrorist mentality does not come out of thin air; rather, it arises when people with a shared grievance get together and talk in a group in which there are no moderating influences.

6 Attribution theory attempts to explain how a person responds to another's actions. Fritz Heider, who is usually regarded as the originator of attribution theory, considered that people have abilities, wishes and sentiments and can act purposefully. By using concepts such as intentionality, the inference of wishes and other mental states, Heider argued that perceivers make sense of a huge amount of behavioural data and attribute a cause for it. If a person who is bumped considers that the bump was intentional and the bumper wanted to hurt the other person, then they are likely to be upset and may react angrily. If, on the other hand, the person bumped considers that the bump was an accident, due to the bumper being distracted, for example, then they are likely to simply shrug it off.

9780170414180

Chapter 8 review, p. 147

Terminology

1 Stress: a state of physiological or psychological arousal that results from the individual's interpretation of stressors that can occur at an individual or world level
2 Consensual validation: an inherent need for the individual to know that the things they experience are experienced in the same way by others, counterbalanced by the group's need for the individual to validate the group's world view.
3 Sense of community (according to McMillan and Chavis): that sense of belonging, or attachment, to their community that people may have.
4 Community competence: the ability of the community to identify needs and issues, and work cooperatively to carry out plans and achieve goals.
5 Posttraumatic growth: the experience of positive change that occurs as a result of struggle with the new reality that a person faces after experiencing trauma.
6 Common symbol system (according to McMillan and Chavis): involves the use of dress, rituals and language, all of which are symbols, to indicate who is a member.

Multiple-choice questions

1 C
2 A
3 D
4 D
5 D

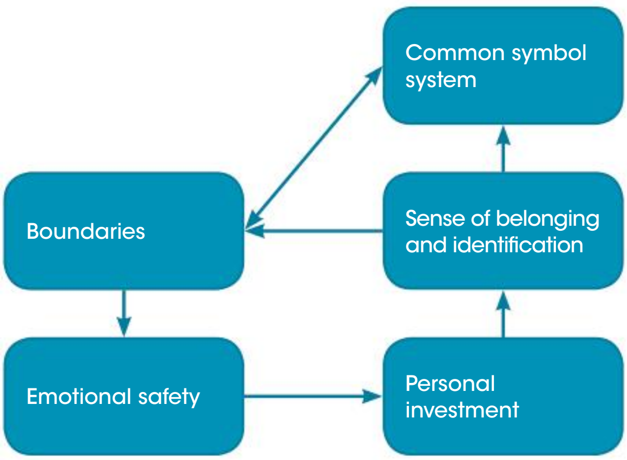
Short-answer questions and answers

1 If people live in a competent community and have a sense of community (have a strong sense of belonging and attachment to their community), the community is considered to be resilient. However, the effects of community resilience on outcomes following a disaster such as a bushfire are not direct as was shown by research by Pooley and her colleagues. The competence of a community and individuals' feelings of attachment to their community lead to them having an increased sense of self-efficacy and social networks. These, in turn, lead to reduced stress and increased growth.
2 Activities that contribute to the feeling of belonging to a group can be those that involve using a common symbol system such as language that is common to the group or participating in group rituals. This establishes boundaries for who belongs or doesn't belong to the group. Conforming to group values also strengthens group membership. Working together to achieve group goals is also likely to make membership of the group rewarding and the sharing of experiences, particularly if they have been challenging, is likely to lead to shared emotional connection to the group.
3 Event characteristics contributing to stress are predictability, controllability and the experience of threat or loss. All of these may be involved in a wedding. While weddings are usually well planned there may be unpredictable events such as the wedding car getting a flat tyre or the wedding cake being dropped. Control is also often out of the hands of the bride and groom, who may be stressed about what the best man may say in his speech if he has had too much to drink. While the bride and groom are usually looking forward to their lives together, they might also worry about whether much enjoyed outings with their same sex friends might be under threat.
4 The main features of PTSD are:
   - past experience of actual or perceived threats to life, violence or serious injury;
   - presence of distressing symptoms such as recurring memories, dreams or flashbacks;
   - persistent avoidance of any stimuli perceived to be associated with the original traumatic event;
   - negative changes in thoughts and mood associated with the traumatic event; and
   - changes in reactions and responses to stimuli associated with the event, such as angry outbursts without provocation, problems with concentration and sleep disturbance.
5 Young children, like adults may exhibit physical symptoms such as disturbed sleep, nightmares and restlessness; cognitive symptoms such as poor concentration and flashbacks; and emotional symptoms such as anxiety, guilt, and fearfulness. Some of these are due to the child's cognitive development not being at a stage where they can understand the cause of a traumatic event and may even think themselves to blame because they had not, for example, obeyed their parents.

   Young children may also regress in their behaviour: wetting the bed, thumb-sucking and being scared of the dark. They may also lose their trust in adults, who have not been able to protect them from the traumatic event.

6 Communities according to McMillan and Chavis all involve: membership, influence, integration and the fulfilment of needs, and shared emotional connection. Membership establishes boundaries that divide those who belong from those who do not and can be shown in different ways such as by how members of the group dress. Influence is a bi-directional concept. While individuals are attracted to become members of a community in which they have influence, community cohesiveness requires members to be prepared to conform. In order to persuade the group to go to see the show that you want to see, you might have to acknowledge that suggestions by other members are good, before putting forward your reasons for suggesting a different show. Integration and fulfilment of needs involves working together as a group to enable successful outcomes for all in the group. Research has shown that cooperation between group members who understand each other's strengths and weaknesses is likely to result in a better result and more satisfaction than work produced by individuals working competitively. Shared emotional connection is built up through shared history. This may involve activities such as training for a marathon together or working on a group project to raise money for underprivileged children – activities in which you share an emotional response.

7 The relationship between the five attributes of community membership are shown below:



Chapter 9 review, p. 172

Terminology

1 Scientific method: a process used to examine research questions. It starts with developing a testable hypothesis and progresses through data collection and analysis to drawing conclusions
2 Informed consent: approval to participate in research (or treatment) that is given by participants based on their knowledge of why the research is being conducted and what is involved
3 Sample: a sub-set of the population of research interest
4 Independent variable: in an experiment, the variable that is manipulated by the experimenter to determine its effect on another variable
5 Experimental group: the group of study participants who are exposed to the independent variable
6 Placebo: a dummy procedure or pill given as if it were a treatment, a pretend IV
7 Validity: the extent to which the results of an experiment reflect what is being measured
8 Cohort effect: the effect of an external event on a group of similarly aged people that may bias their behaviour
9 Case studies: intensive studies of individuals

Multiple choice questions

1	C	4	C
2	B	5	C
3	C	6	B

Short answer questions

1 An experiment is a test or trial to see how something works or what happens with something new. In Psychology (as in all sciences), experiments are conducted to test whether one thing, or a variable, influences or causes a change in another thing, or another variable. For example, one might be interested in finding out whether eating a lot of pizza (one variable) causes a change in a person's weight (a second variable). This is be a very simple cause-and-effect experiment which disregards all the other potential sources of weight change. Experiments can be much more complex than this with multiple variables.

2 Anonymity is the protection of people's identity through not disclosing their name or not knowing it. When we collect data in surveys, the people who complete our questionnaires often do not put their name or any other identifying information on them. These surveys are then said to be completed anonymously.

Confidentiality resides in the relationship between a professional like a psychologist, lawyer or medical doctor and refers to the degree of secrecy attached to the information given by the patient or client. These professional relationships are built and depend on trust, and confidentiality is a cornerstone legal and ethical concept in the establishment and maintenance of a therapeutic relationship. Confidentiality is derived from the relationship on the understanding that information given by a patient will not be disclosed to anyone, unless the patient consents to that disclosure. A similar provision applies to the collection of data in research particularly data on health conditions where there is the potential to identify participants.

Privacy is the right of protection from unwanted intrusion by government or other people into one's affairs. It refers to the collection, storage and sharing of personal information. Privacy laws in Australia protect any personal information you give to a medical practitioner. It relates to information about you and the laws refer to agencies, like government departments, and their responsibilities to maintain your privacy.

3 It is up to the researcher to explain to the participants what is involved in the research so they can freely choose to take part if they wish and that they understand that the benefits (to themselves or to others) outweigh any risks. In some rare circumstances, psychologists choose to hide the real reason for the research in order to reduce the likelihood that participants will behave differently. This is because participants know they are in an experiment and perhaps respond according to their interpretation of what effect the experimental manipulation should have on them. Participants are thus told the experiment is about X when the experimenter is really interested in Y. X is made plausible and so participants think it is about X so then it should have no effect on Y, the real variable of interest. For example, participants may be told an experiment is about group decision-making through the discussion of contemporary issues when it is really about prejudicial attitudes. Researchers must debrief the participants after the study and explain the real reason for the study and why deception was necessary. Nowadays it is not considered acceptable or ethical to cause distress to participants.

4 The seven steps in the research process are:

i Identify a research issue or problem to investigate: The decision about what topic or question to study and explore. Researchers arrive at research issues in various ways. Some will want to test a theory; others will want to develop an idea or theory or find answers to a practical problem or issue.

ii Develop the exact research question or hypothesis: The working out of a specific question for your exploratory research or the testing of a specific prediction. The latter is sometimes called the formulation of a hypothesis, that is, making a prediction about the relationship between two variables that can be tested. In scientific research, you make a prediction, based on previous work or a knowledgeable hunch, about what the results will tell you. The hypothesis is what you test in the experiment and is often something that has not been tested previously or has been tested but using a different method and/or participants.

iii Choose a research design and method: The process or processes you use to collect data. You can choose to do this by experiment, observation, survey, interview or rating scales. The design and method will often be guided by a consideration of what type of data best suits the research question and sometimes will involve a combination of methods such as interview followed by an experiment.

iv Collect data: The gathering of evidence. You can do this through observation, questionnaire, interviews, recording physiological responses or reaction times, or examining archival files. Often a pilot study is conducted to check that the method chosen is the one that provides the data that are useful to answer the research question.

v Examine the evidence: Data analysis and summarising. This may involve the use of simple and/or complex statistical techniques to manipulate the numerical data obtained. If the data are verbal they may be able to be converted to numerical data for analysis; otherwise they can be analysed using qualitative techniques such as content analysis which uses word or phrase frequencies in respondents' answers as key ways of determining important terms and concepts.

vi Interpret the results: Examine the meaning of the findings. Do they support your hypothesis or answer your questions? To whom do your findings apply? Do they suggest directions for further research?

vii Communicate the findings: The reporting and explanation of the findings. Scientists communicate their findings both by writing (reports or journal articles) 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 as well as the general public and other interested parties.

5 Hypothesis testing: this answer requires reproduction of Figure 20.5

6 A common way of studying developmental change is with the longitudinal research design in which children are repeatedly observed or assessed over a number of years. Coupled with new, sophisticated statistical techniques, this method can tell us a lot about developmental pathways and what behaviours or skills predict later outcomes. Longitudinal studies however are difficult to conduct; they are expensive and require complex ways of tracking children so they can be observed, say, annually. There is a tendency for children to drop out because they move away, their parents lose interest or they become ill. There is also the possibility that children learn how to give the correct answer to any questions they are asked when they are questioned repeatedly.

7 The experimenter effect is when a researcher's own personal variables as well as his or her expectations and behaviours that may bias results due to inaccurate observation, recording or interpretation of the data, or simple bias in the way the experiment is presented to the participants. To counter this, it is common practice for researchers to acknowledge any such expectations and potential biases and to put in place strategies to minimise these through physical and emotional distance from the study, as far as possible. This is easier in experimental studies than in qualitative, interview studies but a detached stance should be the adopted style of a researcher.

8 Objective quantitative measures are generally physiological responses and include things such as brain waves, heart rate, body temperature and electrical conductivity of the skin. They would be used in preference to subjective quantitative methods such as surveys and rating scales when researchers wish to measure states of unconscious mental functioning (which cannot be measured by asking questions). Different patterns of physiological responses are associated with different states of consciousness. We can measure brain waves during sleep to find out more about sleep patterns and heart rate/pulse during exercise to find out more about levels of exertion.

9 There are three types of interview techniques that psychology researchers can use. Researchers may use a combination of these in the one interview.

i Structured interviews involve predetermined questions in a pre-set order with fixed wording. It differs from a face-to-face survey only in the use of open-response questions in the structured interview.

ii Semi-structured interviews involve predetermined questions, but the order of asking them can be varied by the researcher depending on the circumstances and the answers that are being elicited. Wording of questions can be varied and explanations given if needed. Questions can be omitted or even new ones added if required.

iii Unstructured interviews involve a conversation around the researcher's general area of interest. It is informal and casual but often in-depth.

10 Surveys provide quick answers about people's attitudes to, and preferences for, various goods and services, and are often used to provide feedback to providers of goods and services so that they can plan their marketing strategies. Quick surveys are a popular marketing tool. Unlike quick surveys, large-scale psychology surveys take time to prepare and implement, because they involve careful planning and decision-making, well-organised implementation, and coding and analysis. These types of surveys are almost exclusively questionnaires with fixed-choice answers

Chapter 10 review, p. 188

Terminology

1 Mode: the most frequently occurring score in a set of data

2 Graph: a way of displaying data visually

3 Variance: the spread of variables around the mean in a set of data

4 Probability: the chances that a particular outcome will occur under a particular set of circumstances.

5 Snowball sampling: the researcher identifies particular individuals of interest ('informants') who are interviewed, and who then provide names of others of interest in the population who may consent to being interviewed for the study, also called purposive sampling
6 RCT: randomised control trial in which participants are randomly allocated to the experimental or control group and the experimenter does not know which.

Multiple choice questions

1	A	**4**	D
2	B	**5**	C
3	A	**6**	C

Short answer questions

1 Ways of displaying data include frequency tables, graphs (bar charts and histograms), and frequency polygons.
2 The standards deviation is the square root of the variance, and represents the average amount by which scores differ from the mean. It is calculated as follows:
The variance can be represented as SD^2 or the standard deviation squared. It can be represented in the following formula:

$$SD^2 = \frac{\sum(X - M)^2}{N}$$

Where X is each score and M is the mean, so $X - M$ is the score minus the mean, then each calculation is squared (^{2}) and finally added together (Σ). This is then divided by N, the number of scores.
The SD is the square root of the variance, as follows:

$$SD = \sqrt{SD^2}$$

3 Statistical significance is the comparison between the distribution of the collected scores and that of the wider (and possibly only assumed) population. If the results are more extreme (at either end of the distribution) than those assumed by a normal curve or by chance, then we conclude that our results are statistically significant. Statistical significance is also used to indicate whether a difference between the results for the experimental group and the control group is real, that is, due to the independent variable and not simply due to chance.
4 The placebo effect is where patients who take inactive substances or undergo useless procedures may feel much improved, provided that they do not know that the treatment is fake. In these cases, it is likely that the person's belief in the treatment has led to an improvement in symptoms. The placebo effect is not just due simply to psychological processes. It has been shown that if the use of a placebo reduces a person's anxiety, then physiological changes occur in the body, with heart and lungs returning to normal functioning and natural immune responses increasing.
5 In a randomised control trial (RCT), participants are randomly allocated to the experimental group or to the control group and the experimenter as well as the participants are blind to the allocation. The argument for RCTs is that they provide the best evidence for the effectiveness of an intervention, for example, an experimental drug or procedure. RCTS often regarded as the 'gold standard' in research, particularly medical research.
6 Evaluation of research can take place when grant applications are assessed, journal articles are reviewed and research outcomes are assessed, usually by other members of the research community. Such peer review focuses on evaluating four aspects of the research:
–the aims and significance of the work
–the research method and design
–the analysis and interpretation of the data
–the discussion, implications and applications of the research.

Glossary

This glossary contains definitions of technical terms used in psychology. Some of them you may recognise as everyday words having commonly understood meanings. Where this is the case, we have explained their use and meaning in psychological research and practice.

abstract thinking
thinking that does not rely on being able to see or handle concrete materials in order to be able to reason about them

accommodation
changing schemas to include new experiences and information that cannot fit into existing schemas

adrenal glands
glands that secrete the adrenaline and noradrenaline that speed up reactions to danger

agents of socialisation
factors that affect the beliefs, values and behaviours that are thought to be important and appropriate to function effectively as a member of human society

amnesia
memory loss (either partial or total)

anonymity
when a research participant remains nameless

archival research
the examination of old material and data

assimilation
a process by which individuals include new experiences and information in their current schemas

attachment
a close emotional bond with a parent or caregiver

attribution theory
how people infer the reasons behind the behaviour of others

authoritarian parenting
a style of child-rearing in which parents demand obedience

authoritative parenting
a style of child-rearing in which parents are warm and responsive to their children while still setting limits

behaviourist
a psychologist who use stimulus–response models of learning

behaviour modification
the application of classical and operant conditioning techniques to human behaviour and learning

behaviour therapy
the use of behavioural techniques, such as operant conditioning, to change a person's behaviour

bystander effect
the tendency for a person who is present in an emergency to be less likely to help if other people are present

central nervous system (CNS)
the brain and spinal cord

chunking
the combining of material into meaningful groups to aid memory

classical conditioning
the learning of behaviour through the repeated association of two events (stimuli)

classify
to group objects or events by features they have in common

cognitive dissonance
the feeling of tension when holding two conflicting views or opinions

cohort
a group of people who have some aspect of their lives, such as age, in common

cohort effect
the effect of an external event on members of a particular group that could bias their behaviour

communication style
the cultural and social aspect of language; it involves accents, vocabulary, grammar and ideas being expressed

community competence
the ability of a community to identify needs and issues, and work together to carry out plans and achieve goals

concrete operational stage
the period between the ages of 7 and 11 years when children can think logically if dealing with concrete materials

confidentiality
the right of people to have information that is disclosed in a professional relationship kept within that relationship

conflict
the behaviour that occurs when two parties perceive that they have incompatible goals, ideas or behaviour

conformity
a change in behaviour and attitude in response to group pressure

consensual validation
validation that occurs when the individual's experiences are validated by the group and the group's world view is validated by the individual

conservation
the understanding that an object does not change its weight, mass, volume or area simply because it changes shape

contralateral
the opposite side

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

conventional morality
moral reasoning that is based on social rules and the need to obey social rules and laws

correlational study
a study that examines the relationship between different variables

counselling
support in working through a problem, provided to an individual or group by a professional

cross-sectional methods
methods of study that compare groups of people with different characteristics at one point in time

decay
the fading of memory over time

deception
in a psychological study, intentional non-disclosure to participants of the real reason for psychological research prior to their involvement in it

declarative memory
the 'what' of remembering

diffusion of responsibility
the assumed reduction in responsibility to provide assistance in an emergency if other people are present

dispositional attribution
see internal attribution

disproportionate sampling
the oversampling of small, sometimes rare groups to ensure that there is at least some representation of that group in a study

distributive solutions
solutions to problems that end in compromise

echoic memory
the sensory register for sound, held for 3 to 4 seconds, long enough for encoding for storage to begin

egocentric
inability to see things from another person's point of view; also known as egocentric viewpoint

elaborated code
language using complex, precise sentences

elaborative rehearsal
the use of strategies that associate material to be remembered with other retained information

episodic memory
memory for past personal events

experiment
a research method to test a hypothesis

experimental group
the group of study participants that is exposed to the independent variable

experimenter effect
the effect observed when an experimenter's actions affect how the participants in a research respond; most likely to occur if the members of the experimental and control groups are treated differently

explicit memory
see declarative memory

external attribution
the attribution of a person's actions to external factors in the situation or environment

extinction
the most common way to extinguish a conditioned response by presenting the conditioned stimulus repeatedly without following it with the unconditioned stimulus

forebrain
the largest and most-highly developed part of the brain

formal operational stage
the period from approximately 11 years onwards when individuals are capable of abstract and logical thinking

formats
routines used to assist language development

frequency polygon
a type of graph that looks like a line graph but is only used to show information about frequency; the line is drawn to zero on the *x* axis at each end to form a polygon

frequency table
a way of summarising how often a measure occurs in a dataset

fundamental attribution error
a mistake, commonly made in trying to understand people's behaviour, of attributing what is seen to the person rather than to the situation

graded exposure
the use of situations of increasing intensity to assist people to overcome fears and phobias

graph
a visual representation of data

group polarisation
the strengthening of attitudes in individuals when they are in groups of people who hold similar attitudes

hardiness
quality demonstrated by an individual who responds positively to stressors

hindbrain
part of the brain at the back of the skull made up of the medulla and cerebellum

hormones
chemical messengers produced by endocrine glands

humanistic theories of personality
theories based on the belief that humans try to reach their potential throughout their lives

hypothalamus
controls the internal environment of the body through the regulation of various hormones and influencing basic needs behaviours, such as thirst, hunger and sleep

hypothesis
proposed explanation based on limited evidence as a starting point for research

iconic memory
the sensory register for visual information, such as shape and colour

identity formation
the development of our long-lasting personality characteristics

implicit memory
memory for something that has been learned without conscious effort

imposed solutions
solutions to problems that are dictated by a third party

informational social influence
the pressure on individuals when in strange situations to behave in the manner of those around them

informed consent
approval to participate in research, assessment or treatment that is given by participants or clients based on their knowledge of why the procedure is being carried out and what is involved

integrative solutions
'win–win' solutions, with successful outcomes for all parties involved

interference
a process by which other memories interfere with the recovery of the material to be retrieved from memory

internal attribution
the attribution of a person's actions to internal dispositions (attitudes, personality, motives)

ipsilateral
the same side

joint attention
sustained eye contact between a parent and a child, or a parent and a child and an object, to encourage language development

law of effect
a law proposed by Thorndike that states that animals learn responses when they find the consequences rewarding and drop other responses for which they are punished in some way

limbic system
an interconnected group of forebrain structures

logical thinking
the process of working systematically through problems, developing hypotheses and testing them until a solution is found

longitudinal methods
methods of study that follow the development of one group of people over time to look for changes

longitudinal–sequential design
a research design that combines features of both the cross-sectional and longitudinal designs; groups are followed over a long period of time, but at each measurement point a new group is added that is the same age as the first group at the first measurement point

maintenance rehearsal
the use of rehearsal or repetition of information to retain it for immediate use

maternal deprivation
refers to the state of a child after separation from or loss of the mother

mean
the average score; the sum of all scores in a set of data divided by the total number of scores

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

mediation
the process in which a third party helps two parties that are in dispute to reach voluntary agreement

memory
the internal record of some previous event or experience

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

minor
a person legally considered to be under a specific age

mirror-image perception
identical distorted perceptions about the other party when two parties are in conflict

mode
the most frequently occurring score in a set of data

modelling
see observational learning

monotropy
attachment as a close bond with just one attachment figure

motivated forgetting
forgetting that arises because we do not want to recover the memory or material

negative punishment
removal of a pleasant stimulus

negative reinforcement
the removal of an unpleasant outcome after a behaviour to cause it to occur more frequently

negotiation
the process by which parties that have some shared and opposing interests come together to try to reach an agreement

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

normal distribution
a bell curve that has the same slope upwards and downwards

normative social influence
the pressure on an individual to change their behaviour to conform to group standards in order to be accepted by the group

null hypothesis
the prediction that there is no difference in measures between the groups being compared

obedience
changing behaviour in response to instruction or direct request by an authority figure

object permanence
the concept gained by infants that an object continues to exist even when it cannot be seen

observational learning
learning through watching others and copying their behaviour; sometimes called modelling or imitation

operant conditioning
the learning of behaviour through its association with reward or punishment

operational hypotheses
predictions to a proposed research question that guide the study; the relationship is stated in specific terms that are operationally defined

parasympathetic nervous system
manages normal day-to-day living and maintains normal bodily functions

peer pressure
social influence from peers to think, feel or behave in certain ways

peers
people who interact with us on fairly equal terms; people with similar status, of a similar age and with similar interests

peripheral nervous system (PNS)
all the neurons in the body except the CNS

permissive parenting
a style of child-rearing in which parents are accepting of their children but set few rules or guidelines

personality
the characteristic ways of thinking, feeling and acting that make a person an individual

personality trait
the stable forms of behaviour that people display in various situations

personality type
a cluster of personal characteristics that are considered by type theorists to be stable

pituitary gland
a gland that is necessary for normal growth and development

placebo
a neutral substance or procedure that looks like a real substance or procedure that is being evaluated, and which is delivered in a similar way

placebo effect
positive effects following a placebo treatment due to the belief that it will lead to improvement in symptoms

population
the group of people to whom the findings from a research study apply

positive punishment
aversive consequence of behaviour that causes it to occur less frequently

positive reinforcement
a positive consequence that causes a behaviour to occur more frequently

postconventional morality
moral reasoning that depends on principles of justice that are beyond conventions and which could be in conflict with the law

post-traumatic growth
positive change as a result of a struggle with the new reality that a person experiences after a traumatic event

post-traumatic stress disorder (PTSD)
a severe and continuing reaction to the trauma of experiencing actual or perceived threats to life, violence or serious injury

preconventional morality
moral reasoning that only considers the consequences of behaviour for the individual; there is no internalisation of society's conventional ideas of right and wrong

pre-operational stage
the period between 2 and 7 years of age during which children perceive the world from their own standpoint and are unable to carry out the mental operations to think logically

privacy
the right of people to have information about themselves kept private

proactive interference
when information previously learned interferes with new learning in the memory

procedural memory
the 'how' of remembering

proportionate sampling
samples that are different in size according to the representation of the groups in the general population

psychosocial crises
the developmental crises through which an individual must pass in adjusting to society according to Erikson's theory

puberty
the time of sexual maturation

qualitative method
a research method that uses data that is not expressed in numbers and so cannot be analysed statistically

randomised controlled trials (RCTs)
an experiment in which participants are randomly allocated to the experimental group or to the control group

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

rapport talk
a type of talking designed to establish and maintain relationships

recall
retrieving information from memory without any prompts or cues

reciprocal determinism
an explanation of how a person's behaviour is both influenced by and influences the environment (and includes personal factors such as thoughts and feelings)

recognition
retrieving information from memory from a number of alternatives provided

reference
the use of language or non-linguistic means to manage and direct the attention of others

relearning
a technique used to test memory by seeing whether a person learns information that has previously been taught more quickly on a second occasion

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

repeated measures design
the same people are exposed to both experimental and control conditions, and their results compared as 'before' and 'after' some intervention or manipulation

report talk
the type of talking used to gain and hold public attention

representative sample
in a study or experiment, a group that shows the same characteristics as the larger population to which the research findings are applied

resilience
the capacity to act positively in the face of difficult or traumatic circumstances

restricted code
language using short and simple sentences

retrieval failure
inability to locate or recover stored memories

retroactive interference
when new information interferes with what has previously been learned

sample
in a study or experiment, a group that is a subset of the population (a larger group) being studied for research purposes

scaffolding
a framework to support learning

schedule of reinforcement
reinforcement that is provided at fixed intervals (say every two minutes), at fixed ratios (say after every tenth lever press), or at variable intervals or variable ratio

schema
an idea or understanding about what something is and how to deal with it

scientific method
a process used by scientists to examine research questions; it starts with developing a testable hypothesis and progresses through data collection and data analysis to drawing conclusions

self-actualisation
living up to one's potential

self-efficacy
a belief that one has the ability to achieve an effective outcome

self-serving bias
the distortion of facts to maintain self-esteem

semantic memory
memory about the world, facts and information

semi-structured interview
an interview in which there are predetermined questions, but the order of asking them and the wording can be varied by the researcher

sense of community
feeling of belonging or attachment to one's community

sense of identity
an understanding of the nature of the self as distinct from others in terms of enduring personality characteristics

sensori-motor stage
the period between birth and 2 years of age during which infants understand the world through their senses and physical interactions with their world.

seriate
to order objects with respect to common properties

single case design
the use of a single person in a study of behaviour change

situational attribution
see external attribution

snowball sampling
a way of selecting participants for a study that involves a researcher identifying particular individuals of interest ('informants'), who are interviewed and who then provide the names of others of interest in the population

social cognitive theory
states that personality by itself does not determine behaviour and only influences behaviour

social facilitation
improved performance due to the presence of others

social inhibition
reduced performance due to the presence of others

socialisation
the process whereby beliefs, values and behaviours are acquired that are thought to be important and appropriate to function effectively as a member of society

social learning
learning through the observation of another's behaviour, particularly social behaviour

social psychology
the scientific study of the nature and causes of individual behaviour in social situations

stage theories
theories proposing that development progresses in discrete, qualitatively distinct steps or stages that are reached in a set order

standard deviation (SD)
the square root of the variance, used by psychologists to describe the spread of measures around the mean

statistical significance
a value used to indicate whether differences between the mean scores in sets of data for groups being studied are real or due to chance

stimulus generalisation
where a stimulus similar to the conditioned stimulus produces the conditioned response

stimulus–response
the relationship between an event or action and the subsequent response

stratified random 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 (for example, males and females)

stress
a state of physiological or psychological arousal that results from an individual's interpretation of stressors

structured interview
an interview in which predetermined questions are asked in a preset order with fixed wording

survey
a questionnaire given either face-to-face or in written form to collect information

sympathetic nervous system
arouses the body to perform, act and react

synaptic transmission
chemical transmission of signals between neurons combined with electrical transmission of signals along neurons

systematic desensitisation
the application of classical conditioning to reduce fears and phobias

thalamus
acts as a filter for messages from sensory organs (except the nose) to the appropriate area of the brain (such as from the eyes to the vision centres in the brain)

thyroid gland
a gland that produces a hormone necessary for the brain and nervous system to develop

token economy
a system in which a person is given a token in return for desired behaviour; a certain number of tokens can be exchanged for an agreed-upon reward

unconditional positive regard
accepting people for what they are without any expectation of change

uncontrolled variable
a variable that is allowed to stay random because it is predicted to have no effect on the outcome of an experiment

uninvolved parenting
a style of child-rearing in which parents do not set limits, enforce behaviour nor show interest in their children

unstructured interview
an in-depth but informal conversation that develops around a researcher's general area of interest

validity
the extent to which the results of a study reflect what the measurement instrument says it is measuring

variance
the spread of variables around the mean in a set of data

voluntary participation
taking part in research studies without being pressured or coerced

well-adjusted personality
a personality in which there is a good balance between one's ideal self and one's true self

withdrawal
participants' rights to remove themselves from a research study at any time without penalty or disadvantage and without having to give a reason

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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.

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