Pamoja Student Guide to IB Psychology

Chapter 1: Approaches to Understanding Behaviour

ⓘ Chapter Outline

The Nature of Psychology and the IB Psychology Course

1. What is Psychology?
2. What is IB Psychology?
3. The Core
4. The Options
5. Examples of Research

> **Essential Questions**
>
> - What is psychology?
> - Why does psychology take different approaches to understand behaviour?

Myths and Misconceptions

Psychology helps people with mental problems

Studying psychology over the next two years you will help you realise that psychology is everywhere. The subject is diverse and helping people with mental disorders is only one aspect of this science. Other topics include developmental psychology, sports psychology, health psychology, the psychology of human relationships and organisational psychology. (See the American Psychological Association - http://www.apa.org/action/science/index.aspx for a description of the major branches of the subject.)

We only use about 10% of our brains

Modern research has debunked (debunked = shown to be false) this popular idea that we do not make full use of our brains. See this article from Medical News Today: How much of our brain do we actually use? Brain facts and myths.

Everything we experience is recorded in our brains

We do not replay a recording of events when we wish to recall events or information. Research demonstrates that we reconstruct the past. Our memories are not fixed recordings of our lives.

An Inspiring Story

In 2012, a young girl and her friends were travelling home from school on their school bus when there was a sudden bang and one of the girls fell to the ground. The other girls turned and saw a man with a mask.

What do you think happened to the girl? Why was she attacked?

As you read the story, what image did you have of the girl and the environment? Was it in your town or another town in your country? What conclusions did you arrive at? What other information would you have liked?

This story is actually one of Malala Yousafzai.

On 9 October 2012, Malala and her friends were travelling home from school when a masked gunman boarded their bus and fired a single bullet. It passed through Malala's head, neck and shoulder. Malala survived this attack.

In 2012, Malala Yousafzai and her friends were travelling home from school when a masked gunman boarded their bus and fired a single bullet. It passed through Malala's head, neck and shoulder. Malala survived this attack.

Why had terrorists tried to kill her? Did the gunman object to her belief girls had the right to an education? Was her death ordered because she wrote a blog about her life in Pakistan or because she received Pakistan's first National Youth Peace Prize?

Malala was not intimidated, and she set up the Malala Fund to support international efforts to educate girls.

In December 2014, Malala accepted the prestigious Nobel Peace Prize; it's youngest ever winner.

Malala's experiences – her campaign to educate girls, her attempted killing, her recovery and her later fame – raise many questions.

Can psychologists explain why she challenged powerful people who opposed her beliefs on education? Are there psychological theories about the role of family and social and cultural environments to explain her actions? Can psychologists make sense of the violent behaviour of her attacker? Did your image and impression of the way you pictured the story change? All these questions are explored in Psychology and as you study psychology over the rest of the course think back on Malala's inspiring story.

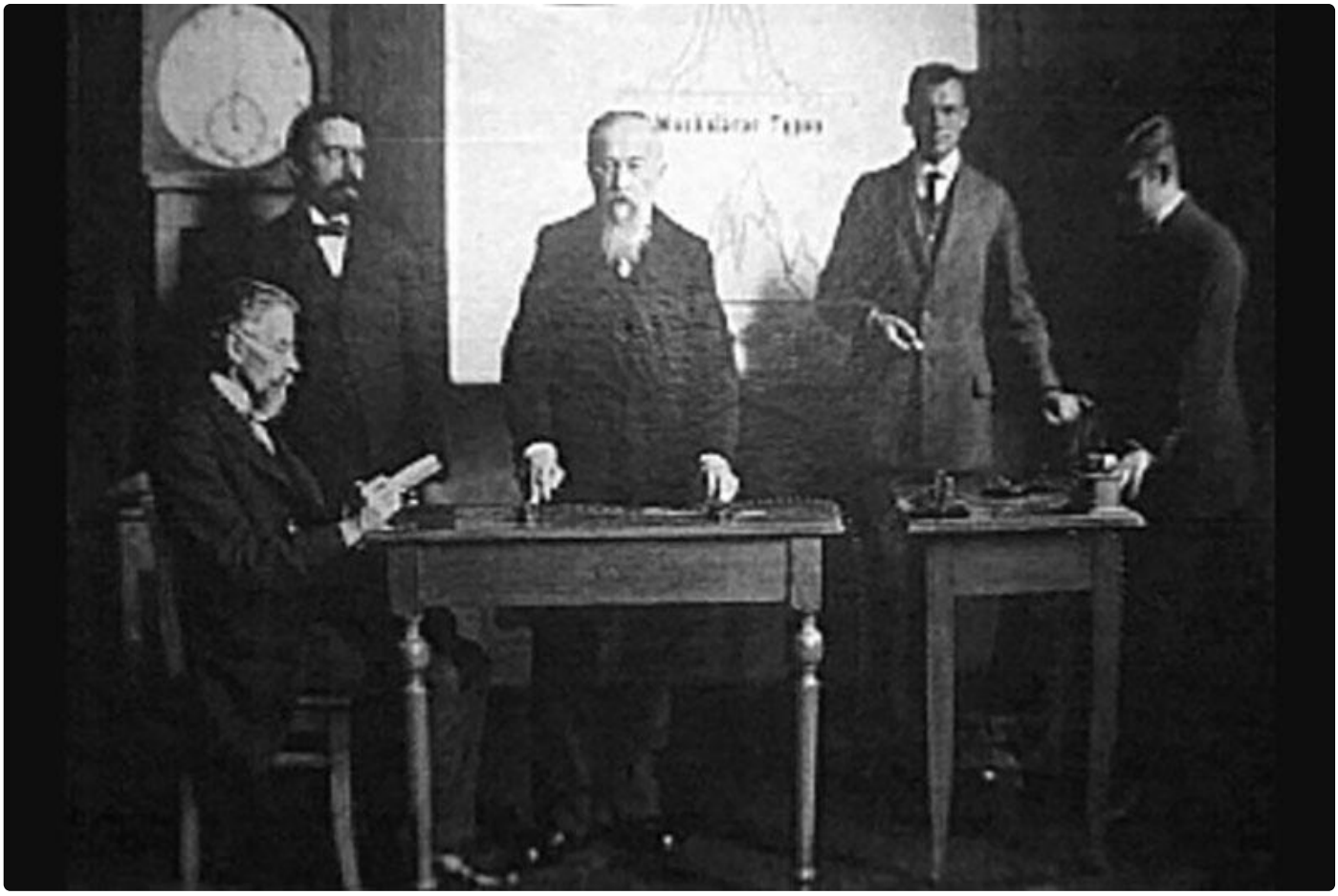
Source: https://www.malala.org/malalas-story

1. What is Psychology?

Psychology is the scientific study of mental processes and behaviour. Compared to philosophy and physics, psychology is a relatively new subject with William Wundt credited with opening the first laboratory in 1879.

Since then, psychologists have asked questions about why people behave the way they do. Does our brain control our behaviour? How similar are we to our parents? Are we social beings who need others to live?

Psychologists use scientific methods to answer these and hundreds of other questions. They investigate people's biology, their thoughts and their social and cultural environments. To do this they use a variety of techniques from brain imaging technologies like MRI scans to conducting experiments in laboratories, field studies, interviews and observing people as they carry on in their daily activities. Psychologists are keen observers of behaviour and skilled at asking people about their thoughts and actions. The knowledge generated can bring positive changes to people's lives.



William Wundt (centre) in his laboratory

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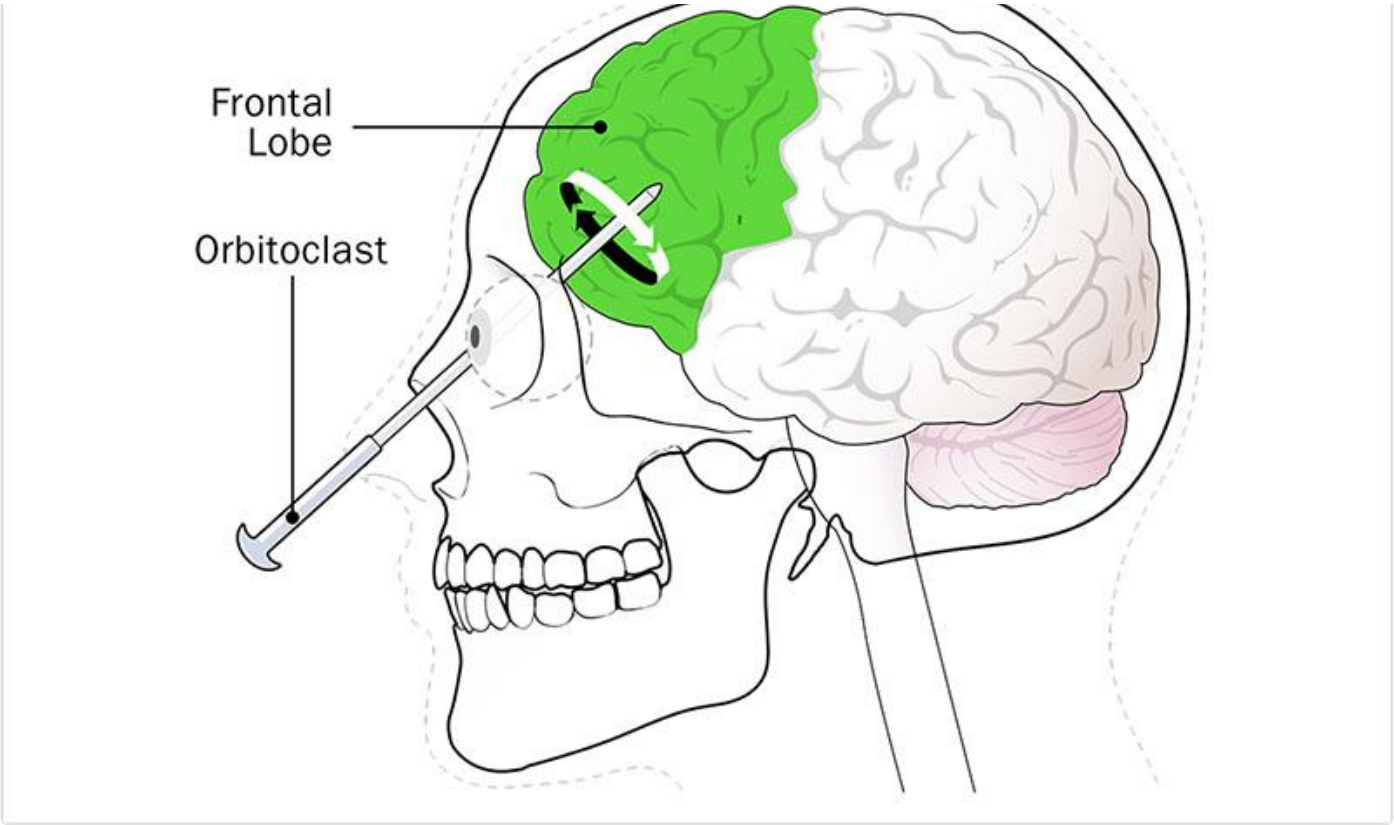
2. What is IB Psychology?

Psychology has come a long way since the days of Wundt. We no longer believe personality is determined by the shape of the skulls or mental illnesses can be treated by removing parts of the brain.



Examples of lobotomy (removing parts of the brain)

Phrenology (the study of the shape of the skull)

Human behaviour is extraordinarily complex and no one approach can explain it all. Modern psychology, therefore, takes various approaches in researching behaviour and that is reflected in the syllabus of the IB

Psychology Course.

The IB Psychology Course

Your first major topic in the course is *Approaches to Research.* Understanding how psychologists generate knowledge acts as a foundation for your study of the *Core* and the *Options.* The ethical treatment of animals and humans is an important consideration.

Syllabus components

Core

Biological approach to understanding behaviour

- the relationship between the brain and behaviour (SL and HL)
- hormones and pheromones and their effects on behaviour (SL and HL)
- the relationship between genetics and behaviour (SL and HL)
- the role of animal research in understanding human behaviour (HL only)

Cognitive approach to understanding behaviour

- cognitive processing (SL and HL)
- reliability of cognitive processes (SL and HL)
- emotion and cognition (SL and HL)
- cognitive processing in a technological (digital/modern) world (HL only)

Sociocultural approach to understanding behaviour

- the individual and the group (SL and HL)
- cultural origins of behaviour and cognition (SL and HL)
- cultural influences on individual behaviour (SL and HL)
- the influence of globalization on individual behaviour (HL only)

Relevant to all the topics are:

- the contribution of research methods to understanding human behaviour
- ethical considerations in investigations of human behaviour

Approaches to researching behaviour

- Research methods
- Elements of research behaviour
- Analyzing data
- Evaluating research
- Drawing conclusions

Options

Abnormal psychology

- factors influencing diagnosis
- etiology of abnormal psychology
- treatment of disorders

Psychology of human relationships

- personal relationships
- group dynamics
- social responsibility

Applicable to all three topics within the options

- The integration of biological, cognitive, and sociocultural approaches to understanding behaviour
- Research methods used to understand behaviour
- Ethical considerations

Internal assessment

- Experimental study

Animal research in a laboratory

Bringing positive changes to people's lives is the focus of the *Options*. SL students study Abnormal Psychology. HL students study Abnormal Psychology and the Psychology of Human Relationships.

As you can see in Tables 1.1 and 1.2 below, the approaches are studied one after the other. However, all of these approaches contribute insights into understanding behaviour and you should take a holistic perspective (holistic = emphasising the importance of the whole).

Semester	Component
Semester 1	Introduction Approaches to researching behaviour Biological approach to understanding behaviour
Semester 2	Cognitive approach to understanding the behavio Sociocultural approach to understanding behavio End of Year Exam
Semester 3	Internal Assessment and Abnormal Psychology
Semester 4	Abnormal Psychology and the Trial Exam

Table 1.1 SL Syllabus

Semester	Component
Semester 1	Introduction Approaches to researching behaviour Biological approach to understanding behaviour Cognitive approach to understanding behaviour
Semester 2	Cognitive approach to understanding behaviour Sociocultural approach to understanding behavio Abnormal Psychology End of Year Exam
Semester 3	Internal Assessment and Abnormal Psychology
Semester 4	The Psychology of Human Relationships

Table 1.2 HL Syllabus

Approaches to Researching Behaviour

Psychologists use both quantitative and qualitative approaches to researching behaviour. Each approach has its advantages and limitations which must be considered when evaluating how a research study contributes to the understanding of behaviour. Asking questions, challenging assumptions and critically assessing the methods used by researchers are important skills.

An understanding of approaches to research is also important for your internal assessment task as you will be required to design, conduct, analyse, draw conclusions and evaluate your own experiment.

Only HL students will be directly assessed on the understanding of approaches to research in paper 3.

Topics of Approaches to Research Behaviour

- Research methods
- Elements of research behaviour
- Analysing data
- Evaluating research
- Drawing conclusions

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3. The Core

Biological Approach to Understanding Behaviour

Psychologists taking the Biological Approach explain behaviour by examining physiological and evolutionary causes. They look for correlations between what is going on in our bodies with what we are doing. Using brain imaging technologies, these psychologists map the brain's structure and investigate how the brain and its billions of neural networks can change through experience. How hormones and neurotransmitters influence behaviour is another avenue of research. Other topics within this approach include how genes shape our individual lives and how evolution provides the broad contours of our journey through life. Biological psychologists have added tremendously to our understanding of people's thoughts and actions but they acknowledge biology cannot explain all of our behaviours.

Psychologists taking a biological approach adopt research methods linked to their assumptions about how biology shapes people. As you study this approach, you will read experimental reports and case studies that investigate the brain, neurotransmitters, hormones and genes. Brain imaging technology has helped psychologists make remarkable strides in mapping the individual organs of the brain and understanding how the brain works as an integrated whole to direct behaviour. New thinking about the plasticity of the brain has overturned earlier ideas the brain was a static organ that changed little over the lifespan. Surprising new insights are emerging about the staggeringly complex ways that genes and the environment interact. Evolutionary psychologists take a broader approach to understanding behaviour by claiming many human activities evolved because they helped our ancestors survive and reproduce. Animal experimentation is also undertaken by biological scientists.

The content of the Biological Approach

- Techniques used to study the brain in relation to behaviour
- Localization of function
- Neuroplasticity
- Neurotransmitters their effects on behaviour
- Hormones and their effects on behaviour
- Pheromones and their effects on behaviour
- Genes and their effect on behaviour
- Genetic similarity
- Evolutionary explanation for behaviour
- The role of animal research in understanding human behaviour (HL only)

> Ask yourself
>
> - Are you surprised that psychology focuses so much on biology?
> - Can we really learn about human behaviour by studying how rats run a maze or how chimps learn sign language?
> - How could this approach help make sense of Malala's experiences?

Cognitive Approach to Understanding Behaviour

Instead of examining the brain or genes, cognitive psychologists explore mental processes, such as

memory, attitudes, perceptions, attention and thinking. Cognitive psychologists examine how we process the information we receive through our senses, and how we represent and think about the world.

Cognitive research methods focus on how mental processing affects different behaviours. The human mind is compared to a computer that processes raw data to create something infinitely more complex. Models of these mental processes explain memory, attitudes and perception and have produced many insights into behaviour. Cognitive neuroscientists use methods similar to the biological approach and include brain scanning techniques and experimentation. Emotions, as well as biases in thinking and decision-making, can also affect behaviour and these are also explored in this approach.

The cognitive approach interacts with the other perspective to develop a holistic picture of complex human behaviour.

The content of the Cognitive Approach:

- Models of memory and concepts related to memory processing
- Schema theory
- Thinking and decision-making
- Reconstructive memory
- Biases in thinking and decision-making
- The influence of emotion on cognitive processes
- Cognitive processing in a technological (digital/modern) world (HL only)

> Ask yourself
>
> - Can we really study the mind objectively?
> - How can models make assumptions about invisible mental processes?
> - How could this approach help make sense of Malala's experiences?

Sociocultural Approach to Understanding Behaviour

Psychologists taking the sociocultural approach assume that behaviour is best understood in its social and cultural context. Our lifelong interaction with family, friends and the wider world is the focus of investigations. In this way, you can see that the sociocultural approach moves away from the individual brain and mind to look at people as they affect and are affected by others. Our upbringing, our education, our geographical and historical context and how we interact with each other in daily social activities shape how we think and behave. Being a member of a larger group can affect individual behaviour and also the development of our identity. This approach does not dismiss biological and cognitive inputs into behaviour but sees them as just part of the larger picture.

The research methods of the sociocultural approach are focussed on social and cultural environments. Investigators undertake observations under real-life conditions, set up focus group interviews, and use any method that allows the researcher to see the world through the eyes of those being studied. These methods

are not always controlled experiments as the goal is understanding the meaning of human behaviour in its social context.

The content of the Sociocultural Approach:

- Social identity theory
- Social cognitive theory
- Stereotypes
- Culture and its influence on behaviour
- Cultural dimensions
- Enculturation
- Acculturation
- The influence of globalisation on individual behaviour (HL only)

> **Ask yourself**
>
> - How do you think your culture influences your behaviour?
> - What are the difficulties in carrying out research in Social Psychology?
> - How could these approaches help make sense of Malala's experiences?

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4. The Options

Abnormal Psychology

Abnormal Psychology builds upon your knowledge of *Approaches to Research* and the *Core*. You will analyse how insights generated by these approaches relate to the diagnosis, explanation and treatment of abnormal behaviour. There is no accepted definition of what makes an action abnormal, and factors such as social norms, changes over time and culture have influenced clinical definitions. The disputed nature of abnormality has important effects on diagnosis and treatment. To explore these issues, you will focus on the mood disorder of depression.

Psychology of Human Relationships (HL only)

The Psychology of Human Relationships focuses on individuals in personal relationships or in groups. It also builds upon your understanding of *Approaches to Research* and the *Core*. Each approach contributes insights into relationships. For instance, the biological approach investigates the role hormones and genetics play in attraction. The cognitive approach investigates schema theory (schema theory = a theory about how the mind organises knowledge) on how we perceive the nature of relationships. Social psychologists have concentrated their investigations on beliefs, social identity theory and the role of culture. Improving relationships, promoting social responsibility and reducing violence are the prime applications of the knowledge generated.

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5. Examples of Research

Study 1

Leon Festinger, Henry Riecken and Stanley Schachter (1956) were interested in why people join cults and what happens to members when end-of-the-world prophecies fail to happen. A cult is a small religious group that hold beliefs regarded by many people as extreme or dangerous. In 1956 they published a classic study in social psychology of a cult based in the USA. Cult members believed that a massive flood would end the world on 21 December and only they would be rescued by flying saucers. The researchers conducted a covert participant observation study by pretending to be true believers of the cult's prophesy. They hid their identity as psychologists while they secretly recorded events. Midnight of the 21st came and went, and there was no flood to signal the beginning of a natural disaster, and no rescue by flying saucers. After a stunned silence the leader of the cult explained that the world had been spared destruction because their fervent prayers had brought God's mercy. While the cult lost a few disillusioned members, the majority remained convinced that their prayers has saved the world from annihilation.

Study 2

Hans Van Dongen, a leading world expert on sleep, wanted to understand how people were affected when they did not sleep for the recommended seven to eight hours per night. He worked with other psychologists to design an experiment to investigate this question (Dongen et al. 2003). Their study compared the effects of total sleep deprivation and severe sleep reduction. They used an electroencephalogram (EEG) to measure waking and sleeping brain activity of forty-eight adults. These participants were randomly divided into four groups. Three groups each received either four, six or eight hours of sleep per night for fourteen nights. The severe sleep deprived group received no sleep at all for three nights. The results showed that those receiving only four or six hours of sleep did not perform cognitive tasks well and their performance worsened over the three weeks of the experiment. The participants did not know that they were performing these thinking tasks poorly and did not report feeling tired or sleepy. Getting six hours or fewer of sleep per night for fourteen nights had the same cognitive effect as two nights with no sleep, but again the participants were not conscious of this. The researchers concluded that participants were not aware that a lack of sleep reduced their ability to think. Those who are often sleep deprived dismiss advice that they should get at least seven to eight hours of sleep per night.

Study 3

Ineke Imbo and Jo-Anne LeFevre (2009) were both interested in memory and how people solve maths problems. They investigated how different cultural groups used their memories when adding, subtracting and multiplying. Sixty-five participants were selected for the study and they came from three different cultures living in Canada: Flemish-speaking Belgians, English-speaking Canadians and Chinese-speaking Chinese. Participants solved problems in a number of conditions. The problems were presented either horizontally or vertically. Some problems were

easy, others were hard. In one condition, letter strings of four consonants (e.g. TKXL) had to be recalled after solving four maths problems. One of their findings was that the Chinese participants were faster at solving problems than the Belgians, who were faster and more accurate than the Canadians. They concluded that these cultural differences in problem-solving were caused by differences in how participants were taught in elementary school.

Ask yourself

- What approach is taken in these three studies?
- What topics are being investigated?

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the sociocultural approach to understanding behaviour.

References

Festinger, L., Riecken, H.W., & Schachter, S. (1956). *When prophecy fails.* New York, NY: Harper and Row.

Imbo, I., & LeFevre, J-A. (2009). Cultural differences in complex addition: Efficient Chinese versus adaptive Belgians and Canadians. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 35*(6), 1465-1476.

Van Dongen, H.P., Maislin, G., Mullington, J.M., & Dinges, D.F. (2003). The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep*, *26*, 117-126.

Chapter 2: Approaches to Research

Chapter Outline

1. **Quantitative Methods**
   - 1.1 Experiments
   - 1.2 Field Experiments
   - 1.3 Natural Experiment and Quasi-Experiment
   - 1.4 Correlational Studies

2. **Qualitative Methods**
   - 2.1 Naturalistic Observations
   - 2.2 Case Studies
   - 2.3 Interviews
3. **Elements of Researching Behaviour**
   - 3.1 Research Design
   - 3.2 Hypotheses
   - 3.3 Variables
   - 3.4 Sampling Techniques
   - 3.5 Ethics
4. **Evaluating Research**
   - 4.1 Reliability
   - 4.2 Validity
   - 4.3 Credibility
   - 4.4 Bias
5. **Drawing Conclusions**
   - 5.1 Correlation and Causation
   - 5.2 Replication
   - 5.3 Generalisation for Quantitative research
   - 5.4 Transferability for Qualitative Research
   - 5.5 Triangulation

Essential Questions

- What research methods are used to understand behaviour?
- How and why do psychologists use particular research methods?
- How is research evaluated?
- How are conclusions about human behaviour drawn?

After studying this chapter, you should be able to:

- [ ] Identify the characteristics of research methods
- [ ] Evaluate research methods
- [ ] Suggest methods to investigate research questions
- [ ] Describe sampling methods
- [ ] Discuss ethical considerations in conducting research on animals and humans
- [ ] Discuss issues of generalisability, credibility and bias when conducting research

Myths and Misconceptions

Experiments are an effective way to 'prove' facts about human behaviour.

Psychology is a young science and though experiments help us to understand human behaviour, theories and conclusions are tentative (tentative = not definite or certain) in nature. The word 'prove' should never be written in connection with research in psychology. Theories and hypotheses are 'supported' or 'demonstrated'; results are 'shown' or 'obtained'.

Psychology is not a real science

Psychology uses scientific methods to understand behaviour. Researchers form hypotheses, manipulate and control variables and use statistics to analyse results.

Psychology is just common sense.

This misconception stems from confusion about the nature of psychology and common sense. Common sense refers to practical knowledge and making sound decisions and judgements. It relies on experience and logical reasoning. On the other hand, psychology is based on theories and scientific methods.

While philosophers ponder life's big questions and poets play with words to convey their ideas, psychologists carry out scientific research. They have many options: observe people, ask people questions or set up conditions to see how people react. In broad terms, psychologists generate answers to research questions through either **quantitative** or **qualitative methods** or by combining both methods.

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1. Quantitative Methods

1.1 Experiments

To answer a research question**,** a psychologist may conduct an **experiment**. This is often called a 'laboratory' experiment (because of where it usually takes place) or a 'true' experiment. These terms are acceptable, but in the IB Psychology guide, this is an 'experiment'. This setting allows the investigator to control the environment to determine if a change in the **Independent Variable** (IV) causes a change in the **Dependent Variable** (DV). To be confident that a cause and effect relationship does exist, all other variables are controlled as best as possible. Variables that interfere with the action of the IV on the DV are called **confounding variables**.

To help you understand these terms, imagine a researcher is investigating if music (the IV) distracts people from learning (the DV). She manipulates the IV by playing music. She asks half the participants to spend 10 minutes learning 100 words in a classroom with music playing. The other half of the participants study in a quiet classroom. She then tests the participants to see how many words they can recall. The number of words correctly recalled is the DV. She controls possible confounding variables by giving both groups the same number of words to be learnt, by testing them at the same time of the day and giving them the same instructions. The mean scores from the music and no music conditions are then compared.

This is a simple experiment. Though the experiment by Pederson et al. (2006) is more complex, the basic principles are still there.

> **Focus on Research**
>
> Pedersen et al (2006) wanted to understand how the hormone **oxytocin** influenced mothering behaviour. They used laboratory rats in their experiment as they believed animal studies can inform our understanding of human behaviour. They randomly divided rat mothers and their offspring into three groups: one group of rat mothers received a dose of the hormone oxytocin; one group received a dose of an oxytocin-antagonist, that reduced oxytocin in the brain; and the control group received salty water.
>
> Compared to the control group, the mothers with the reduced oxytocin did not spend as much time grooming their babies and instead spent more time grooming themselves. These mothers did not feed their babies and some mothers even lay on top of their offspring. The mothers with increased oxytocin spent more time grooming and feeding the babies, compared to the control group. The researchers concluded that oxytocin influences mothering behaviour in rats. They hypothesized that oxytocin has a similar influence on human mother-infant bonding, as it is released during childbirth and breastfeeding.

Applications of Experiments

Experiments are particularly useful when studying human brain processes when highly technical and accurate measurements can be taken. They allow the researcher to test a hypothesis, support a theory and apply that the theory to real life.

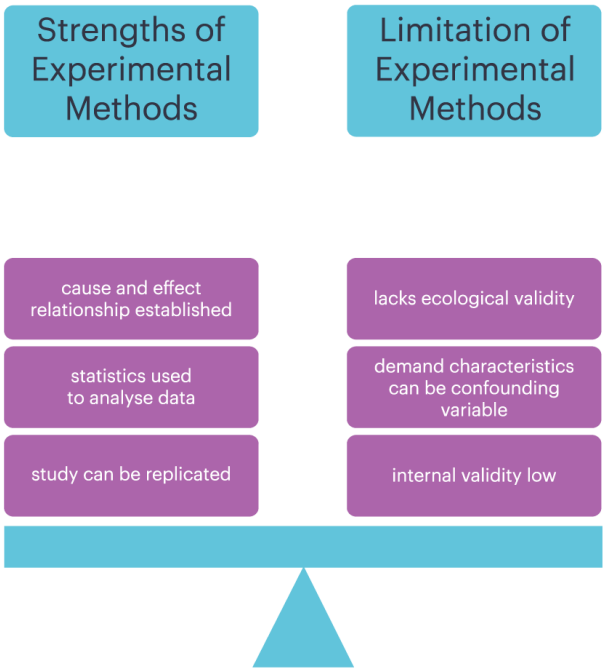
Strengths of Experiments

Experiments show a **cause-and-effect relationship** between the IV and the DV. Statistical testing allows for thorough data analysis. The precise nature of the experiment allows for replication (replication = to repeat a

study) by other researchers which make the findings more reliability.

Limitations of Experiments

Strict control over possible confounding variables can create an artificial environment. This leads to the criticism that a study lacks **ecological validity**. Another limitation is that participants can have expectations about what the nature and purpose of the study and that can result in a change in behaviour. The way these expectations influence a participant's response is known as **demand characteristics**. Experiments may lack **internal validity** as there may be other alternative explanations for the results.



1.2 Field Experiments

As their name suggests, these experiments are conducted in a natural setting 'in the field'. For example, if a researcher wanted to determine what factors (IV) cause students to experience stress (DV) when they are at school, then the school becomes the setting for the experiment. As aspects of the setting are harder to control, there is less control over possible confounding variables. As a consequence, the research may be less confident that there is a cause-and-effect relationship between an IV and a DV. The IV is still manipulated, so the researchers would vary factors like the time given for tests, or maybe the length of the breaks between lessons, for one randomly selected group of students and compare their stress (the DV) with that of another (control) group.

Focus on Research

Piliavin et al. (1969) were interested in why people do or do not offer help to a stranger in need. They decided that their field experiment would take place in the New York underground. Four-hundred and fifty men and women were the participants as they travelled on subway trains between 11 am and 3 pm on weekdays from April 15th to June 26th, 1968.

The independent variables the experimenters manipulated were: the type of victim (drunk or ill); the ethnicity of the victim; the size of the bystander group and the presence or absence of a model

(someone who offers help first). In each of the 136 trials, a confederate (a person acting a role in an experiment) staggered forward and collapsed shortly after boarding a subway train. He remained motionless on the floor, looking at the ceiling. After a fixed time period, another confederate acted as a model if no one else had offered help. The behaviour of the passengers was observed and recorded.

Four people played the person in need of help. They were all males, aged between 26 and 35. Three were Caucasian and one African American. In some trials, they pretended to be drunk.

The researchers used participant observation to measure some DVs including the speed of helping, the frequency of helping and the ethnicity of the helper.

Piliavin found was an ill person is more likely to receive assistance than a drunk person. Men were more likely to help and people tended to help more often is the person in need was a similar race.

The results led the researchers to develop an **Arousal: Cost – Reward model** to interpret their findings. This model argues that when people see an emergency they feel upset. They are motivated to act to reduce this unpleasant arousal. People then weigh the costs of helping versus not helping.

For more details, see Piliavin et al., 1969.

Application of Field Experiments

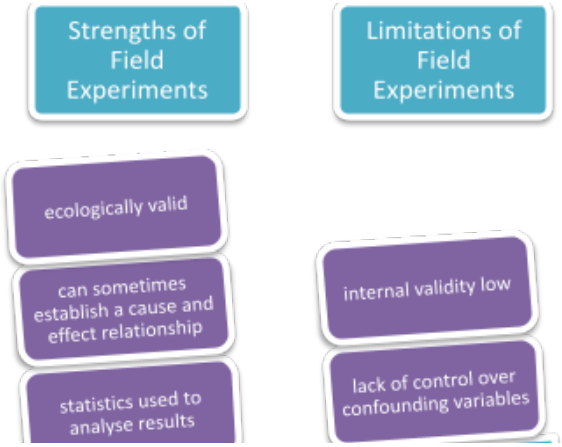
Field experiments are used to study behaviour in its natural setting. They have been used extensively by social psychologists to investigate behaviour such as comparing child and teenager aggression after watching violence on television or engaging in violent video games.

Strengths of Field Experiments

Field experiments are more ecologically valid than laboratory studies because there is less artificiality. Behaviours like street protests, littering, children's behaviour in school, are best investigated in their natural setting.

Limitations of Field Experiments

The lack of control over variables is the main limitation of field experiments. This can lead to a loss of confidence in the results. Researchers should acknowledge the limitation of field and they need to take care not to make claims that are not supported by the evidence.



1.3 Natural Experiment and Quasi-Experiment

These have been put together, as they have many similarities. Many textbooks put them together, but there are a few differences.

Natural Experiments, like field experiments, take place under natural conditions. However, unlike field experiments, there is no manipulated IV. Instead the IV is a naturally occurring variable, like the introduction of a TV to a remote area. This gives psychology researchers the opportunity to compare a DV such as levels of playground aggression, or teenagers' eating disorders both before and after the event. The effects of unemployment on mental health or of children attending kindergarten on the mother-child relationship can similarly be studied. All of these would be natural experiments. The IV was not specially manipulated by the researcher, but the effect of it is interesting to psychologists.

Quasi Experiments also often take place under natural conditions. However, this is not the main difference between them and experiments that take place in a laboratory. They have two essential differences from these 'true' experiments which means that a quasi-experiment cannot show a cause-and-effect relationship between the IV and DV, just a correlation.

1. Quasi-experiments do not randomly allocate their participants to groups. Instead, participants are self-selecting, often by gender, age, or ethnicity. However they can also be self-selecting by factors such as ability in maths (high/low, as determined by maths testing), their employment (taxi driver/non-taxi driver, Maguire 2000) or whether or not they suffered childhood abuse (Suderman, et al. 2014). These are called 'non-equivalent groups' as the researchers do not expect them to have the same qualities as each other.
2. The research does not always have full experimental control over the IV. Sometimes they do manipulate an IV and measure the effect on people according to group. So for example, if trying a type of new psychotherapy, it would be possible to try the psychotherapy on men and women (group 1 and group 2), and also try a traditional treatment on men and women (group 3 and group 4) and compare the results. The type of treatment is the manipulated IV and in this case it is controlled.

However, at other times a quasi-experiment is much more like a natural experiment, in that the IV is naturally occurring, but the effect is measured on particular groups. So, in the case of the introduction of TV to a remote region, a quasi-experiment would measure the effect on particular groups, already allocated by prior measures of aggression, or maybe by gender or age.

> **Focus on Research**
>
> Bronzaft and McCarthy (1975) were interested in the importance of quiet environments and whether noise makes learning more difficult. They located a New York City elementary school built close to an elevated train line. The train, which passed at regular intervals throughout the day, ran close by one side of the school building but not the other.
>
> Teachers were assigned to classrooms and children to teachers in a somewhat random way at the

> start of each school year. This allocation of students to classes resulted in a strong natural experiment involving a treatment group of students on the noisy side of the school and a comparison group on the quiet side. The researchers found that the mean reading scores of classes on the noisy side tended to lag three to four months (based on a 10-month school year) behind their quiet side. Educational officials used the study to justify the implementation of noise reduction initiatives.

Application of Natural and Quasi-Experiments

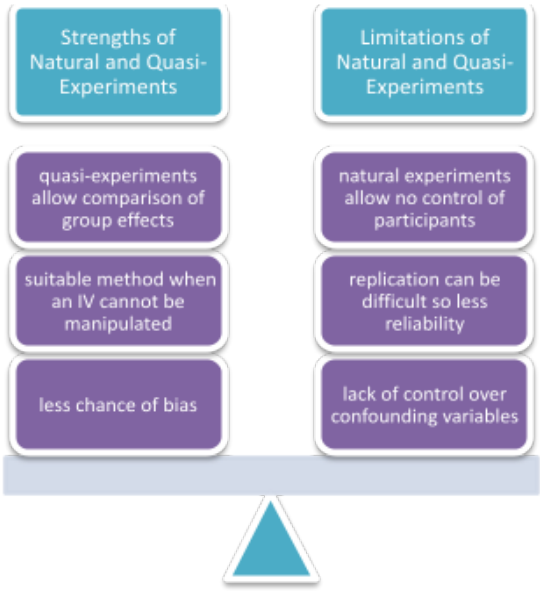
As shown above, natural experiments can be used to measure the effect of noise, light, location, poverty and many other factors on human behaviour. They are often used in educational and health psychology.

Strengths of Natural and Quasi-Experiments

Natural and quasi-experiments can be used in situations where it would be ethically unacceptable to manipulate the independent variable. For example, studying the impact of drug use. There is also less chance of experimenter bias or demand characteristics interfering with the results. The type of study allows researchers to take advantage of naturally-occurring events to better understand their consequences.

Limitations of Natural Quasi-Experiments

The independent variable is not controlled by the researcher and there is no control over the allocation of participants to groups. Therefore, replication is almost impossible, and reliability is lower than with experiments. In quasi-experiments, even if there is a manipulated IV, the groups are not equivalent and therefore, no cause-and-effect relationship can be established.



1.4 Correlational Studies

Correlational studies test the relationship (the correlation) between two variables of interest, such as self-esteem and exam results. This correlation is expressed as a number between -1 (a negative correlation) and +1 (positive correlation). This number is called a correlation coefficient. A correlation coefficient of 0 means

there is no correlation between the two variables. Researchers often gather information through observation

> **Focus on Research**
>
> Lam et al. (2012) investigated the link between how much time parents spent with their children and the children's self-esteem. They were also interested if a birth order had any impact on how much time parents spend with their children. They focused on children and teenagers aged between eight and 18. Mothers, fathers, first-born and second-born children from 188 white families participated. These participants were interviewed at home or by phone. The researcher found that social time between parents and their children declined across adolescence. Second-born children's social time decreased more slowly than firstborn children's. They found that youths who spent more one-on-one time with their fathers, on average, had higher overall self-esteem scores.

Application of Correlational Studies

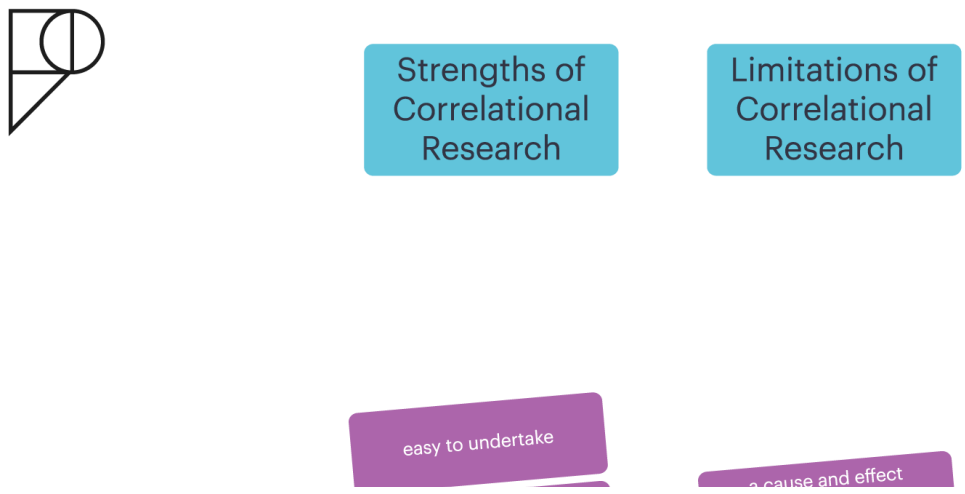
Examples of correlational studies are investigations into the number of cigarettes smoked and anxiety levels; recognition of letters at age four and ability to read at age seven; intelligence and inheritance (usually using either twin or adoption studies). Kinship studies (also called family or pedigree studies) are often used in psychology to investigate the heritability of behaviours. (Heritability: to what extent a trait or behaviour is inherited).

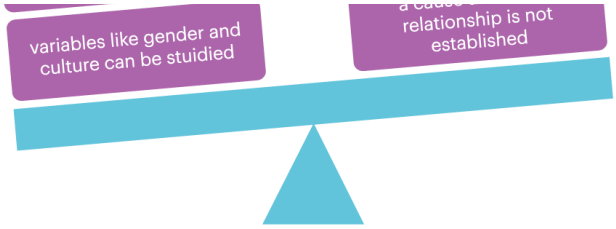
Strengths of Correlational Studies

These studies are conducted quite easily and produce data that allows for a comparison between two variables. These studies allow researchers to study variables that cannot be manipulated, such as gender and age differences.

Limitations of Correlational Studies

Correlational studies do not show cause and effect relationships. Often a correlation could be explained in several different ways. In the example given above, it could be that adolescent boys with high self-esteem chose to spend more time with their fathers and find it easier to interact socially with them. Or it might be that a third variable, such as a high family income, that allows access to leisure activities the family can do together that is responsible for the behaviour.





2. Qualitative Methods

2.1 Naturalistic Observations

Observations can be used to collect data as a stand-alone method but they can also be used to gather additional data as part of an experiment or case study. Observers usually target a specific behaviour or set of behaviours, and may use a grid called a tally chart to record the data by making check marks in the chart. Observations can be any of the following combinations:

Type of Observation	Role of Researcher
Participant—joins in the activity of the participants while observing them.	Overt - participants are aware of being studied. Covert - participants are not aware of being studied.
Non-participant—watches but does not join in with the activity.	Overt - participants are aware of being studied. Covert - participants are not aware of being studied.
Naturalistic (usually non-participant)—takes place where the target behaviour normally occurs.	Overt - participants are aware of being studied. Covert - participants are not aware of being studied.
Controlled (usually non-participant)— researcher constructs and controls the situation.	Overt - participants are aware of being studied. Covert - participants are not aware of being studied.

Figure 2.6 Types of Observational Studies

Applications of Observations

One area of research where observations are often used is in the field of **developmental psychology**. They can be utilized easily in classrooms and playgrounds when researchers are interested in the natural behaviour of children. Children are used to having teachers and other adults present in classes and at play, so quickly become used to being observed. Observations may or may not include filming or audio taping of

the children's behaviour. However, observations are also valuable in other areas of psychology such as

> **Focus on Research**
>
> Miranda et al. (2002) conducted a study to evaluate the effectiveness of a programme for treating **attention-deficit/hyperactivity disorder** (ADHD) carried out by teachers in a classroom context. One of the methods used was direct observation of behaviour in the classroom. Fifty children with ADHD participated in the study. The teachers of 29 of the 50 students were trained in ways to reduce the symptoms of ADHD. The other 21 students formed the control group, and their teachers had no special training. The results showed that increased academic scores and better classroom behaviour were observed in the group of children with trained teachers due to the teachers' improved knowledge about how to respond to the children's educational needs.

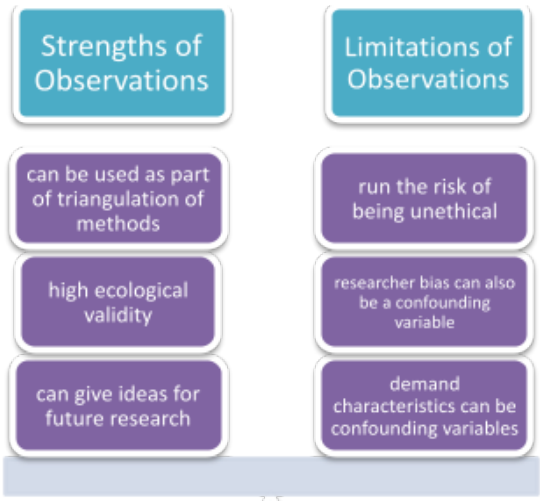
Strengths of Observations

Naturalistic observations often give researchers ideas for further research. This type of research also allows the researcher to record and study behaviour in some detail and often in natural circumstances. As a result observations high ecological validity. Observations can also be used as part of a **triangulation of methods** (using more than one method) to confirm what has been said in interviews on the same topic, for example. By using several different observers, reliability and validity of the observations can be increased.

See Section 5.5 on Triangulation.

Limitations of Observations

There are three main problems with observations: the first is the issue of **demand characteristics** as participants may try to act according to their own ideas about what the researcher wants. A second problem is **researcher bias** when observers see what they want to see. One way to avoid this is to use observers who do not know the purpose of the research. Finally, observations run the risk of being **unethical**. For example, when asking for informed consent might result in demand characteristics, it is usually assumed that there are no ethical problems with observations in shopping malls, in the street and in other public places where others who are not engaged in research also observe each other. However, it is hard to know if people would be angry if they knew that they had been observed. Despite this, ethical guidelines for psychology research may specify that it is acceptable to record data from people who are in a public place, even without their consent.



2.2 Case Studies

Case studies are examples of research into a particular individual, group of people or organisation. In contrast to other research techniques such as experimentation and correlation, case studies aim to provide a more detailed and holistic analysis of the behaviour of the individual or group under investigation and, as a result, require lengthier periods of time to carry out. Historically, the case study has always been an important tool in medicine and therapy but in modern psychology, its use has expanded considerably hence it is now also used extensively in medical, educational and workplace psychology.

Focus on Research

Curtiss (1977) carried out a case study to assess the linguistic development of Genie, a girl who was discovered by the authorities in Los Angeles at the age of thirteen having been cruelly neglected by her parents and subjected to physical and verbal abuse by her father and brother. Genie was confined to a room from the age of one, where she was kept restrained at various times in either a potty chair or a crib. Consequently, upon discovery, Genie walked awkwardly and made very little sound, having been beaten for making a noise. The majority of information for the case study was gathered from observing Genie and working with her in regular sessions. Information about her early life was collected primarily from Genie's behaviour itself and the few comments she would make. Daily doctor's medical reports, as well as videotapes and tape recordings, were made and catalogued. Psychological testing was also used with observations and language tests.

Curtiss was one of the psychologists assigned to help Genie and was especially interested in seeing if Genie could learn the language. Genie provided scientists with the chance to attempt to test the Critical Period Hypothesis—a theory proposed by linguist Eric Lenneberg (1967). This is the hypothesis that humans are unable to learn the use of grammar correctly after early childhood because of the lateralisation of the brain.

However, in spite of initial progress, Genie never recovered completely from her privation. Although Genie was able to show some modest progress in her language development, her seeming inability to develop normal language was seen as evidence that the critical period for learning language was from two years to puberty. If that critical time was missed, as it had been for Genie, then it was claimed that it was not possible to develop full use of language.

The research reports on Genie form a richly detailed case study with extensive quantitative and qualitative data. However, caution must be exercised in attempting to generalise from case studies. There was also a strong suggestion that Genie may have had developmental problems in infancy, so it was not possible to say that her subsequent failure to develop normal language was due solely to her experience of deprivation.

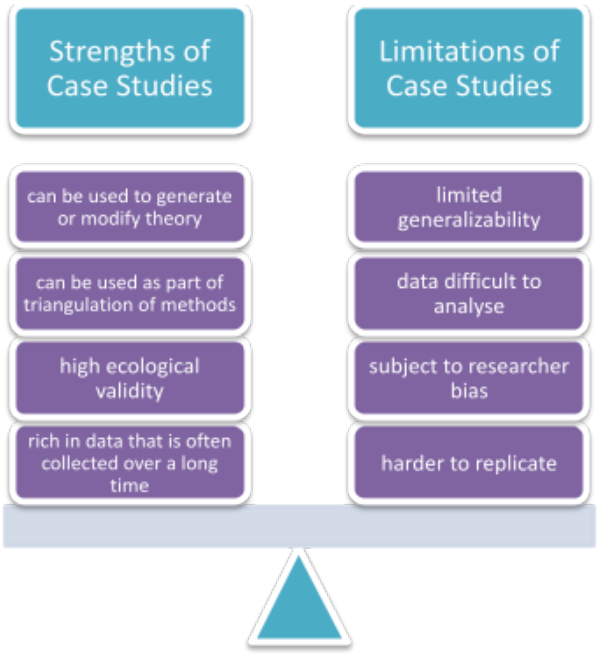
Strengths of Case Studies

A well-conducted case study can construct a full and detailed picture of an individual, a group or an organisation in a particular situation. Case studies may also be longitudinal (long-term) and therefore provide a developmental and historical perspective of the behaviour(s) being investigated. They also

generate rich data using a triangulation of methods (more than one research method), which can lead to higher validity. Furthermore, case studies can also be invaluable in generating new psychological theories and also in providing evidence for existing psychological theories. For example, case studies on brain-damaged patients with memory deficits have helped to revolutionize theories about how our memories function. In addition, case studies often have high ecological validity and thus reflect more natural real-life behaviour.

Limitations of Case Studies

Case studies often lack academic rigour when compared to controlled experiments where there are more specific guidelines for collecting and analysing data. They can also create an extensive amount of data and this can be unwieldy and time-consuming to analyse. Longitudinal case studies, in particular, can run the risk of over-involvement by the researcher, leading to bias when researching and when analysing data and reporting results. Moreover, case studies have limited **generalisability** as they frequently involve a small purposive sample and thus the results cannot be assumed to hold true for other populations. A further disadvantage of case studies is that due to their unique nature, they are difficult to replicate hence the reliability of the results is harder to establish.



2.3 Interviews

Interviews are a widely used research technique in psychology and are classified as a self-report method because they usually rely on verbally communicated data from participants. The way an interview is conducted can vary depending on how the researcher wants to obtain his/her data. A researcher could choose an unstructured interview when they wish to have a conversational interview where the conversation topics guide the questions that are asked. In contrast, a researcher may decide to use a semi-structured interview in which a list of pre-set questions is posed to the participants but the opportunity to ask further questions is built into the procedure. Finally, the focus group interview is an additional option for gaining self-report data in a group situation when it is felt that one-to-one interviews may not be as productive in gathering information. These three interview techniques are discussed in more detail below.

Unstructured Interviews

These interviews do not use any pre-arranged questions but the researcher will have in mind which topics they would like to focus on and also what they want to achieve from the interview. As a result, the researcher will guide the conversation to some extent and will pursue aspects of the conversation with further questions if these aspects are relevant to the research hypothesis. Building up a rapport is important in unstructured interviews in order to promote an atmosphere in which the participant feels they can speak openly. It is recommended that such interviews are recorded as long as permission is obtained from participants. This enables the researcher to concentrate on the conversation without having to be distracted by note-taking.

Focus on Research

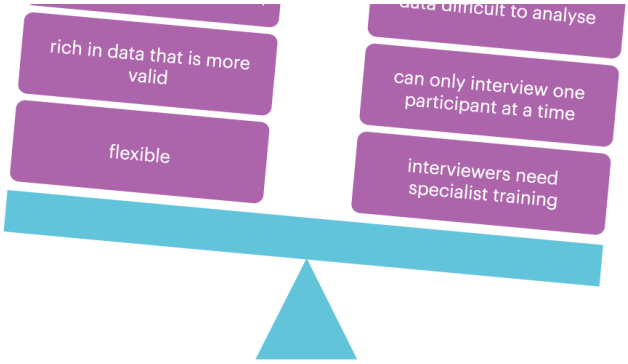
Pai and Kapur's (1981) study aimed to construct a suitable interview technique to assess the burden placed on relatives of psychiatric outpatients at a clinic in India. The initial phase in this study involved conducting an unstructured interview with one relative of each of the 40 patients attending the clinic. The purpose of this phase was to identify different categories of burden. Some of the categories identified included financial burdens and family routine burdens. This categorisation was ultimately used for reliability and validity testing to devise an interview schedule that could be used in semi-structured interviews assessing burden levels across different settings and in different psychiatric illnesses.

Strengths of Unstructured Interviews

A major advantage of carrying out an unstructured interview is the flexibility with which questioning can be adapted to the situation. Furthermore, the data gathered can be considered more valid because it can be considered to be more natural: the participant is given the opportunity to expand on their points and clarify them hence the data is likely to have more value as the researcher is less likely to misinterpret the findings. In addition, unstructured interviews give an opportunity for any ambiguities in participants' responses to be further clarified through the use of additional questioning.

Limitations of Unstructured Interviews

Given that unstructured interviews are open-ended they are therefore unique in content and consequently very hard to replicate to test the reliability of the findings. A wealth of data is also generated which ultimately is challenging to analyse in a simple way. Furthermore, the ability to steer conversations in certain directions is a considerable skill hence substantial training of interviewers is required. This interview method is also time-consuming as only one participant can be tested at a time. This therefore adds to the costs of a research study.



Semi-structured Interviews

Such interviews combine a structured and unstructured approach to the questioning of participants. With regard to the structured component of this type of interview, the researcher will follow an *interview schedule* which consists of two components. Firstly, the researcher will construct a set of pre-determined questions that they want to ask the interviewees. The format and wording of these questions will be replicated exactly during the questioning. Secondly, if the interviewer is not the researcher but has been trained to carry out the research, the interview schedule will contain instructions on how to conduct the interview. Semi-structured interviews also use open-ended questions that have not been pre-arranged and the choice of questions is guided by the conversation but still focused towards the research hypothesis.

> **Focus on Research**
>
> Rutten et al (2007) aimed to assess how far organized youth sport was an influential factor in antisocial and prosocial behaviour. Using samples of adolescent soccer players and swimmers aged between 12 and 18 years of age from 10 sports clubs in the Netherlands, the researchers used a variety of methods to assess prosocial and antisocial behaviour. These included two semi-structured interviews, the first of which was the Sociomoral Reflection Measure, a test designed to measure sociomoral reasoning competence. The second semi-structured interview was designed by Rutten et al to measure participant scores on fair play orientation. The use of these interviews and other measures of prosocial and antisocial behaviour led to the conclusion that young athletes with high sociomoral reasoning skills were more likely to be prosocial.

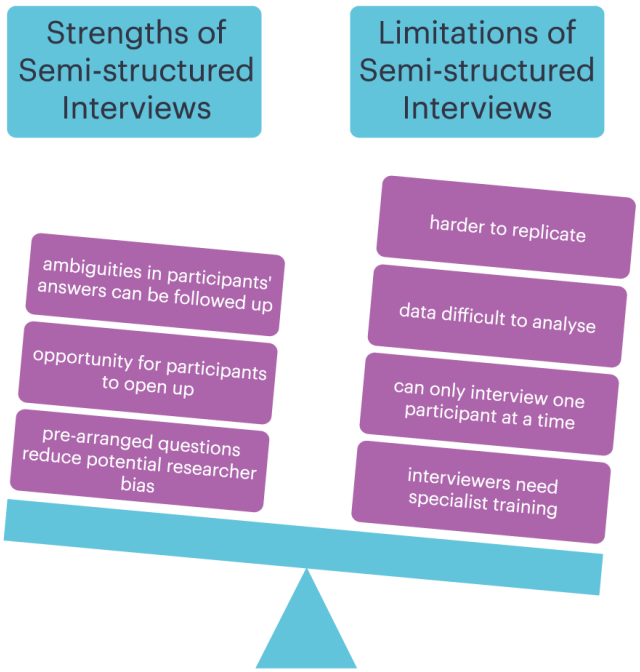
Strengths of Semi-structured Interviews

Given that semi-structured interviews contain an open-ended aspect in terms of the opportunity to ask further questions, semi-structured interviews, like unstructured interviews, provide an opportunity for any ambiguities in participant responses to be pursued and clarified. In addition, there is the opportunity for participants to open up and talk in depth about their opinions. Moreover, the use of pre-arranged questions is useful in this context because the possibility of potential researcher bias in the choice of questions is reduced.

Limitations of Semi-structured Interviews

The limitations of semi-structured interviews mirror those of unstructured interviews as both have open-

ended elements in the interview process.



Focus Group Interviews

In this type of interview, participants are given the chance to discuss their opinions and beliefs on the psychological issue under investigation. The ideal size is considered to be 6-10 participants as this helps to ensure that participants are not overwhelmed or intimidated by being in a very large group. Researchers will use this method if they feel that a one-to-one interview may not generate enough spontaneous detailed information. This type of research technique therefore enables participants to talk more freely and generate questions as the conversation progresses.

Focus on Research

Schulze and Angermeyer (2003) used focus groups in their study on experiences of stigma by schizophrenic patients, their relatives and mental health professionals. The research was carried out in Germany in four different towns and 12 focus group interviews in total were conducted, 3 at each centre. The focus groups consisted of either patents or relatives or mental health professionals, i.e., the participants were not mixed in the focus groups. All of the patients had received an ICD-10 diagnosis of schizophrenia and were out-patients during the period of the study. Relatives of the patients were contacted to see if they wanted to take part. The professionals' group considered a wide range of participants including psychiatrists, psychologists and nurses. The patient groups were asked to discuss what had changed in their lives since their diagnosis and the relatives and professional groups were asked to discuss how they viewed the situation of the patients. The interviews were video- and audio-recorded.

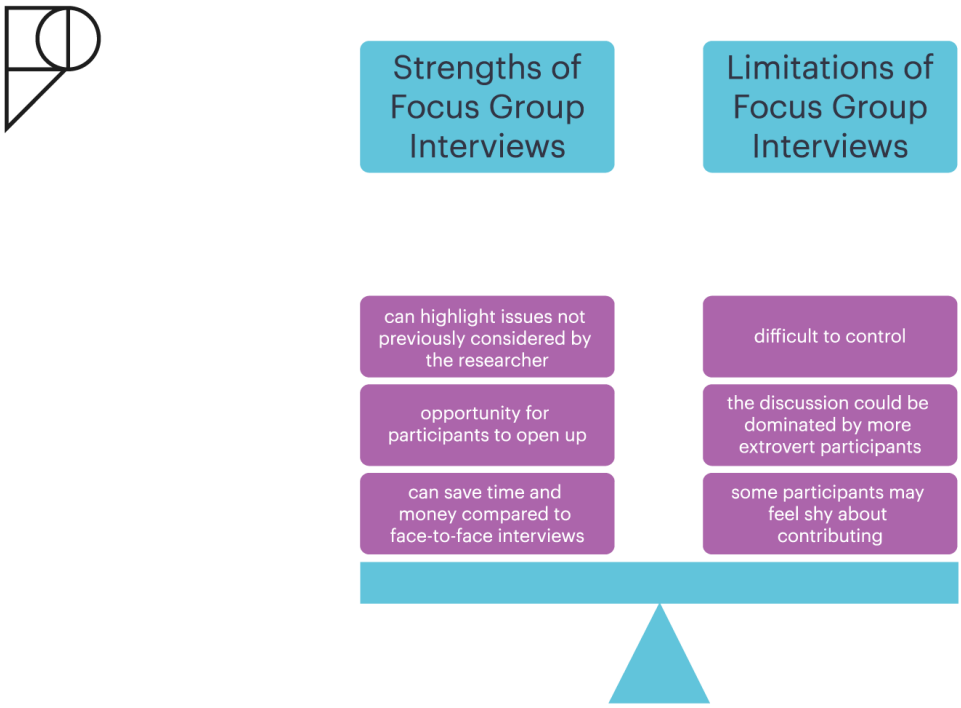
The main themes that emerged from the focus group interviews were that stigma was experienced at an interpersonal level, at a social structural level, via negative public images and in terms of employment. The authors concluded that stigma surrounding schizophrenia should be tackled at these four levels and offered some strategies for doing so.

Strengths of Focus Group Interviews

As focus group interviews involve lengthy discursive procedures, the opportunity is more likely to arise for issues to be discussed that the researcher has not previously considered. This could therefore provide a valuable opportunity to gather additional data relevant to their theory. In addition, as in unstructured and semi-structured interviews, there is ample opportunity for participants to open up and expand on their ideas. A further strength is that focus group interviews are cheaper to conduct in that a large number of participants can contribute to the study at once instead of in individual face-to-face interviews.

Limitations of Focus Group Interviews

Some participants may be in a position of vulnerability in a focus group testing situation if they feel they are being dominated by more extrovert and vocal members of the group. This domination leads to a further limitation of this technique because it means that valuable data may be lost if some participants feel they cannot contribute. As a result, such group discussions are difficult to control and the study may therefore not fully achieve what it set out to achieve.



Further Disadvantages of Interviews

The three types of interview described above rely on self-report data from participants and, as a result, are vulnerable to certain biases that distort the genuineness of the data. One type of bias is **social desirability bias** and is the consequence of participants wanting to represent themselves in a positive light to the researcher. This type of bias can occur if a participant feels embarrassed about admitting something negative about their behaviour, for example. Another type of bias is **participant bias** and occurs when participants try to respond in a way that they think the interviewer desires. A study is particularly vulnerable to this form of bias if the participant guesses the aim of the study. Finally, bias can also occur in interviews as a consequence of **interviewer effects** where characteristics of the interviewer such as age, gender or

ethnicity influence the participant to respond in ways that they would not normally respond. Taken together, the biases described above, ultimately threaten the internal validity of a study, i.e., the extent to which the results can be considered a true reflection of the behaviour under investigation.

Surveys

A **survey** is an alternative self-report technique that can be conducted on a large sample of people and can therefore gather more substantial amounts of data than both interviews and case studies. Surveys can take a number of forms and these include mailed surveys, phone surveys and online surveys. They are primarily oriented towards gathering large amounts of quantitative data via questionnaires. Surveys are useful in following up on the results of qualitative interviews and case studies because the results can be assessed on a wider sample of participants. For example, if a qualitative unstructured interview on a small sample of elderly people demonstrates some of the factors that influence positivity in this age group, a large scale survey could be designed to assess whether this observation holds true in the wider population. Similarly, if a case study on an older student going to university after a long break from education demonstrates the particular factors that influence their likelihood of success in their degree course, a large scale survey could then ascertain whether these findings reflect the experiences of older students in general.

Focus on Research

Leder and Forgasz (2004) conducted research into the obstacles and learning environment of mature students in Australian universities. Although the study used a wide range of methods to investigate their aims, the first part of the study involved the use of a large-scale survey given to undergraduates enrolled in mathematics courses at five Australian universities. Ultimately, a sample of 815 students completed the survey of whom 61% were male, 12% were mature students and 37% were from a non-English speaking background. The survey consisted of both open and closed questions hence there was the opportunity to gather quantitative data from the closed questions. Closed questions assessing mood and perceptions of the learning environment were included in the survey questions.

Analysis of the results indicated that mature students from overseas were more likely to feel lonely, were less likely to have the security of a support network and were less familiar with the processes of the academic environment than local mature students. The authors, therefore, concluded that more active support networks and information services would be beneficial to overseas mature students in helping them cope with university study.

Strengths and Limitations of Surveys

Surveys have a number of strengths and these include the ease with which they can be completed because participants can complete them at their own leisure. This technique is also useful in assessing hard to reach participants and there can be a quick turnaround in obtaining data. In addition, interviewer bias can be minimized especially in postal and online surveys. However, without face-to-face contact the motivation to complete surveys may be low and hence response rates will also be low. There is also the potential for greater inaccuracy and bias in survey data as participants may rush completion. Finally, the use of a survey does not provide an opportunity for responses to be followed up by the researcher.

3. Elements of Researching Behaviour

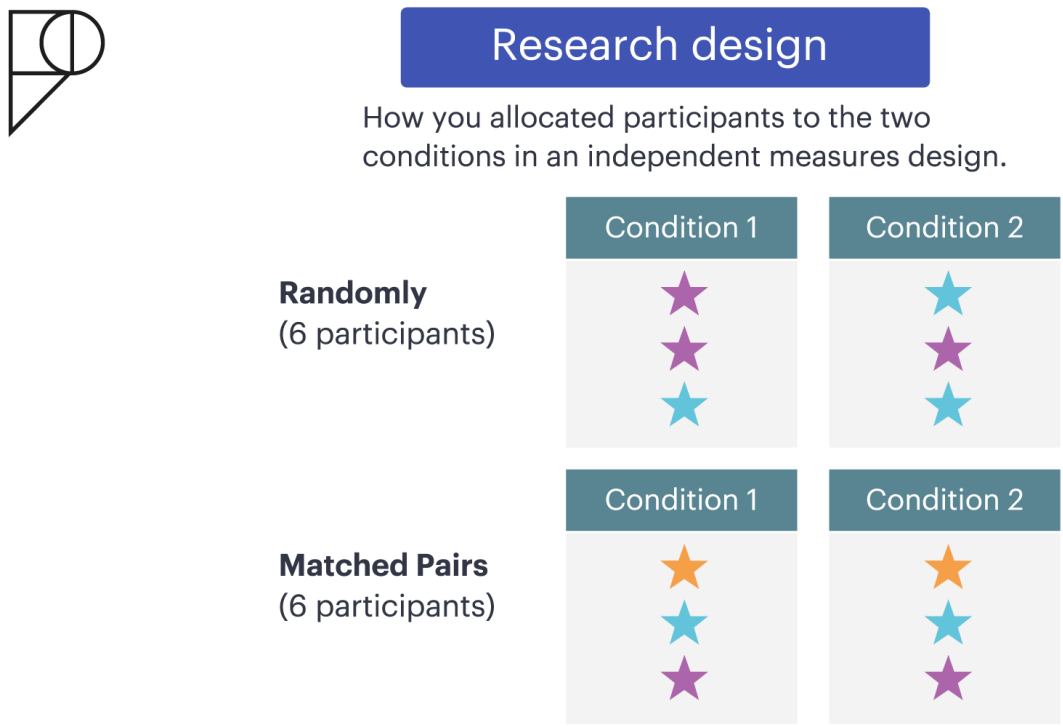
3.1 Research Design

Researchers have many decisions to make before they gather data to answer a question about human behaviour. They must analyse behaviour and identify variables of interest. Are these variables related? Does a change in one variable cause a change in the other variable? They must decide on how best to get their sample of participants and how to organise them. Once a sample has been obtained, experimenters have two options about how they design the experiment: **independent measures design** (sometimes referred to as *between subjects design*) or **repeated measures design** (sometimes referred to as *within subjects design*).

With a repeated measures design, the researchers deliberately want the same people to be in both conditions. For example, they might want to compare performance before and after a treatment.

With independent measures design, the experimenter randomly allocates participants into two groups. This is an effective design when your behaviour of interest is assumed to be the same for everyone in the general population. One group would receive the experimental condition while the other is the control group who do not receive the experimental condition.

Matched pairs design is very important if the participants are rather mixed and their random allocation to the two conditions could introduce a confounding variable. For example, comparing a middle-aged person's memory with that of an 18-year-old student's may not be the best way to allocate participants but that could happen with random allocation. In this case age and different backgrounds mean that these uncontrolled variables might affect the results. The solution is to sort the sample of participants into matched pairs as far as possible and allocate one of each pair to each condition.



3.2 Hypotheses

A **hypothesis** is a statement that serves as a possible explanation for observed facts. A hypothesis is tested empirically (practically) through trial and error (experimentation) that generates data.

Most of us create theories and test hypotheses every day of our lives. For example, my theory is that my oven light has gone off and the oven is failing to heat because there is no electricity getting to it. I generate a hypothesis: we have a failure of electrical power to the whole house. I test this hypothesis by switching on the light in the kitchen. It works, so I am forced to reject this hypothesis and develop another. I then hypothesise that we have a failure of power to the oven only. I test this revised hypothesis by walking to the

fuse box, opening it and checking the fuse—which has indeed blown. I could have tested this hypothesis in several different ways— by inspecting the wiring or calling an electrician, for example, but I decided to start with what, from my experience, was the most likely explanation. In this example, the hypothesis was tested empirically by my switching on the light in the kitchen, which led me to reject my initial hypothesis and develop another, which was supported when I checked and found the fuse had blown.

In psychology, the process of moving from theory to a testable hypothesis is the same as in everyday life. A theory is based on the principle of falsifiability, which was developed by the philosopher Popper (1959). This principle means that we do not *prove* theories, we merely stay with the one that we have so far been unable to falsify, and hypothesis-testing is how we test predictions that we make from theories. If we find no significant difference between the two or more conditions of the experiment, then we are unable to reject the null hypothesis. In other words, we have to accept the probability that the IV has had no effect on the DV, or at least that any change in the DV is due to chance and not due to the manipulation of the IV.

Research Hypothesis

The **research hypothesis** (sometimes called the **experimental hypothesis** or the **alternative hypothesis**) is written as *H1.* It is the researcher's expectation regarding the results of the experiment, and it usually suggests that the IV will have an effect on the DV. An example would be if I supposed that listening to classical music would improve students' scores on maths tests. (This is a similar effect to that suggested, albeit tentatively, by previous research, see Rauscher et al., 1993.) I am predicting that students who take the maths test while listening to classical music will do better, as measured by their scores, than those who have silence as the background condition.

Research hypothesis: students who listen to Mozart's piano sonata K448 while completing a standardised mathematics test will solve significantly more of the 50 maths problems than students who complete the test in a silent condition.

Null Hypothesis

The **null hypothesis** is denoted by H0 and is usually the hypothesis that the IV has had no significant effect on the DV and any observed differences in the conditions result purely from chance. The operationalized null hypothesis for the example given above would be:

Null hypothesis: there will be no difference in scores on a standardised mathematics test of 50 problems between students who complete the test while listening to Mozart's piano sonata K448 and students who complete the test in a silent condition; or any differences in the scores will result purely from chance.

One-tailed (Directional) and Two-tailed (Non-directional) Hypotheses

A **one-tailed hypothesis** is simply one that specifies the direction of a difference or correlation, while a **two-tailed hypothesis** is one that does not. A one-tailed hypothesis is therefore often called a directional hypothesis and a two-tailed hypothesis is also known as a non-directional hypothesis.

For example, if we look at the relationship between income and number of overseas holidays taken each year we might hypothesize that numbers of overseas holidays taken per year tend to increase with income. This is a one-tailed hypothesis because it specifies the direction of the correlation. A possible directional hypothesis would be:

H1 – There will be a positive correlation between personal disposable income after taxes and the number of overseas holidays that a person takes each year.

On the other hand, if we were correlating people's heights with their income, we might have no good reason for expecting that the correlation would be positive (income increasing with height) or negative (income decreasing with height). We might just want to find out if there was any relationship at all, and, therefore, we would develop a two-tailed hypothesis. A possible non-directional hypothesis would be:

H1 – There will be a correlation between personal disposable income after taxes and a person's height in centimetres.

Levels of Significance

It is not possible to reject (refute) the null hypothesis unless we set a level for the probability of the effect on the DV being non-accidental. This is called the probability (p) value and it determines whether or not we reject the null hypothesis. The p value provides an estimate of how often we would get the obtained result by chance, if, in fact, the null hypothesis was true. As a general rule, if the results obtained from the statistical analysis of the data are smaller than the p value, then the researcher can reject the null hypothesis and accept that the samples are truly different with regard to the outcome. If the results are larger than the p value, then the researcher can accept the null hypothesis and conclude that the IV had no effect on the DV.

The level of the probability of the effect is due to chance is usually set in the social sciences at 5%. Therefore, the null hypothesis is only rejected if there is a 5% (1/20) or less chance that the observed difference is *not* due to the effect of the IV on the DV. This is written as $p \leq 0.05$, which means that the result is said to be significant at the 0.05 level. We would accept the null hypothesis if there was over a 5% probability that the difference happened by chance ($p>0.05$).

So, if after applying inferential statistical testing to the data we come up with a result that is significant at the $p\leq 0.05$ level, then we can reject the null hypothesis and accept our experimental hypothesis that there was a significant difference between the groups that was not just due to chance.

Type I Error

A **Type I error** is known as a 'false positive'. It occurs when the researcher rejects a null hypothesis when it is true. With a 0.05 level of significance, there is a 1/20 (5 out of 100) chance that we are wrong and that our IV does not affect the DV. If we then say that it does, we are committing a Type I error.

Example: You hear a fire alarm and react as if there is a fire and there is not. In this example, you are rejecting the null hypothesis (no fire) when it is true.

One of the main ways to check for Type I errors is to replicate studies. If a second researcher confirms the results of a previous study, then the likelihood that the original result was just chance is far lower. Another way is to reduce the p value to $p \leq 0.01$. However, this comes with the increased risk of a Type II error.

Type II Error

A **Type II error** is a 'false negative', and it occurs when the researcher accepts a null hypothesis that is false. We are unconvinced by our data and say that the IV did not affect the DV when it did.

Example: You hear the fire alarm and think that there cannot possibly be a fire, so you ignore it. In this example, you are accepting the null hypothesis (no fire) when it is not true.

Type II errors are most common when the p value is reduced to a more stringent level. If the researcher wants to challenge a well-established theory, then the convention is to achieve results that are significant at

the $p \leq 0.01$ level before publishing. In this way, the likelihood that the results were due to chance is 1% or less.

3.3 Variables

A **variable** is the phenomenon that changes depending on the experimental circumstances. It is what varies.

Independent Variable

The **independent variable** (IV) is manipulated by the researcher to measure the effect of the dependent variable. In the example of the effect that listening to classical music has on scores in a maths test, the IV is the presence or absence of the music.

Dependent Variable

The effect of the IV on the **dependent variable** (DV) is measured, usually by comparing the results during the experimental condition with results from a control group that has not been subjected to the condition or comparing the results between two experimental groups. With our experiment into the effect of classical music, we could have introduced a group that listened to heavy metal music and then the IV would be the type of music, while the DV remains the scores on the maths tests.

Controlled Variable

If a researcher wants to determine a cause-and-effect relationship between the IV and the DV, then it is important to control all possible confounding (extraneous) variables. For example, in the experiment investigating the effect of classical music on maths scores, the researcher might want to ensure, through issuing headphones, that each participant in the experimental group hears the music at the same volume. However, to control for the effect of wearing headphones on the participants, and possibly ultimately on the maths scores, participants in the control group should also wear headphones, even though they are not listening to music.

Confounding variables can be participant variables such as age, gender, ethnicity, motivation. They can also be situational variables, such as time of day, temperature, background noise. Any of these might explain differences between the groups. Similarly, demand characteristics need to be controlled. An example of a demand characteristic is the experimenter effect. This effect is when an experimenter unconsciously, maybe through body language or tone of voice, gives cues to participants about how to behave. These participant expectations can affect the trustworthiness of the data.

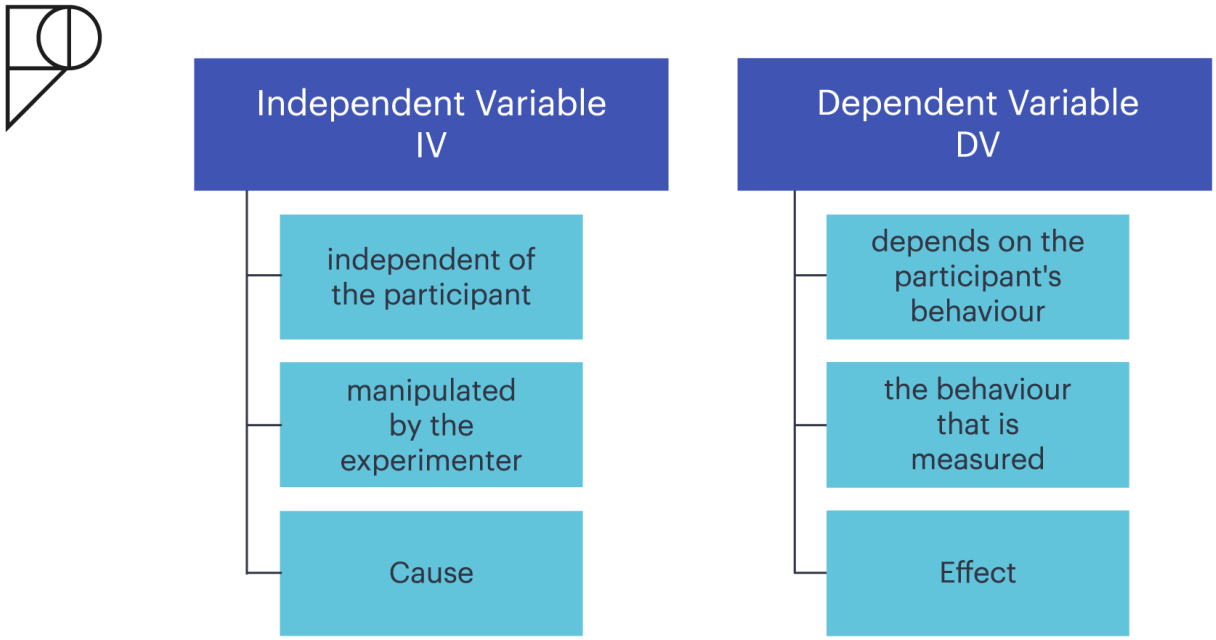
As many confounding variables as possible should be controlled if the researcher wants to be sure that the observed change in the DV is caused by the manipulation of the IV. That is why, despite the loss of ecological validity (the confidence that the results are representative of what would happen in real life), experiments where confounding variables are controlled are often preferred over natural experiments, where such control is impossible.

The most difficult variables to control when using experimental research methods are those

associated with demand characteristics. The methods of controlling these include:

Single blind technique—when the participants do not know which group or condition they are allocated to, the experimental group/condition or the control group/condition. This controls participant expectations.

Double blind technique—when neither the researchers nor the participants know which group or condition the participants are allocated to. This controls the experimenter effect and participant expectations.



3.4 Sampling Techniques

Probability-based Sampling Methods

These are many methods that use some form of a random selection of participants. To have a **random selection** method, you must set up some process or procedure that assures that the different units in your target population have equal probabilities of being chosen. The target population is the population from which the researcher is drawing the sample. For example, if we wish to discover Pamoja students' attitudes towards online learning, then our target population is Pamoja students, and we would select our sample from this population. If we wished to compare the progress of Pamoja students in the second year of Psychology with those in the first year, then our target population becomes Pamoja Psychology students from both years and we select our sample from this population.

To select participants randomly, researchers have often used such methods as picking a name out of a hat or choosing the short straw. These days, computers are usually used as the mechanism for generating random numbers as the basis for random selection.

Simple Random Sampling

The purpose of **simple random sampling** is to select participants so that each has an equal chance of being selected. The procedure is to use a table of random numbers, a computer random number generator or a mechanical device to select the sample. If a researcher can use an Excel spreadsheet to generate random numbers from a list containing the whole of the target population, this is probably the easiest way.

Stratified Sampling

This involves dividing your target population into sub-groups and then taking a simple random sample in each sub-group. In **stratified sampling**, non-overlapping variables such as age, income, ethnicity or gender are often used as the sub-groups.

Stratified sampling has an advantage in that it enables the researcher to represent important subgroups of the population, especially small minority groups. In order to be even more precise, researchers will often use the proportion of participants in the sub-group that represent the proportion of the sub-group in the target population. For example, if people over 65 years old make up 40% of the target population, then 40% of the total participants in the final sample will be from the over 65 sub-group. This is called proportionate stratified sampling and it will generally have more statistical precision than simple random sampling.

Cluster Sampling

Cluster sampling is a sampling technique where the entire population is divided into groups or clusters, and a random sample of these clusters is selected. It is typically used when the researcher cannot get a complete list of the members of a population they wish to study, but they can get a complete list of groups or 'clusters' of the population. It is also used when a random sample would produce a list of subjects so widely scattered that surveying them would prove to be far too expensive, for example—people who live in different postal districts in the UK. It is easier to take a random sample of the postal districts and draw participants from those.

Non-probability-based Sampling Methods

With non-probability-based sampling methods, samples are selected based on the subjective judgement of the researcher, rather than random selection. They are more likely to be used in qualitative research because the goal is not to achieve objectivity in the selection of samples or necessarily to attempt to make generalisations from the sample being studied to the target

population. Instead, researchers tend to be interested in the details of the sample being studied. While making generalizations from the sample study may be desirable; it is more often a secondary consideration.

Opportunity (Convenience) Sampling

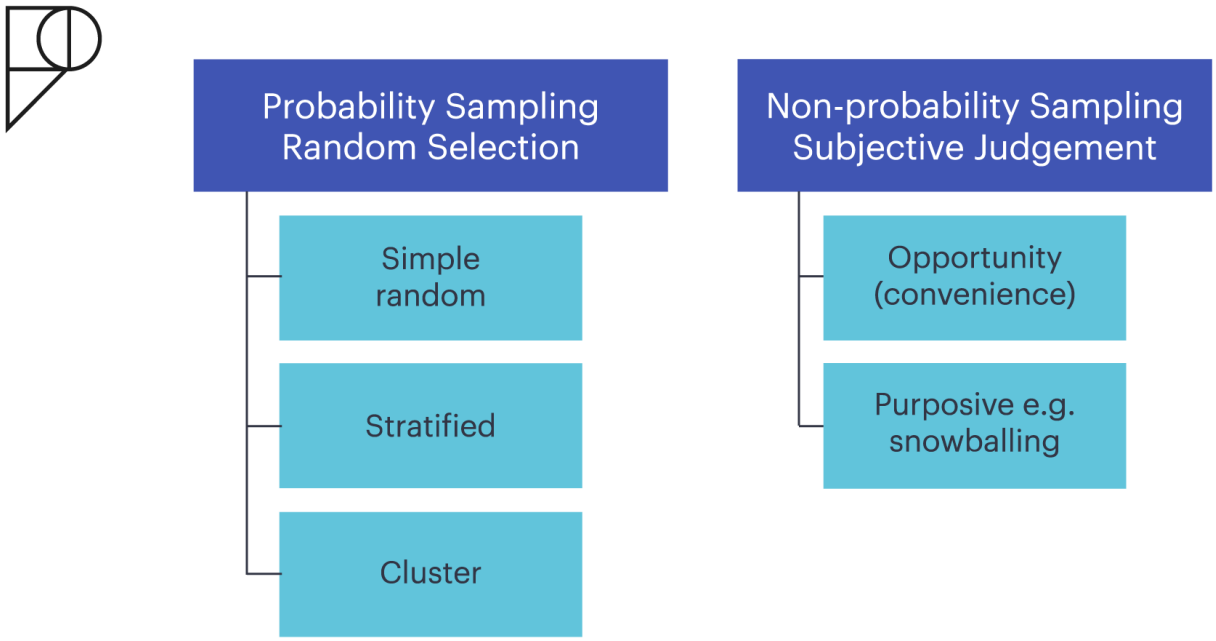
This is the most common form of sampling used by students conducting their internally-assessed experiments for their IB Diploma Psychology course. **Opportunity sampling** consists of taking the sample from people who are available at the time the study is carried out and fit the criteria the researcher is looking for. It is a popular sampling technique because it is easy in terms of time and cost. For example, the researcher may use friends, family or colleagues. It is adequate when investigating processes that are thought to work in similar ways for most individuals, such as memory processes. Opportunity sampling is the usual method with natural experiments because the researcher has no control over who is studied.

Purposive Sampling

There are several examples of purposive sampling, which, as its name suggests, is when researchers choose a sample on the basis of those who are most representative of the topic under research or from those with appropriate expertise.

One of the most common purposive sampling methods is **snowball sampling.** When information is needed

from key people in an organisation or from people who have experience of the topic under research, then the researcher may select one or two people for an interview, and these may, in turn, suggest further relevant people who could be interviewed.



3.5 Ethics

All psychological research is bound by a code of practice and ethical principles. In the UK, the source of such principles is the British Psychological Society's Code of Ethics and Conduct and in the USA it is the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct.

Previous animal and human research would, if conducted now, break ethical guidelines. It is argued that sometimes a measure of deception in the case of people, or discomfort or worse, in the case of animals, is justified in the pursuit of knowledge that could improve the lives of many. It is difficult to conduct research without running into ethical arguments, but this is a necessary process to avoid thoughtless damage to participants, be they animal or human.

Research Involving Humans

Conducting research that will cause stress, humiliation or any harm whatsoever to the participants is not allowed. Participants need to be fully informed and to give written consent for the research. At any time, participants have to know that they can withdraw themselves or their data from the study, and they should be fully briefed and debriefed as to the aims, methods and (afterwards) the results and how such results will be used. Children, as defined by the laws of the country wherein the study is being conducted, need the signature of a parent or guardian (who, of course, must be informed of all aspects of the research) before they may participate.

If for the purposes of medical research, participants have a chance of being allocated to a placebo group, and, therefore, not receive the same treatment as the experimental group, they need to be fully informed of and give their permission for this before the experiment starts.

Ethics in Psychological Research			
Informed Consent	No physical or psychological harm	Confidentiality	Avoidance of deception

Research Involving Animals

Animals cannot give informed consent, be debriefed or ask to withdraw from the research. However, they also should not be subjected to harm during research, wherever possible. The British Psychological Society's guidelines recommend using the smallest possible number of animals, engaging in naturalistic studies as opposed to laboratory experiments, never using endangered species and making sure that the knowledge gained justifies the procedure. See Chapter 4 on the Biological Approach for more details of the ethics of animal research.

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4. Evaluating Research

4.1 Reliability

The quality of the research data produced by psychologists varies. You cannot, therefore, trust all the conclusions that investigators draw when they have carried out research. Some research evidence is very sound, while some is weaker. It is important to challenge everything you read, including reports of research in the media. Once you start doing this, you begin to notice that newspaper headlines and their brief accounts of research are sometimes biased or misleading and that the research being (mis) described in the article may be seriously flawed and, therefore, unreliable. Conversely, the research itself may be fine, but the media report may be seriously flawed and inaccurate! Where possible, if the media report stimulates your interest, try and find the original study and make your evaluation of it.

To conduct research, psychologists must find ways of measuring things. The measuring instrument must be both reliable and valid. It must measure what we want it to measure, and it must be consistent.

Reliability refers to consistency. For example, a person should measure the same height wherever and whenever s/he measures him/herself. During adulthood, our height will stay the same (at least between the ages of about 20 and 60) and should be consistently provided if our tape measure is reliable. If a measurement is reliable it will be consistent and stable, and we can trust the results. A piece of research is reliable if we can replicate it and get similar results.

Reliability can be checked using correlational techniques, such as the **test-retest** method, where participants take a test twice, and if the test is **reliable** the two scores will be highly correlated, so if they score highly in one test they should score highly in the other one.

Another way of checking the reliability of a piece of research is to use the measure of **inter-rater reliability**. This type of reliability is concerned with how closely different people who are marking a test or observing a behaviour agree with each other. If the behaviour or work has been measured (marked) reliably, then there will be high agreement.

4.2 Validity

It is possible for an experiment and the related method of data collection to be highly reliable and yet not be valid. The **validity** of a psychological measure is the extent to which it measures what it intended to measure. Sometimes it is possible to measure something else accidentally instead. The classic example is that of the early intelligence quotient (IQ) tests, which instead of measuring intelligence measured general knowledge and language skills, with children from the wealthiest families and with the most-educated parents doing better on the tests.

Internal validity means 'Does this test accurately measure what it is supposed to?' If a test is used to measure a particular behaviour and there is a difference in that behaviour between participants, but the test does not measure the difference, then the test has no internal validity. The case above of IQ testing is an example of a lack of internal validity.

External validity means 'Can the results from this test be generalised to populations and situations beyond the situation or population being measured?' There are two types of external validity:

- **Population validity** refers to the extent to which the results can be generalized to groups of people other than the sample of participants used. Much psychological research uses university students as participants (for example, Bartlett, 1932) and it is difficult to say for sure that the results can be generalised to anyone other than university students.
- **Ecological validity** refers to the extent to which the task used in a research study is representative of real life. Research into eyewitness testimony (see Loftus and Palmer, 1974) has generally lacked ecological validity because participants viewed videos of accidents rather than seeing them in real life, which would have been impossible to organise and also unethical.

4.3 Credibility

Credibility is a term used in qualitative research to assess whether the findings of a study are congruent with the participants' perceptions and experiences. If so, the findings of the research gain more value and are more believable. Credibility in qualitative research is closely aligned with the concept of internal validity in quantitative research (see above). This is due to the fact that credibility is concerned with the accuracy of results obtained in research. Ultimately, only the study's participants have a fully legitimate position in saying whether results of a study are credible or not. This can be carried out by a process called **member checking** where each participant is allowed to check transcripts of what they have said to the researcher (s) to check that their statements have been transcribed accurately. However, credibility can also be assessed **by peer debriefing** where a colleague of the researcher (s) or an expert carries out an analysis of a study's findings. Furthermore, **triangulation** can be used and this involves one research question being investigated by a number of different research methods to ascertain the consistency of the results: if all of the methods show similar findings, this strengthens the credibility of the qualitative results. Credibility is also known as **trustworthiness.**

4.4 Bias

One of the factors that researchers need to be aware of in a study is *bias.* Bias refers to factors that may affect the results of the study. The following are common type of bias in research:

Researcher bias is when the researcher acts differently towards participants, which may influence or alter the participant's behaviour. There a number of different types of researcher bias and these include confirmation bias, where the researcher seeks evidence to support his/her research hypothesis, and gender bias, where the researcher makes judgements about a participant based on their gender. Researchers should therefore be trained to minimise such biases in their studies. In qualitative research in particular, the researcher must also assess personal biases in relation to the study (for example, topic, choice of participants and method) and should apply reflexivity to control for this.

Participant bias, or **demand characteristics**, is when participants act according to how they think the researcher may want them to act. They may also want to impress the researcher and present themselves in a positive way especially if they are being asked sensitive questions. In order to avoid any negative aspects about their behaviour being known by the researcher, they could therefore fabricate their responses in order to look better to the researcher. This is known as the social desirability effect.

Sampling bias occurs when the sample is not representative of the target population, whether the sample is based on particular selection criteria in qualitative research or on probability sampling in quantitative research. The outcome of sampling bias therefore is that research can be restricted in how far it is generalizable to the wider population.

Reflexivity

Researchers conducting qualitative studies should be aware of how far their own actions within a study affect the results obtained. They should therefore reflect on their involvement in their research to determine whether they may have biased the study in some way. There are two types of reflexivity:

- **Personal reflexivity** involves researchers assessing whether their personal values, beliefs, experiences and expectations have influenced how the study has been conducted and how the data has been interpreted.
- **Epistemological reflexivity** relates to the knowledge gathered from a study. One aspect of this type of reflexivity is researchers considering whether the research methods used in the study have restricted the findings and assess whether alternative methods may have been better. If a researcher used a case study, for example, he/she may consider on reflection that a focus group would have been more useful in investigating the research question.

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5. Drawing Conclusions

5.1 Correlation and Causation

Studies that assess correlational relationships between pairs of variables seem at first sight to imply that any strong relationships between variables are evidence that one variable has a causal effect on another. However, this is not the case because such research investigates how variables behave naturally with other variables and are therefore not directly manipulated by a researcher. In order to establish causal links between variables, researchers must manipulate them to see their effect on other variables. For example, in an experiment, the researcher directly manipulates independent variables to see their effect on dependent variables. In this way, the degree of causation between variables can be scientifically explored.

5.2 Replication

Replication is the degree to which the study can be repeated by the same or different researchers and achieve comparable results. In the field of quantitative research in psychology, experiments have become a dominant research method and one reason for this is that the highly standardised procedures they use can be replicated by other researchers to test the reliability of the results across different locations, participants and time periods. If data is consistently reliable, this indicates the robustness of the replicated effect. This is desirable in research because if results are replicated a number of times and are therefore established as reliable, this helps to modify theories of the behaviours under investigation.

Other methods of psychology are less easy to replicate, particularly if they are investigating one-off situations and measuring qualitative data. This means that the reliability of naturalistic observations, interviews and case studies is less easy to establish with the result that such research may need to rely more on method triangulation (see below). Such a process is naturally more time-consuming and researchers, therefore, need to be more innovative in working out ways to establish the reliability of their findings.

5.3 Generalisation for Quantitative Research

One of the issues in quantitative research is how far the results obtained can be generalised to the target population if restricted samples are used. A large number of experimental quantitative studies around the world rely on the volunteer sampling of university students in a restricted age range. This leads to biased samples and restricts the extent of generalisation of findings to other groups in the target population. Random sampling could help reduce this issue as it samples participants from the target population randomly and is said therefore to be representative of the target population. However, random sampling is time-consuming especially if the target population is large. Added to this, people selected via random sampling may elect not to take part. These issues have contributed to the popularity of non-representative sampling techniques like volunteer and opportunity sampling in psychology research. In order to address the issue of a lack of generalisability to the target population however, studies could be repeated with a variety of different participant groups within a target population to establish how far the results reflect the behaviour of different target population members.

5.4 Transferability for Qualitative Research

In qualitative research, the findings from a study can be transferred to settings and/or populations outside the study only if the findings of a particular study are corroborated by findings of similar studies (for example, in multiple case studies). This concept is highly similar to generalisation in quantitative research as it seeks to establish how far results of research reflect the wider population/other settings. Initially, it is those who *read* a study who make the decision regarding the degree of transferability. Readers could be other researchers in the same field, for example. Initially, the researcher(s) involved in the original study must ensure that the readers are given as much information as possible so that they can judge whether the study is applicable to other contexts/populations. Readers can then use the results of other detailed case studies to make a comparison of the degree of transferability in the research findings.

5.5 Triangulation

Triangulation is an approach used to ensure enough evidence is available to make a valid claim about the results of a study. To achieve this, there are a number of ways that the concept of triangulation can be

utilised in research.

Methodological triangulation tests a theory or a psychological phenomenon using different methods of inquiry. Data from a variety of methods (survey, interview, case study, experiments) is used to help validate the results of a study. Both qualitative and quantitative data can be involved in methodological triangulation.

Theory triangulation is used to assess the results of a study from a range of theoretical perspectives. One way to achieve this is to bring together researchers from a number of disciplines and ask them to interpret the findings. If there is agreement among them, then the validity of the study gains ground.

Researcher triangulation can also be used to check how the data is being collected and interpreted in a study. For example, an observational study could use a number of the researcher's colleagues as additional observers to assess how far the data collected is similar across all of them. The more similar the results, therefore, the more valid the findings become.

A final way of checking the validity of the findings of a study is to use **data triangulation** whereby the data collected is compared to other data collected on the same behaviour under investigation. For example, a case study collecting data about coping skills in an amnesic individual could compare this with interview data and observational data on coping behaviour in other amnesic patients to test the validity of the case study's results.

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the approaches to research in psychology.

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Chapter 3: Assessment in IB Psychology

Chapter Outline

1. How will I be assessed?
2. How will my writing be assessed in IB Psychology?
3. What do I write about?
4. How can I score top marks when I write in response to SAQs?
5. How can I score top marks when I write in response to ERQs?

Essential Questions

- How will I be assessed in IB Psychology?
-

How can I improve my writing?

After studying this chapter, you should be able to:

- [ ] Distinguish between SAQs and ERQs
- [ ] Identify the requirements of Paper 3 (HL students only)
- [ ] Understand how your writing will be assessed
- [ ] Identify the requirements of each of the command terms
- [ ] Develop strategies to improve your writing

Myths and Misconceptions

Some people are born writers.

Writing is a skill you can develop. To write well, you need lots of practice writing IB style essays. You need patience too as it takes many months to write like a psychologist. To improve your writing, you must be committed to the process. You also need to be committed to improving your writing.

Google searches can help me answer IB Psychology questions.

Google searches can provide you with information about a topic but do not copy and paste content directly into your essays. Take notes and think about the material. You must write in your own words. Pamoja uses Turnitin.com to detect any similarities between your writing and internet sources.

The more I write, the better my marks.

Not so. You should write around 250 words for an SAQ and 800 words for ERQ, but writing everything you know about a topic without answering the question will not result in a high score. “Focus” is an important criterion in evaluating your writing.

I can use research studies to prove my point.

Not so. Psychology is a new science and answers to research questions are tentative and often contentious (contentious = likely to cause disagreement between people). Instead of “prove” use “show” or “demonstrate”.

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1. How will I be assessed?

There are two types of assessment in IB Psychology: formative that provides feedback on how you are learning and summative that provides feedback on how much you have learnt.

Formative work needs to be submitted by the due date and it is marked 'Complete' or 'Incomplete' by your teacher.

Examples of Formative Assignments:

- Write a description of a psychological study.
- Write an outline for an essay topic.
- Make graphic organisers showing memory models.
- Contribute to a group project.

Summative work also needs to be submitted by the due date. Your answers to Short Answer Questions (SAQs) are marked out of 9, and your answers to Extended Response Questions (ERQs) are marked out of 22.

Examples of Summative Assignments

- SAQ: Explain how one hormone influences one human behaviour.
- ERQ: Discuss social learning theory.
- ERQ: Evaluate two treatments for one or more disorders.

Your IB grade is based on internal and external assessments. The internal assessment (IA) is a 2200-word report on an experiment undertaken in year 2. This report is graded by your teacher and then moderated by IB. External assessments are IB examinations held at your school.

The *IB Psychology Guide* provides you with a set of assessment objectives and syllabus outlines for both Standard and Higher Level Courses.

Standard Level IB Psychology	
Assessment Component	**Weighting**
External assessment (3 hours)	75%
Paper 1 (2 hours) Section A: Three short-answer questions on the core approaches to psychology (27 marks) Section B: One essay from a choice of three on the biological, cognitive and sociocultural approaches to behaviour (22 marks) (Total 49 marks)	50%
Paper 2 (1 hour) One question from a choice of three on one option (22 marks)	25%
Internal assessment (20 hours) This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.	
Experimental study A report on an experimental study undertaken by	25%

the student (22 marks)	

Table 3.1 SL Assessment Components

Higher Level Assessment Components	
Assessment Component	**Weighting**
External assessment (5 hours)	80%
Paper 1 (2 hours) Section A: Three short-answer questions on the core approaches to psychology (27 marks) Section B: One essay from a choice of three on the biological, cognitive and sociocultural approaches to behaviour. **One, two or all** of the essays will reference the additional HL topic (22 marks) (Total 49 marks)	40%
Paper 2 (2 hours) Two questions; one from a choice of three on each of two options (Total 44 marks)	20%
Paper 3 (1 hour) Three short-answer questions from a list of six static questions on approaches to research (24 marks)	20%
Internal assessment (20 hours) This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.	
Experimental study A report on an experimental study undertaken by the student (22 marks)	20%

Table 3.2 HL Assessment Components

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2. How will my writing be assessed?

A set of criteria is used by your teacher to grade your summative assignments. How well you have met these assessment criteria is judged by using markbands. For example, if your response to an SAQ is focused on the question, with accurate and relevant knowledge of concepts and research studies you will be awarded between 7 and 9 marks.

Markband	**Level Descriptor**

0	The answer does not reach a standard described by the descriptors below.
1-3	The response is of limited relevance to or only rephrases the question. Knowledge and understanding is mostly inaccura or not relevant to the question. The research supporting the response is mostly n relevant to the question and if relevant only listed
4-6	The response is relevant to the question, but does not meet the command term requirements. Knowledge and understanding is accurate but limited. The response is supported by appropriate researc which is described.
7-9	The response is fully focused on the question and meets the command term requirements. Knowledge and understanding is accurate and addresses the main topics/problems identified in the question. The response is supported by appropriate researc which is described and explicitly linked to the question.

Table 3.3 SAQ Level Descriptors

The assessment criteria for the ERQ is more extensive as you will be writing an essay. The top mark you can earn is 22. To do that you need to:

- Focus on the question
- Demonstrate your knowledge and understanding
- Use relevant research studies to support your answer
- Show critical thinking
- Show effective organisation and expression

Criterion A: Focus on the question (2 marks)

Mark	**Level Descriptor**
0	Does not reach the standard described by the descriptors below.
1	Identifies the problem/issue raised in the question
2	Explains the problem/issue raised in the question

Criterion B: Knowledge and understanding (6 marks)

Mark	Level Descriptor
0	Does not reach the standard described by the descriptors below.
1-2	The response demonstrates limited relevant knowledge and understanding. Psychological terminology is used but with errors that hamper understanding.
3-4	The response demonstrates relevant knowledge and understanding but lacks detail. Psychological terminology is used but with errors that do not hamper understanding.
5-6	The response demonstrates relevant, detailed knowledge and understanding. Psychological terminology is used appropriately.

Criterion C: Use of research to support answer (6 marks)

Mark	Level Descriptor
0	Does not reach the standard described by the descriptors below.
1-2	Limited relevant psychological research is used i the response. Research selected serves to repeat points alread made.
3-4	Relevant psychological research is used in suppo of the response and is partly explained. Research selected partially develops the argume
5-6	Relevant psychological research is used in suppo of the response and is thoroughly explained. Research selected is effectively used to develop the argument.

Criterion D: Critical thinking (6 marks)

Mark	Level Descriptor
0	Does not reach the standard described by the descriptors below.

1-2	There is limited critical thinking and the response mainly descriptive. Evaluation or discussion, if present, is superficial.
3-4	The response contains critical thinking but lacks development. Evaluation or discussion of most relevant areas is attempted but is not developed.
5-6	The response consistently demonstrates well- developed critical thinking. Evaluation or discussion of relevant areas is consistently well-developed.

Criterion E: Clarity and organisation (2 marks)

Mark	Level Descriptor
0	Does not reach the standard described by the descriptors below.
1	The answer demonstrates some organization and clarity, but this is not sustained throughout the response.
2	The answer demonstrates organization and clarity throughout the response.

Table 3.4 ERQ Level Descriptors

> Time to reflect
>
> Reflect on how you have been assessed in the past. Are the requirements of good writing in IB Psychology similar or different to other subjects you have studied?

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3. What do I write about?

Your writing will focus on topics from the Core and the Options. You will describe, explain, discuss and evaluate psychological concepts and theories and show how research has advanced our understanding of human behaviour. For example, you will write about how hormones influence behaviour, or how decisions are made or how membership of social groups affects identity. You will also write about research methods and ethics, and HL students will have a separate paper exploring research methods (approaches to research) further.

Every SAQ or ERQ has two components: a topic and a command term. The command term is the signpost that tells you how you should demonstrate your knowledge and your ability to think critically.

As you can see below, command terms are ordered by how deeply you should write about a topic. 'Outline' only requires a brief account or summary but 'To what extent?' involves much more depth and critical thinking on your part.

Table 3.5 sets out the command terms used in IB Psychology:

Assessment Objective 1 (AO1)	**Knowledge and understanding of specified content**
Describe	Give a detailed account
Identify	Provide an answer from a number of possibilities (used on the HL research methods paper)
Outline	Give a brief account or summary
Assessment Objective 2 (AO2)	**Application and analysis of knowledge and understanding**
Comment	Give a judgment based on a given statement or result of a calculation (used on the HL research methods paper)
Explain	Give a detailed account including reasons or causes
Suggest	Propose a solution, hypothesis or other possible answer (used on the HL research methods paper)
Assessment Objective 3 (AO3)	**Synthesis and evaluation**
Contrast	Give an account of the differences between two (c more) items or situations, referring to both (all) of them throughout.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.
Evaluate	Make an appraisal by weighing up the strengths and limitations.
To what extent?	Consider the merits or otherwise of an argument c concept. Opinions and conclusions should be presented clearly and supported with appropriate evidence and sound argument.

Table 3.5 Command Terms

4. How can I score top marks when I write in response to SAQs?

To reach the top markband, you need to demonstrate accurate knowledge of a topic. That involves defining psychological terms and explaining concepts. To support your answer, you must know the details of one or more studies. In short, know what you are writing about and stay focused in meeting the requirements of the command term.

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5. How can I score top marks when I write in response to ERQs?

ERQs are much more complex, and it does take time to learn how to meet the requirements of these questions.

To reach the top markbands you must:

- Explain the problem or issue raised in the question.
- Use and explain relevant psychological research to support your ideas and develop your argument (this is sometimes called a thesis).
- Develop your ideas.
- Evaluate studies and think critically.
- Write an introduction, body paragraphs and a conclusion.

This is a long list so let's unpack it. There are four considerations:

1. Focus

You must focus on the question. How can you show the examiner you are doing that? The best approach is to use the words in the question. When asked to discuss the effects of genes on behaviour, then the word "genes" and "behaviour" should appear in your essay many times. That is simple enough.

2. Research

You have to include relevant research studies. There are hundreds of thousands of psychological studies but we will focus on classic studies and important modern studies. The question here is how many. There are no hard and fast rules but at least two should be used. You do have to balance depth and breath. The studies should not be all classic studies. Aim for some modern ones from the late 20th and the 21st Centuries. In deciding which studies to use, and how many, think about what the study shows. There is not much point in having several studies that all make the same point!

3. An argument

You must develop an argument. Some subjects call an argument a thesis. Do not think of this argument as a fight or squabble as the word means something entirely different in academic writing. Instead see your argument as a way of showing you can think critically about the question by providing the reader with your point of view, your perspective. If you look below; all the ERQ command terms require you to make an argument.

Command Term	Examples of Arguments	
Contrast	Give an account of the differences between two (or more) items or situations, referring to both (all) of them throughout.	You could argue that two mode of memory or two explanations of behaviour are somewhat different or very different.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.	You could look at a range of theories and make an argumer identifying the most convincing theory or hypothesis. For example, psychologists advan different arguments about the reliability of our memories. You could consider both views but argue that one viewpoint is better supported by evidence.
Evaluate	Make an appraisal by weighing up the strengths and limitations.	Here you could argue that biological treatments for depression do have their limitations but on balance they are an effective treatment optic
To what extent?	Consider the merits or otherwise of an argument or concept. Opinions and conclusions should be presented clearly and supported with appropriate evidence and sound argument.	This command term requires you make a clear statement about the extent to which a theory explains a behaviour successfully. Here you could argue that, to a large extent, genetic heritance influences behaviour.

Table 3.6 ERQ Command Term and Example Arguments

You should be able to write your argument in a sentence or two. Make it clear and explicit. You can write a sentence like: “This essay will argue that . . .” As well as stating your overall response to the ERQ you need to think critically about the studies you use to support your point of view. Some studies are very useful, and they do present convincing evidence to support your perspective, but all studies have their limitations. You need to identify these flaws and **say how they affect your argument**. Though you have taken a point of view, that does not mean you are blind to other perspectives or the limitations of the studies you are using to support your argument. During the course, you will be shown model answers that demonstrate critical thinking.

Further advice about critical thinking can be found in the IB Psychology Course Guide.

4. Organisation

Your essay should have an introduction, body paragraphs and a conclusion. This structure helps your reader follow your train of thought. To do this, you must link the parts of your argument together and have an orderly sequence of one idea after the other. Though the idiom “train of thought” originated before railway trains were invented, we can use this metaphor to help understand how the different parts of your essay should pull together.

The Introduction

Picture a railway train. Its powerful engine up front with a sign showing its destination. The passenger carriages follow behind with the conductor’s wagon last. Think of your introduction as the driving force behind your essay. It should tell the reader where you are taking them. You can do this by explaining the key terms of the questions and stating your argument. You should also identify the studies you will use to support that argument.

The body paragraphs

In the same way that train carriages need to be joined, so do your body paragraphs need linkages. Without these connections, your train of thought is lost. The best way to sequence paragraphs is to write about your studies in chronological order. In other words, if a paragraph makes a point by citing a study of 1968 it should come before research from 2006. Each paragraph should move your essay forward, and that is where the topic and the concluding sentence of each paragraph is essential. Both these sentences should relate to the ERQ title.

The conclusion

The last paragraph of your essay should sum up your key ideas and restate your argument. It should show that you have answered the ERQ.

Model Answers

Here is a response to an SAQ from the Biological Approach:

Describe one study of neuroplasticity in the brain.

Neuroplasticity refers to the ability of the brain to change and evolve in response to learning/cognition or an environmental stimulus. An increase or decrease in the activity of a certain area of the brain (localization), increases or decreases (neural pruning), the neural networks and dendritic branches and synapses in that areas, thus affecting its volume.

- *Teacher comment: A very good definition of neuroplasticity. No more needed by way of introduction, as the SAQ requires a description of a study.*

An example of this is Maguire et al. (2000), which looks at how spatial memory correlates with neuroplasticity. Previous animal research had suggested a correlation. Maguire’s aim was to find out whether structural changes in the human brain occurred as a result of increased spatial memory use such is needed by taxi drivers. For her quasi-experiment, through purposive sampling she collected MRI scans of 16 right-handed male taxi drivers with more than 1.5 years of experience and 50 MRI scans of healthy right-handed males who were not taxi drivers (control group). The research implemented an independent measures design and compared the scans of the two groups. Maguire found that the brain of taxi drivers had significantly more grey matter in the hippocampus. More specifically, this group had a larger posterior hippocampus and a smaller anterior hippocampus than the control group. Moreover, the volume of the right posterior hippocampus of the more experienced taxi drivers, was significantly larger than the one of the less

experienced colleagues. Maguire concluded that spatial memory was located in the posterior hippocampus and that there was a positive correlation between the years as a taxi driver and the volume of the posterior right hippocampus.

- *Teacher comment: After a detailed description of the aim, procedure and results, all using psychological terms, the student links back to the question.*

This study is an example of neuroplasticity because it shows how increased use of spatial memory, such as required by the taxi drivers, affects the volume and growth of hippocampus. Maguire et al (2000) demonstrates neuroplasticity as a result of an environmental stimulus/need.

- *Teacher comment: Explicit answering of question demonstrating the relevance of the study.*

Model Answers

Here is a response to an ERQ from the Sociocultural Approach:

'Evaluate one or more studies that have investigated Social Cognitive Theory.'

Psychologists have attempted to understand learning processes for decades, especially how we learn certain behaviours, as this is the very foundation of human psychology. One compelling explanation is Social Cognitive Theory (SCT), which proposes that observation of others (as role models) in one's social environment influences behaviour. Bandura et al. (1961) and Konijn et al's (2007) studies investigate how individuals learn aggressive behaviour and both provide evidence for the SCT. This essay will evaluate the aforementioned studies and argue that despite providing useful insights, further research is necessary to understand why humans adopt certain behaviours.

- *Teacher comment: Issue identified*
- *Teacher comment: Clear link back to the question is made*

SCT proposes that observational learning (the observation of models in an individual's environment) influences behaviour. Granted, not all observed behaviours are adopted, so SCT outlines four factors that determine if a behaviour will manifest itself. Firstly, learners must pay attention to the model; attractiveness, authority, or self-identification with the model all influence this. Secondly, the behaviour must be remembered (retention). Self-efficacy (the belief that one can accomplish a task) is also important, with factors like positive mood and past successes increasing likelihood of a behaviour's manifestation. Lastly, observers need motivation. This is affected by outcome expectancies learned through observation. If the observed model is rewarded for a behaviour, the learner's motivation increases and vice-versa. This is termed vicarious reinforcement and explains why observers fail to adopt a behaviour despite meeting other requirements.

- *Teacher comment: Describes the theory using all the relevant psychological terms*

Bandura et al's laboratory experiment (1961) demonstrates SCT. The researchers aimed to determine if children (observers) learn aggression from adults (models) and if they are more likely to imitate same-sex models (a form of self-identification). 36 boys and 36 girls from an American nursery were matched for aggression levels towards objects and subsequently split into groups of 12 using a 2x2 factorial design. IV1 was if the adult model was aggressive (towards Bobo doll) or not (assembled toys). IV2 was if participants saw a same-sex model. Remaining participants had no model; they served as a control. After exposure to

their assigned models, children were placed into a toy room, but were soon taken out and told the toys weren't for them. This created frustration in participants that could later lead to aggression. Finally, children were taken to a separate room with toys, including those used by their former models, for observation.

- *Teacher comment: Study described accurately*

Results showed that children observing aggressive models were significantly more verbally and physically aggressive than those in other groups (specifically towards Bobo). Additionally, children were more likely to imitate same-sex adults. Researchers concluded that exposure to aggressive models, especially same-sex models, cause children to imitate aggressive behaviours. The difference in aggression between children observing different models supports SCT. The heightened aggression from observing same-sex models also supports SCT by showing how self-identification influences behaviour adoption.

- *Teacher comment: Link made back to the question*

While this study is compelling evidence that observational learning influences behaviour, it has strengths and limitations to be considered. Through controlled factors and a 2x2 factorial design, the study provides clear evidence of a cause and effect relationship between the role model's behaviour and the child's behaviour. However, since this wasn't a longitudinal study, there is no guarantee that children will continue to display aggressive behaviour. SCT argues that learned behaviours are continued, therefore the study's support for SCT is limited by this. Additionally, the study method shows some bias, as Bobo dolls are made to be hit; there was a lack of emotions and vicarious reinforcement that would be present in real life, and so this lacks ecological validity. Lastly, the sample's homogeneity limits generalizability, but this can be rectified through replication. Overall, the study provides some support for SCT.

- *Teacher comment: Evaluation of the study made relevant to SCT and linked back to the question*
- *Teacher note: This essay could have omitted the second study completely and moved onto the conclusion and still gained excellent marks. It is longer than 800 words, and if you think you cannot write this much, then move onto your conclusion. Never submit and essay without a conclusion.)*

Konijn et al's laboratory experiment (2007) is a more modern study supporting SCT. Researchers aimed to investigate if violent videogames, mixed with wishful self-identification with violent characters, increases aggression. Their participants, 112 Dutch middle school students with low educational levels, answered questionnaires on aggressiveness and sensation-seeking. They were then randomly assigned to play a violent (aggressive model) or a non-violent game for 20 minutes. After this, participants played a competitive game against an ostensible partner, which involved winners blasting the loser with a loud noise. Participants chose a blast level between 1 and 10 and were told that the final three levels could cause permanent hearing damage. Finally, participants answered a questionnaire to assess wishful self-identification with the main character of their assigned game. Results showed that participants playing violent games were more aggressive towards their partner. Aggression was heightened when participants in the violent videogame group had an identification with the main character; these participants used nose levels 8-10, despite being told of its potential harm. Researchers concluded that aggressive models (violent videogames) and wishful self-identification (measured through questionnaires) increase the likelihood of adopting aggressive behaviours. The positive correlation between self-identification and observing aggressive models and measured aggression levels supports SCT.

- *Teacher comment: Link to question made at end of accurate and detailed description of study*

Strengths of the study were the controlled environment, assessment of prior aggression, measurement of unprovoked aggression, and use of a control group, which all all helped to establish a causal relationship and ruled out alternative explanations, ultimately making the study more internally valid. Compared to Bandura's study, this experiment has high ecological validity as participants had an ostensible partner and an awareness of consequences. Additionally, researchers didn't assume self-identification like Bandura, making results more reliable. However, like with the Bandura study, there is no guarantee that aggressive behaviour will continue. Results are also not generalizable to females, highly educated individuals, and other age groups, so the study must be replicated and compared to ensure reliability. Like Bandura's study, Konijn's has excellent controls, but really only supports SCT for a limited target population.

- *Teacher comment: Evaluation again uses psychological terminology and weighs the strengths and limitations*

To conclude, SCT states that behaviour is influenced by observational learning and is adopted based on various factors. Bandura et al (1961) and Konijn et al (2007) both provide some support for SCT by showing participants' tendency to imitate aggressive behaviour seen by models, and that this behaviour is amplified with a self-identification factor. Though compelling, both studies have limitations, especially regarding population validity that make it difficult to generalise their findings in support for SCT. That being said, further research could be conducted to fully understand this phenomenon.

- *Teacher comment: Final evaluative comment in conclusion and providing link back to the question*

HL Paper 3

Paper 3 is for HL students only. It assesses applied knowledge of research methods (approaches to research) and ethical considerations when conducting research. The paper consists of a research scenario followed by a three short answer questions for a total of 24 marks. The questions will be chosen by the paper setters from the set of static questions outlined below. Therefore the questions will not vary from the format given in the grid.

Question 1

*Question 1 will consist of **all** of the following questions (total 9 marks)*

The questions will be assessed using an analytical markscheme

a. **Identify** the research method used and outline two characteristics of the method.	*(3 marks)*
b. **Describe** the sampling method used in the study.	*(3 marks)*
c. **Suggest** an alternative or additional research method giving one reason for your choice.	*(3 marks)*

Question 2

Question 2 will consist of one of the following questions (total 6 marks)

The question will be assessed using an analytical markscheme

Describe the ethical considerations that were applied in the study and **explain** if further ethical considerations could be applied.	*(3 marks)*
Describe the ethical considerations in reporting the results and **explain** additional ethical considerations that could be taken into account when applying the findings of the study.	*(3 marks)*

Question 3

*Question 3 will consist of **one** of the following questions (total 9 marks)*

The question will be assessed using the rubric below

Discuss the possibility of generalizing/transferring the findings of the study.	*(9 marks)*
Discuss how a researcher could ensure that the results of the study are credible.	*(9 marks)*
Discuss how the researcher in the study could avoid bias.	*(9 marks)*

Markband	**Level Descriptor**
0	The answer does not reach a standard described by the descriptors below.
1-3	There is an attempt to answer the question, but th argument is mostly inaccurate. The response contains no or mostly inaccurate reference to the approaches to research. The response makes no direct reference to the stimulus material or relies too heavily on quotatio from the text.
4-6	The question is partially answered, and the argument is accurate but limited in scope. The response contains mostly accurate reference to the approaches to research. The response makes some use of the stimulus material.
	The question is answered in a focused and

7-9	effective manner with an accurate argument that addresses the main points. The response contains accurate references to the approaches to research and their strengths and limitations. The response makes effective use of the stimulus material.

Table 3.7 Rubric for Question 3

Example Paper 3 question

The stimulus material below is based on a study on the influences on young people's use of drugs.

The aim of this study was to investigate processes involved in drug-related decision-making in an adolescent sample. According to the researchers, the identification of important factors in decisions to use drugs could potentially help to develop and inform new approaches to prevention and education.

A purposive sample was recruited through advertising in youth clubs, nightclubs, shelters and schools. The sample was multi-ethnic and consisted of 30 participants (age range 16 to 21) including both males and females. Most of the participants lived with their parents, some were homeless and some lived with friends.

Before the semi-structured interview, the participants signed an informed consent where they also gave consent to videotape the interviews for later transcription and inductive content analysis of the qualitative data. They were also assured of anonymity. The interview guide prepared by the researchers included topics such as drug use of friends, personal drug use experience, and reasons for using as well as not using drugs.

The results showed that reasons for using drugs ranged from the desire to relax and decrease inhibition to increase energy, relieve boredom and depressive thoughts, and increase motivation to get things done. Some participants reported that media coverage of specific drugs influenced their decision of whether or not to use drugs. For example, news stories about ecstasy-related deaths had made them decide that the benefits of using that drug were not worth the risk of negative effects. The data also suggested that the decision to use drugs was rather through personal choice than social pressure.

The researchers concluded that prevention strategies should take into account that decision-making in drug use is complex and therefore multiple influences should be addressed in the design of future prevention programmes. They also recommend that further research is needed to decide on the relative importance of the different factors that influence different people's choice of drugs.

Answer **all** of the following three questions, referring to the stimulus material in your answers. Marks will be awarded for demonstration of knowledge and understanding of research methodology.

1	a	Identify the research method used and outline two characteristics of the method.[3
	b	Describe the sampling method used in the study. [3]

	c	Suggest an alternative or additional research method giving one reason for your choice. [3]
2		Describe the ethical considerations that were appli in the study and explain if furth ethical considerations could b applied. [6]
3		Discuss the possibility of generalizing/transferring the findings of the study. [9]

Find below sample responses to these Paper 3 questions:

1	a	The method used in this study was semi-structured interviews One characteristic of using this method to study drug use in adolescents is that a pre-prepared interview guide could be constructed. This enabled t researchers to decide beforehand which topics they were going to address when interviewing the adolescents. This included reasons for usin drugs in the context of this stud This meant that the researcher could be certain that all the topics they wanted to be discussed were dealt with. Another characteristic of semi-structured interviews is that the can be informal because the open-ended questions could resemble a normal conversatio The semi-structured interviews in this study, therefore, had the potential to facilitate a rapport between the interviewer and each adolescent to aid discussion of a socially sensiti topic.

	b	The sampling method used in this study was purposive sampling. In this study, a purposive sample was obtaine by advertising in youth clubs, shelters, nightclubs and schoo This was done to ensure that t sample had the characteristics that were salient to the researc study. One of the main characteristics of the adolesce sample that the researchers required was that all the participants had experience of taking drugs. In addition, the chosen advertising locations were considered by the researchers to be the best locations for obtaining the sample they required. This wa because they wanted to recruit younger people and these locations were, therefore, plac where adolescents with the required characteristics were likely to gather.
	c	Another research method that could be used is a focus group interview. The researchers cou have used 6-7 adolescents an asked them as a group to have discussion about the decision-making processes they had when they were thinking about using drugs. This would have been an ideal size for the grou as it would help ensure the adolescents felt more comfortable about taking part. As a result, the participants would be more likely, to be honest in how they responded each other's questions about drug use. This would lead to th generation of a large amount o data that would help the researchers gain more of an

		insight into younger people's reasons for choosing to take drugs.
2		**Ethical considerations that were applied in the study we the following:** Informed consent – it says that participants signed an informe consent form that also gave permission for videotaping the interviews and for inductive content analysis of the tapes. This is important so that they know exactly what is happenir during the interview and with t data afterwards. Anonymity – they were also assured of anonymity. Althoug it gives no further details, anonymity is usually ensured b the interviewer not knowing the participants' names and the participants not being informed of the names of others who are being interviewed. Confidentiality – as anonymity was guaranteed, this also means that confidentiality of data is assured. If the participants are not identified a all by their names, then the dat cannot be traced back to them during analysis or publication.
		Further ethical consideration that could have been applied were: Right to withdraw – to ensure that the participants were awar of their right to withdraw themselves at any time before during or after the interview, ar their data from the analysis, including all material on the videotape. It is important that th is something of which participants are aware.

		Protection from harm – this is a sensitive issue and some of th participants were clearly vulnerable people who were homeless. There should have been an offer of psychological help given before and after the interview – as participants may well have been psychologicall distressed. Researchers have ensure they cause no psychological harm to participants, so they should have been offered at least psychological help, and if possible physical assistance with health matters and accommodation as well. Debriefing – to give participant details of the programmes planned, or how to contact the researchers for the results of th research, of their rights to see the videotape of their interview and the transcripts and the fina conclusions and have anything changed or withdrawn before publication.
		The aim of the study was to fin factors that influenced decision making in relation to drug use and the inductive content analysis revealed a number of factors such as “desire to relax “decrease inhibition”, “increase energy” or “increase motivation and get things done”. By collecting qualitative data, therefore, the researchers were able to obtain rich information about drug use on the adolescent sample. As a result the ability to transfer the finding to a wider population may be possible. This is due to the fac that using a qualitative data collection method to gain information about drug use

3		means that a wide range of relevant information can be obtained. It could be argued therefore that the richness of th data collected in this study increases the likelihood that it can be transferred to other populations or settings. Nevertheless, it needs to be borne in mind that the study in the stimulus question is based on a rather small purposive sample in that the participants are selected based on the salient characteristics of havin experience with drug use. Furthermore, the ability to transfer the results on drug use from this study could be reduce by the fact that the participants came from very different backgrounds and the only thin they had in common was that they used drugs. The study should perhaps be corroborate by other similar studies in orde that transference of the finding to similar populations to those used in the study can be made with more confidence.
		An additional argument howev against transference of the results is that the data collecte may not be reflective of decision-making processes about drug-taking in similar ag groups in other cultures aroun the world. For example, there may be other factors influencin drug use in other cultures such as the effects of poverty and a need to escape from the realiti of living this way. Wider studie on the reasons why adolescen take drugs using samples from different cultures could, therefore, be beneficial.

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to understanding more about in assessment in IB psychology.

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Chapter 4: Biological Approaches to Understanding Behaviour

Chapter Outline

1. **The Rise of the Biological Approach in Psychology**
2. **Research Methods of the Biological Approach**
   - 2.1 Correlational Studies
   - 2.2 Case Studies
   -

2.3 Experiments
- 2.4 Ethics and Research Methods of the Biological Approach

3. The Brain and Behaviour

- 3.1 Techniques used to Study the Brain in Relation to Behaviour
- 3.2 Localisation
- 3.3 Neuroplasticity
- 3.4 Neurotransmitters and Their Effect on Behaviour
- 3.5 Assessment Advice

4. Hormones, Pheromones and Behaviour

- 4.1 Hormones and Their Effect on Behaviour
- 4.2 Pheromones and Their Effect on Behaviour
- 4.3 Assessment Advice

5. Genetics and Behaviour

- 5.1 Genes and Behaviour
- 5.2 Genetic Similarities
- 5.3 Evolutionary Explanations for Behaviour
- 5.4 Assessment Advice

6. The Role of Animal Research in Understanding Human Behaviour

- 6.1 Can Animal Research Provide an Insight into Human Behaviour?
- 6.2 The Value of Animal Models in Research into the Brain and Behaviour
- 6.3 The Value of Animal Models in Research into Hormones and/or Pheromones
- 6.4 The Value of Animal Models in Research into Genetics and Behaviour
- 6.5 Ethical Considerations in Animal Research
- 6.6 Assessment Advice

Essential Questions

- What research methods do psychologists adopting a biological approach use to study behaviour?
- What techniques do they use to study the brain?
- How do the brain's neural networks change over time and in response to learning and the environment?
- How do neurotransmitters affect behaviour?
- How do hormones and pheromones influence behaviour?
- How do genes influence behaviour?
- How does evolutionary psychology explain behaviour?
- What is the role of animal research in understanding human behaviour?

Myths and Misconceptions

Psychological research 'proves' hypotheses.

Never use the word 'prove' or 'proven' in your writing. Psychological research tests hypotheses and explains behaviour. Use 'supported', 'demonstrated that', but nothing is ever 'proved' or 'proven.'

The brain is far too complex to be studied in a meaningful way.

Innovative research in both the medical and biological psychology fields has made immense progress in revealing how the brain works and how it affects behaviour. In particular, technological advances in being able to generate images of the brain have enabled scientific research in this area to progress at a rapid pace. Have a look at the research being carried out at King's College London into infant brain development or at the Human Genome Project.

One day, it will be possible to use genetics to explain a substantial amount of human behaviour.

Although a considerable amount of research into genetically inherited behaviour has been conducted, scientists are still unable to state with certainty the degree to which behaviours such as aggression or disorders such as major depressive disorder are predominantly influenced by genes. Indeed, as human behaviour is so complex, working out which genes are responsible for different behaviours is a phenomenally difficult undertaking for scientists. Moreover, determining how far genes influence behaviour is further complicated by the influence of external environmental factors such as stress and type of upbringing on both our behaviour and our genetic makeup.

Pheromones can influence our behaviour without our awareness.

Some researchers have claimed that pheromones secreted from our body can influence the behaviour of others. The perfume industry promotes this idea, which is strange as pheromones are odourless! However, many researchers have questioned the existence of human pheromones in humans and argue that pheromone research in humans is based on flawed assumptions. The evolutionary biologist Tristram Wyatt had written extensively about this, and his TED talk on the subject is very interesting.

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1. The Rise of the Biological Approach in Psychology

During the 19th century, a quiet revolution in assessing how brain and behaviour are linked was taking place in the consulting clinics of such physicians as Paul Broca in France and Carl Wernicke in Germany. By adopting a systematic analysis of patients with language difficulties, these researchers helped to establish the scientific study of brain localization. Broca's analysis of speech production deficits in his patients along with post-mortem brain analysis of some of these patients helped him to isolate a left frontal brain area that is responsible for the generation of language.

Today, this area is known as Broca's area. Taking the same approach, Wernicke demonstrated that an area of the temporal lobe called the posterior superior temporal gyrus caused deficits in speech comprehension and the ability to produce meaningful language. This area is now known as Wernicke's area. The work conducted by Wernicke and Broca and other researchers at the time led to the acknowledgement of the importance of studying brain-damaged individuals. This has resulted in the case study approach becoming

a significant research tool in modern biological psychology and has led to the establishment of a discipline in psychology called clinical neuropsychology.

Researchers like Broca and Wernicke were at the forefront of the 19th-century movement towards a more systematic, scientific way of investigating the natural world. One of the most famous proponents of this approach was Charles Darwin, who, in producing his theory of evolution, had himself documented thousands of observations around the world to provide evidence for his theory. At that stage, science was a long way from understanding evolutionary mechanisms down to the genetic level as a result of the lack of scientific technology. However, scientific advances in research and technology eventually revealed that genes formed the building blocks of evolutionary mechanisms. In the last couple of decades, the role that genes play in behaviour has led to the establishment of evolutionary psychology and also research into how far behaviour such as intelligence may be inherited.

Significant advances in brain imaging technology have helped to propel the legacy of researchers like Broca and Wernicke even further forwards with the use in the modern psychology of techniques that can image the live brain. Not only have such technologies reinforced findings from neuropsychological research into localization they have also enabled researchers to assess cognitive processes such as memory and thinking in individuals without brain damage. Consequently, such research has enabled researchers to make significant advances in understanding the brain and behaviour relationship.

Furthermore, in conjunction with the medical field and also advances in medical science, biological psychologists have also increased our understanding of how hormones and pheromones affect behaviour.

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2. Research Methods of the Biological Approach

Researchers who take a biological approach to understanding behaviour believe that all human behaviour has a biological basis. This is not to say they believe that it is only biological, but that there is a relationship between the human body and especially the brain (the structure and processes of the human nervous system) and human behaviour. Moreover, because the nervous systems of many animals are similar in their structure and processes to that of humans, biological psychologists use animals in research to gain understanding about human behaviour.

The most common research methods used in the biological approach are:

- Correlational studies
- Case studies
- Experiments

> Ask Yourself
>
> What difficulties do you think psychologists face when studying the brain?

2.1 Correlation Studies

Correlational research measures the relationship between two variable that are themselves not manipulated. Correlational studies in the biological approach focus on finding a relationship between a behaviour and inherited traits. This relationship is called the amount of heritability that a behaviour has.

Correlational studies will usually be twin studies and adoption studies, which are important sources of information about the link between genetics and behaviour. Such studies are useful because they can suggest how much different behaviours are the result of genes and how much is down to environmental influences. The likelihood of twins or siblings sharing a genetic trait is measured by the concordance rate, which is expressed as a decimal or a percentage. So if one of two identical twins has depression, the likelihood of the other twin also suffering depression can be expressed as a decimal from 0 to 1, with 1 being perfect certainty that the other will have it, or as a percentage chance of 0-100%. A concordance rate of 0.7 is considered very high for many behaviours. This means that there is a 70% chance of the other twin having depression.

Apart from twin and adoption research, in biological psychology correlational studies are also used to show relationships between behaviours and activity in certain brain areas.

> **Focus on Research – a twin study (correlational study)**
>
> Later in the course, you will look at explanations for major depressive disorder (MDD). One of the biological explanations is that MDD is at least partially genetic, and therefore is inherited. To test the heritability of MDD, Kendler et al. (2006) conducted a huge study in Sweden, with personal interviews of 42,161 twins, including 15,493 complete pairs, from the national Swedish Twin Registry. The researchers estimated the heritability of MDD at 35-40%, with heritability being significantly higher in women than men (42% to 29%).
>
> They found that twin pair resemblance for lifetime MDD was not predicted by the number of years the twins had lived together in the home of origin or by the frequency of current contact. This tends to support the idea of a biological, rather than a sociocultural (environmental) explanation for MDD.

2.2 Case Studies

A case study involves the in-depth and detailed study of an individual or a particular group in order to obtain a deep understanding of behaviour. In the biological approach, this method is particularly favoured in the field of neuropsychology in order to establish a relationship between the brain and a specific behaviour. For example, a psychologist studying the biological foundation of amnesia would analyse the behaviour of a patient and correlate any deficits in memory with a detailed biological analysis obtained through brain imaging. Such research can help inform existing biological theories of memory and indeed could lead to the development of new theories. Case studies can go on for many years (longitudinal case studies) and often have within them several different methods, such as observations, use of brain imaging techniques and interviews.

> Focus on Research – a case study – H.M.
>
> One of the most famous amnesiac patients in the history of psychology was Henry Molaison and a detailed outline of his case study and subsequent legacy is provided by Squire (2009). You will see him referred to as H.M. in many books and articles and this is due to the requirement of participant confidentiality. However, very rarely, some research participants and/or their partners/family are happy for the full name to be known and one example is the case study of Clive Wearing in Chapter 5.
>
> Born in 1926, Henry Molaison had been hit by a cyclist when he was seven and from the age of

ten then started to have epileptic seizures that subsequently started to worsen as he neared adulthood. By the time he was twenty-seven, these seizures were so crippling that he underwent surgery for a bilateral medial temporal lobe resection. This involved cutting out significant portions of Henry's brain in the temporal lobe area to try to control the seizures. However, the surgery resulted in severe anterograde amnesia, a type of amnesia that leads to deficits in encoding new information into the brain. It should be noted that when Henry had this operation, knowledge about the brain's functions was limited hence the dramatic consequences of such an operation were little understood at the time.

Henry's legacy in terms of our knowledge about memory is highly significant because as a result of extensive research with him up to his death in 2008, Henry had contributed a wealth of data about his memory function. Firstly, given that his short-term memory was normal, this demonstrated that the short- and long-term memory systems in the brain must, to some extent, be separate otherwise Henry's brain damage would also have affected short-term memory processing. This finding reinforced the 'separate stores' claims of the multi-store model of memory that you will study in Chapter 5.

However, what was intriguing about Henry's case, and indeed other similar cases of anterograde amnesia, is that it demonstrated that there are different types of long-term memory. Henry's brain damage specifically targeted episodic memory and he was, therefore, unable to form new memories of any event experienced after the surgery and this continued to the end of his life. However, he was able to form new procedural longterm memories. Procedural memories are those memories which are automatic such as knowing how to drive. This type of knowledge does not start out as automatic because clearly skills such as driving must be learned. These skills develop over time, however, and activities such as driving become easier and more automatic if we practise them regularly.

Despite his extensive brain damage, Henry could form new procedural memories on activities such as a pursuit rotor task in which a participant tracks a moving object on a screen with a cursor. This task requires precision and must be practised regularly to gain expertise in the task. Henry was able to show that he could develop these skills even though he could not remember previous practice sessions due to his episodic memory deficit. Such testing with Henry and other amnesic patients led memory researchers to understand more about how memory processing is carried out in the brain and in particular to understand that skill memory does not require the use of medial temporal lobe systems to work effectively.

You can use this case study of Henry Molaison as a key study in both the brain imaging techniques and the localization of function section later in this chapter.

2.3 Experiments

Experiments are used to measure the effect of an independent variable (IV) on a dependent variable (DV). They can be conducted under either artificial or natural conditions. In a true experiment, which tries to determine a cause and effect relationship between the IV and the DV, the IV is manipulated, the DV is measured and all extraneous variables that might affect the outcome of the experiment are carefully controlled, often by conducting such an experiment in a laboratory. The participants are randomly allocated to groups and the relationship found between the IV and the DV is a cause and effect relationship.

Quasi-experiments are experiments where the participants are allocated to groups by precharacteristics, such as day-shift or night-shift, class in school, ability in maths, gender, ethnicity, age, etc. There is sometimes, but not always a manipulated IV and control of other variables, but because of the non-

equivalent groups, the relationship that is found is correlational. Quasi experiments and true experiments are common methods in biological psychology. Maguire's study that you will read about later in this chapter is an example of a quasi-experiment that did not have a manipulated IV.

Experiments often involve non-human animals because they are extremely difficult to study in their natural habitat. As, unlike humans, animals do not guess the purpose of the experiment, results gained from animal research are free of participant expectations. Nevertheless, many people would argue that experimenting on animals is also unethical, which will be discussed later.

> Focus on Research – experiment – Antonova et al. (2011)
>
> Antonova et al. (2011) followed up on results from animal research that showed that a neurotransmitter called acetylcholine (ACh) acted in the brain to aid spatial memory, and that this action could be reduced or prevented by the chemical scopolamine. They tested twenty men with an average age of 28 years in a virtual reality maze. Everyone was randomly allocated to either a scopolamine injection group or a saline injection group (placebo/control group). Then their brains were scanned individually using a functional magnetic resonance imaging (fMRI) scan while they engaged in the task of finding their way around the maze. ACh acts mainly in the area of the hippocampus, which is specifically related to memory, especially spatial memory.
>
> After one trial, the participants went home and returned 3-4 weeks later, were injected with whichever solution they did not have before and were scanned again. Neither the participants nor the researcher knew who was in which group. This sort of design is common in experiments and is called a 'randomized double-blind cross-over design.' It is well enough controlled to show cause and effect, rather than just correlation.
>
> Scopolamine reduced the activity in the hippocampal area and the participants in the scopolamine condition also made more errors than those who received the placebo. This shows that scopolamine decreases the ACh action in the brain, confirming that ACh is associated with spatial memory in adults as well as in non-human animals.

2.4 Ethics and Research Methods of the Biological Approach

Among the first human subject research experiments to be documented were vaccination trials in the 1700s. In these early trials, physicians used themselves or their family members as test subjects. For example, Edward Jenner (1749–1823) first tested smallpox vaccines on his son and the children in his neighbourhood. Clearly, such an approach would not be permissible today. Indeed, for both medical and psychological research, ethical guidelines have been drawn up to protect research participants. The guidelines that psychologists follow are revised regularly by groups monitoring psychological research worldwide. Two sets of these guidelines for research with human participants are those published by the American Psychological Association (APA) and the British Psychological Society (BPS), who have also published guidelines for studies using animals. They are long documents that you do not need to read in detail, but the main point is that they have been considerably strengthened since some of the classic studies that you read about on the course were carried out.

In human research, the researchers have to ensure that the following guidelines have been met:

- the participants must have given informed consent
- they should not be deceived, or any deception necessary for the validity of the findings should be

minimal and revealed at the debrief

- confidentiality must be maintained
- they should be debriefed after the study
- they should be allowed to with draw themselves and their data at any time
- they should not be harmed psychologically or physically

In the UK, a government licence is needed to carry out animal research, and, the BPS has identified the '3 Rs' of animal research. These are to:

- Replace animals with other alternatives.
- Reduce the number of individual animals used.
- Refine procedures to minimise suffering.

We consider the ethics of animal research later in this chapter.

Ethical considerations are part of the planning and carrying out of research. They also apply to the use of data and publication. A question on ethical considerations is not requiring you to answer with a critique of the most unethical study you know, but rather to put yourself in the researcher's place and consider the one or two prime concerns they will have had before, during and after the study. How could they keep the participants' identities and data confidential? How could they ensure that the participants really understood the information on the informed consent sheet? How could they protect their participants from any stress while under experimental conditions? Think of Antonova et al.'s experiment (above); how could they ensure that the participants did not become too disturbed by being injected with an unfamiliar chemical and having their brain scanned?

Case studies taking a biological approach often use participants who may not be able to make an informed decision about whether to take part in a research study or not. As a consequence of this, a partner or family member usually gives consent instead. Clearly, this raises ethical issues about participants being used in research who do not have the mental capabilities to make a reasoned decision about their participation.

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3. The Brain and Behaviour

3.1 Techniques used to Study the Brain in Relation to Behaviour

The development of advanced modern technology has allowed researchers to build a more accurate understanding of how our brains work. These technological methods include the encephalogram (EEG), magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI) and positron emission tomography (PET). Although all of these techniques ultimately have the same goal in that they aim to produce coherent representations of the brain, they do differ in the type of image produced: MRI scans can only show brain structure and therefore produce static images, while EEG shows brain activity, and PET and fMRI can show structure and also brain activity as it changes over time.

MRI scans

MRI scans represent an advancement in technology because they are able to produce static 3-D images of the brain. MRI scanners use a magnetic field and pulses of radio wave energy to make pictures of organs and structures inside the body, including the brain. This technique is used to find problems such as tumours, bleeding, injury, blood vessel diseases or infection. Physicians also use the MRI examination to detect brain abnormalities in patients with dementia, a disorder that can cause confusion or memory loss. It has a high sensitivity for detecting the presence of, or changes within, a tumour. In addition, MRI scans are highly useful to neuropsychologists studying brain-damaged individuals because they have the advantage of being more detailed and in 3-D format hence localization of damage is more precise. This could be critical in determining how far small brain areas are involved in particular cognitive processes. One of the limitations of MRI scanning is that people with heart pacemakers, metal plates or screws in their bodies may not be scanned. This could, therefore, mean the loss of potential participants in psychological studies. Although this issue would not be a large-scale problem, it may become problematic if a patient with a unique psychological deficit not previously recorded could not be scanned to assess how their brain damage correlates with their psychological difficulties. Also, some people suffering from claustrophobia, people with dementia and children may find it difficult to tolerate the procedure. If people move during the scan, the images are unclear and difficult to interpret reliably.

> Focus on Research - example of a study using MRI scans
>
> Maguire et al. (2000) used MRI scans to compare the brains of licensed London taxi drivers, who have to remember a map of the streets of London in order to gain their licence, to a control group who did not drive taxis. The results showed that there was a significant difference in the size of various parts of the hippocampus of taxi drivers: the posterior hippocampus was larger in taxi drivers (especially on the right side), whereas the anterior hippocampus was larger in control subjects. The volume of the hippocampus also correlated with how long the subject had been a taxi driver. This evidence supports the theory that the posterior hippocampus in each side of the brain stores a spatial representation of the environment and is ‘plastic’, responding to the individual’s needs in response to their environment. This study also provides evidence of localization by illustrating specific brain locations dedicated to spatial mapping of the environment. (See below in Section 3.3 Neuroplasticity for full details of Maguire’s study).

fMRI scans

fMRI is non-static brain imagery that uses magnetic resonance imaging to measure the tiny metabolic changes that take place in an active part of the brain. When neurons in a particular region are active, more blood is sent to that region. The fMRI machine maps changes in the brain’s metabolism (chemical changes within the cells) and uses radio waves and magnetic fields to generate a 3-D time map to show precisely which parts of the brain are active during a wide range of tasks. As well as investigating the correlation between behaviour and brain activity in certain areas, fMRI scans are also used to help assess the effects of stroke, trauma or degenerative disease (such as Alzheimer’s disease) on brain function. The medial temporal lobe area, which includes the hippocampus and amygdala, has been investigated in patients with Alzheimer’s disease. With the use of fMRI scans and post-mortem brain studies, cognitive neuroscientists have identified that this is the first area of the brain to show damage in this disease.

Study

Antonova et al. (2011) used fMRI scans to detect neural activity in the hippocampal area (see Section 2.3,

above).

PET scans

PET scanning is a type of nuclear medicine imaging. Nuclear medicine is a branch of medical imaging that uses small amounts of radioactive material to diagnose and determine the severity of a variety of brain diseases, including cancers and neurological disorders. A radioactive substance is injected into the patient. This is usually a form of sugar that produces measurable gamma rays as it is metabolized in the brain. A PET scan detects these rays and turns them into computer images of brain activity. These scans are used to examine functions such as blood flow, oxygen use and sugar (glucose) metabolism, to help doctors evaluate how well the brain is functioning.

Because PET scans are able to pinpoint molecular activity within the body, they offer the potential to identify a disease in its earliest stages. They are useful for showing abnormalities in brain activity levels in diseases that do not show structural changes until much later, like Alzheimer's disease. Though less precise than fMRI scans, for example, they are a useful tool in early diagnosis of brain disease.

In psychological research, PET scans have proved highly useful in monitoring blood flow changes whilst participants perform tasks linked to a wide range of cognitive abilities. This has enabled researchers to detect which brain areas are more active when participants perform various aspects of psychological tasks.

Focus on Research - example of a study using a PET scan - Tierney et al. (2001)

Tierney et al. (2001) carried out a case study on a 37-year-old male patient they referred to as M.A. While participating in a language study that involved having your brain scanned with MRI, researchers noticed that M.A had a lesion in the left hemisphere of the brain. This area of the brain is responsible for our speech and language. The lesion probably developed when he was two years old and he suffered from encephalitis (an uncommon but serious condition in which there is swelling in the brain).

It's logical to assume that if the language areas of the brain were damaged before M.A could learn to talk or read fluently, then he would suffer from speech and language problems. However, this was not the case and M.A's language skills had developed normally. In fact, he was bilingual – he spoke English and also used American sign language (ASL) because both of his parents had severe hearing problems. He used ASL at home and spoke English normally with other people.

Tierney et al. hypothesized that this could be because other areas of M.A.'s brain had taken over the function of speech production to compensate for the damaged speech areas in the left hemisphere. To test this, M.A. was compared with 12 bilingual (English and ASL) participants. PET scans were used when the participants were participating in speech tasks. The speech tasks involved the participants simply recounting an event or a series of events in detail.. Unlike most sign language users, M.A.'s right hemisphere was highly active, suggesting that this hemisphere had probably taken over speech production when the left hemisphere was damaged. This type of change is evidence of neuroplasticity. For example, some neural connections become stronger when a particular skill is practiced, such as juggling (see Draganski et al., 2004, in Section 3.3 below).

In M.A.'s case, the researchers concluded that his brain structure had been changed in the right hemisphere, with more connections than normal in his right frontal lobe to allow him to produce language, possibly at the expense of other skills normally localized in the right hemisphere.

Neuroplasticity is not just a feature of recovery after a brain injury because non-injured brains also

> undergo such neural network rearrangement as a result of influences from the environment. The fact that we do not live in a vacuum and interact on a daily basis with various aspects of the environment shows the fundamental neuroplasticity that must be occurring in the brain in order for us to adapt to life's demands.

3.2 Localisation

Localization of function refers to the theory that the mechanisms for thought, behaviour and emotions are located in different areas of the brain. To what extent certain functions are located in their own areas, and activity in this area can therefore be seen as evidence of a behaviour, thought or feeling, is the subject of localization of brain function.

There is a long history to the theory of localization of function in the brain. The concept is directly traceable to the ideas of a German physician, Franz Josef Gall (1758–1828), who introduced phrenology – the science (now seen as a pseudo-science) of inferring a person's behaviour from the shape of their skull. While this has been discredited, the assumption that certain parts of the brain are responsible for specific behaviours is still valid.

As mentioned in the introductory section of this chapter, the French neurologist Paul Broca located the ability for speech production in the left frontal lobe, a region that came to be known as Broca's area, as early as 1861 (Broca 1861a, 1861b). Given that the scientific techniques available to physicians like Broca to study the brain were limited at the time, the only recourse to examine the location of brain damage was to wait until a patient died in order to perform a postmortem examination.

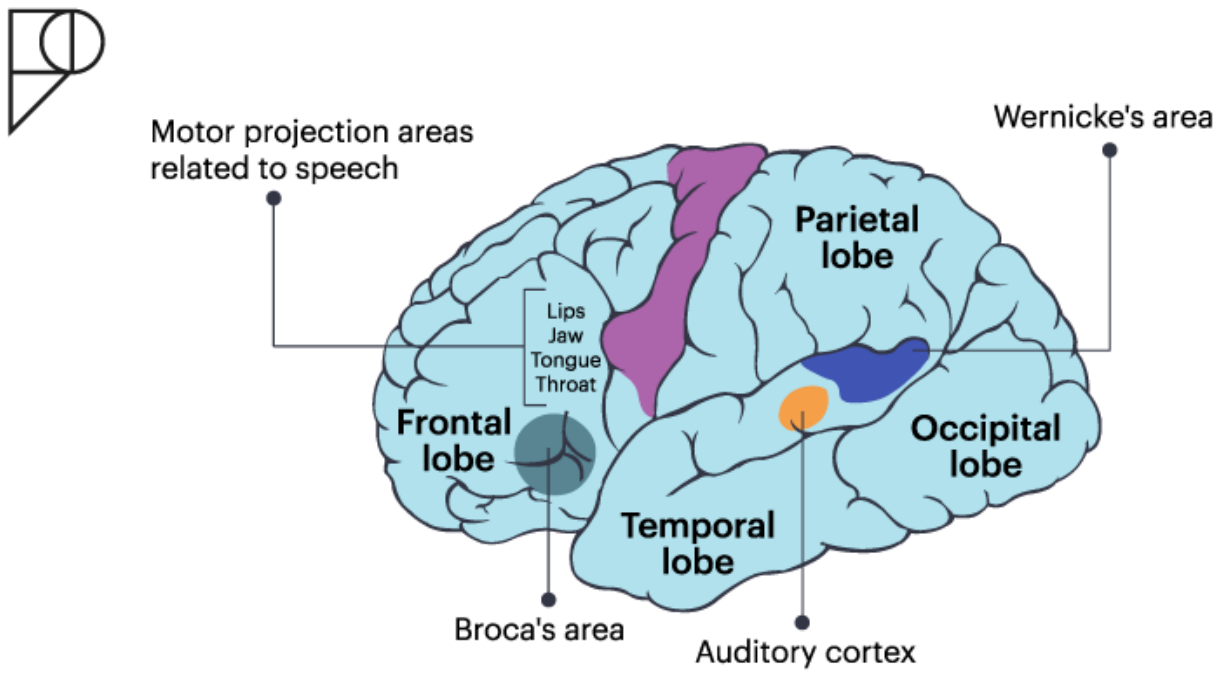


Figure 4.1 The major areas of the brain

One of Broca's most widely cited case histories is that of Louis Leborgne who was 51 when they met and had been admitted to hospital suffering from gangrene. The patient earned the nickname of 'Tan' because this was the only word he could produce. He was also paralysed down the right side of his body due to what

is believed to be a left hemisphere stroke. Leborgne died only a few days after meeting Broca for his initial assessment and Broca therefore performed an autopsy that revealed a left frontal lobe lesion. This therefore confirmed Broca's assertions that this area of the brain was significantly involved in speech production and damage in this location can result in the speech production deficit known as Broca's aphasia.

The investigation of Louis Leborgne highlights the value of the case study, as well as the autopsy in psychological research, and indeed the case study approach has formed the cornerstone to localization of function research ever since Broca's pioneering studies of brain-damaged patients. However, recent modern advances in brain science with regard to neuroimaging technology have complemented the case study approach. In an ironic twist of fate, Leborgne's preserved brain was subjected to brain imaging over 140 years after his death in a recent study by Dronkers et al. (2007). This study was able to demonstrate in more intricate detail the extent of Leborgne's brain damage and served therefore as a neat illustration of the virtues of brain imaging technology being used in conjunction with patient case studies and autopsies.

Limitations of the localisation approach

Although adopting a localization approach in the quest to understand the brain has undeniably meant that scientific knowledge about the brain and behaviour is currently very advanced, other researchers have urged caution in adopting what they feel is a 'jigsaw' type perspective of the brain. The complexity of cognitive processes in terms of how they interact and influence each other cannot be ignored hence more holistic accounts of how the brain works should be used in conjunction with the localization approach. Karl Lashley, an eminent neuroscientist, was an early champion of a more holistic viewpoint of brain function and, in the 1950s, demonstrated the validity of this in a study with rats who had undergone lesioning. The rats in this study learned to navigate mazes and Lashley found that if he removed varying amounts tissue in the cortex of different rats in different brain areas (sometimes up to 50%), this did not affect their learning of the maze. This study, therefore, indicated that memories were widely distributed throughout the cortex and not localized to a particular area. Lashley's fame in the neuroscience field led other researchers to also adopt an anti-localization approach, but research has since reinforced the idea that there are many specialized brain areas for different processes. Lashley and his supporters were misled in the sense that very complex tasks like learning a maze are going to use a large number of different neural networks in order to deal effectively with the task and this is why large scale lesioning (destruction of certain areas of the brain) in the rats did not impair the rats' maze navigation skills.

Other researchers have also criticized the idea of localization because it implies that specific brain areas are specialized for particular processing and that other brain areas cannot, therefore, take over their functions. However, research into the brain's adaptive and flexible capabilities has challenged this more static view of brain function and in the next section you will read more about these ideas and learn about studies that have demonstrated the extent to which the brain shows plasticity.

Study

Both Maguire et al. (2000) and Draganski et al. (2004) may be used for localization of function (see below).

> Ask Yourself
>
> What are some of the challenges of researching people with brain damage?

3.3 Neuroplasticity

Neural networks

The examples above all demonstrate that many brain functions are localized in their own specific parts of the brain. However, the brain is far from 'static' because research has shown that complex neural networks can also be modified and changed in a process known as **neuroplasticity**. This process is of particular significance in young children during their early brain development. The very rapid development of new neural networks is essential early in life as a considerable period of learning occurs at this stage.

Earlier, you encountered the study by Maguire et al. (2000) which demonstrated how repeatedly encountering the same environmental information on a regular basis over time leads to significant neural network changes in order to accommodate such environmental information. Maguire et al.'s research clearly shows how environmental demands can alter neural networks so that they become more adapted to cope with specialized tasks.

You can use Maguire et al.'s study and Draganski et al's (2004) research as key studies in this section on neuroplasticity, just as you can in the section on brain imaging techniques and MRI scans, and the section on localization (above).

Focus on Research – neuroplasticity and neural networks - Maguire et al. (2000)

From the results of previous research, mainly on animals, Maguire et al. believed that there may be a correlation between spatial memory and the size and density of the neural networks in the hippocampus, suggesting localization of this function (as well as neuroplasticity and the growth of neural networks). They conducted the following quasiexperiment to investigate this the ability of the brain to change in terms of volume of grey matter dependent on learning and experience.

The participants were 16 healthy, right-handed male licensed London taxi drivers who had passed 'The Knowledge', a test of spatial memory. The age of the sample ranged from 32- 62 years with a mean age of 44. They had all been taxi drivers for at least 18 months, with the most experience being 42 years of taxi driving.

The participants were placed in an MRI scanner and their brains were scanned. The focus of the scan was to measure the volume of grey matter in the hippocampus of each participant and then to compare it to the scans of the control group. The grey matter was measured using voxel-based morphometry (VBM) which focuses on the density of grey matter and pixel counting. The taxi drivers' MRI scans were compared with pre-existing MRI scans of 50 healthy right-handed males who were not taxi drivers.

The researchers found that the posterior area of the hippocampi, especially the right hippocampus, of the taxi drivers showed a greater volume of grey matter than that of the controls, who had increased grey matter in their anterior hippocampi compared to the taxi drivers. They also carried out a correlational analysis and found that the growth in the right posterior hippocampal neural networks showed a significant positive correlation to the length of time spent as a taxi driver.

They concluded that the posterior hippocampus may be linked to spatial navigation skills built up via learning and experience. The correlational analysis of time spent as a taxi driver linked to increased volume of hippocampal grey matter lends validity to the idea of neuroplasticity due to learning and experience, and counters the argument that the taxi drivers may coincidentally have had larger than usual hippocampi.

Neural pruning

Not all of the neural changes will be needed as a child gets older so child development is not only characterized by rapid neural growth but also by significant neural pruning (reduction in density) as some neural pathways in the brain are no longer needed. It was thought that such widespread pruning only occurs in early childhood but research has shown that during adolescence another extended period of pruning occurs, and indeed our brains continue to change, albeit to a lesser extent than in childhood, throughout our lives.

For example, when we learn a new skill, like how to play the piano, our neural networks grow and become denser in certain parts of the brain. This is called neurogenesis. However, if we then stop playing the piano, a few months later neural pruning will take place and we will lose those new neural connections, giving some truth to the saying ‘Use it or lose it.’

> Focus on research – neuroplasticity and neural pruning – Draganski et al. (2006)
>
> Draganski et al. (2004) conducted a field experiment to determine whether, after learning a new motor skill, there would be both structural and functional changes in the brain. The researchers used MRI scans to determine if changes occurred in the brains of people learning to juggle over a span of three months. The participants were randomly allocated to two groups (juggling and non-juggling/control) and had their brains scanned three times: before learning to juggle, after three months of learning to juggle, and three months after they had ceased juggling. These scans were compared to a control group of non-jugglers.
>
> Whilst there was no difference in brain structure between the two groups shown in the first scan, the second scan, at three months, showed that the group of jugglers had two areas of the brain that were significantly different in size from that of the control group. This difference became smaller after three months of no juggling, at the third scan.
>
> The conclusion was that the action of watching balls in the air and learning to move in response to them strengthened the neuronal connections in the parts of the brain responsible for this activity. However, the differences were temporary and relied on continuing the activity or else neural pruning took place when the connections were no longer used. Although this was a field experiment, as the juggling practice took place under natural conditions, there was random allocation to groups and standardization of measurement, so this was a well-controlled experiment that would have high internal validity.

3.4 Neurotransmitters and Their Effect on Behaviour

Neurons in certain brain areas are specific in which neurotransmitters they release and receive. This means that their action can be affected by particular drugs, both medical and recreational, before their release into the synapse and also during their uptake by the receiving neuron or reuptake by the releasing neuron.

Neurotransmission

This is what neurotransmitters do. They communicate between nerve cells (neurons). There can be as many as 100 billion neurons in the human brain and they form trillions of connections between each other. Neurons carry information as electrical impulses but neurons communicate with each other by an additional

chemical process involving neurotransmitters These are chemicals that are released across a gap between the neurons called the synapse and the neurotransmitter is then picked up by the receptors of another neuron.

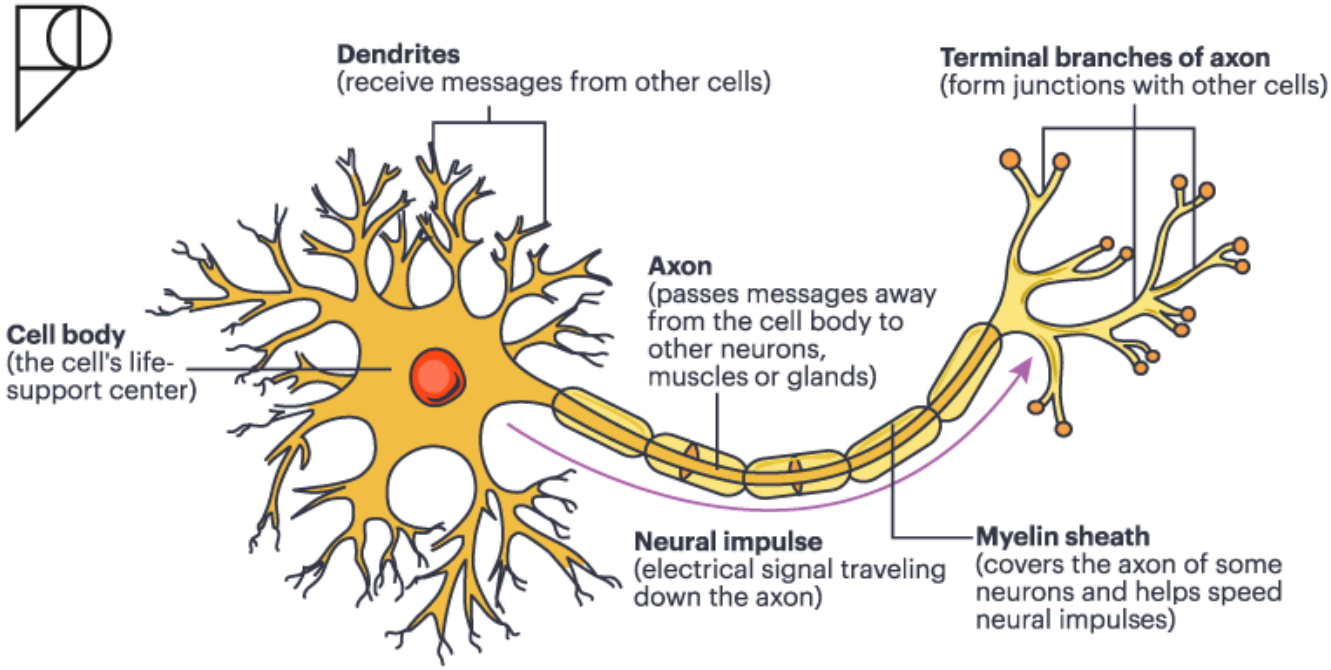


Figure 4.2 Diagram of a neuron

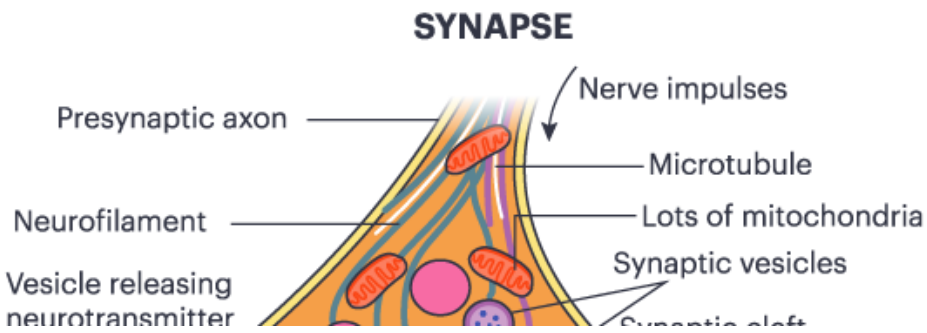
Excitatory and inhibitory synapses

Every neuron has receptors designated for each neurotransmitter that works like a lock and key mechanism, and this is how the neurotransmitter binds to the neuron. When the neurotransmitter combines with a molecule at the receptor site it causes a voltage change at the receptor site called a postsynaptic potential (PSP). One type of PSP is **excitatory** and **increases** the probability of producing an action potential in the receiving neuron. The other type is **inhibitory** and **decreases** the probability of producing an action potential.

Whether or not a neuron fires depends on the number of excitatory PSPs it is receiving and the number of inhibitory PSPs it is receiving. PSPs do not follow the ‘all or none’ law.

Study

Antonova et al. showed that ACh is excitatory in synapses in the medial temporal lobe and hippocampus.



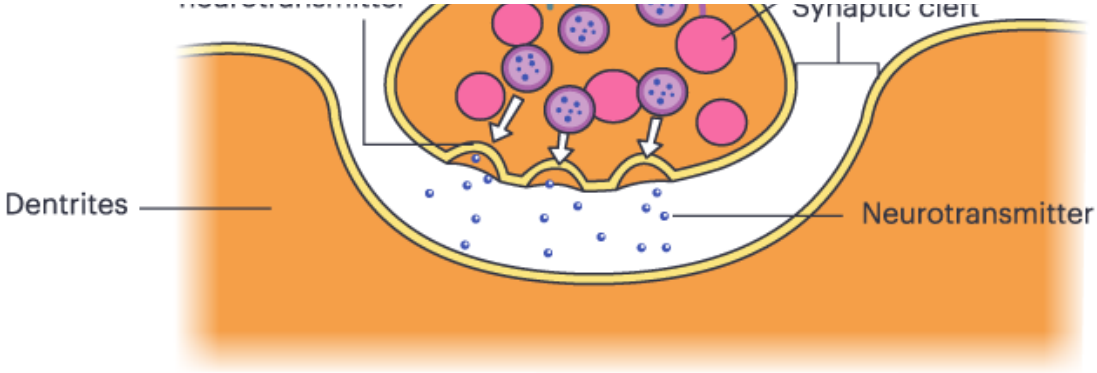


Figure 4.3 Diagram of a synapse

Agonists and Antagonists

All neurotransmitters are natural agonists that are endogenous (produced by the body and act inside the body). They bind to synaptic receptor neurons to generate either an excitatory or inhibitory PSP, as we read above. Chemical agonists are substances that bind to synaptic receptors and **increase** the effect of the neurotransmitter. They do this by imitating the neurotransmitter. If you thib nk of the 'lock and key' mechanism, agonists oil the lock and make it easier for the neurotransmitter to have an increased effect.

Alcohol, for example, binds with dopamine receptor sites, causing dopamine neurons to fire. The firing of these neurons results in the activation of the brain's reward system - the nucleus accumbens, and a feeling of pleasure.

Antagonists are chemical substances, both naturally found in food, and medicines, and artificially manufactured. They also bind to synaptic receptors but they **decrease** the effect of the neurotransmitter. Therefore, if a neurotransmitter is excitatory, an antagonist will decrease its excitatory characteristics. This is like putting chewing gum in the lock so it sticks and the key is unable to turn well.

Study

Antonova (2011) demonstrated that ACh is an agonist in the medial temporal lobe area, and also scopolamine is an antagonist for ACh and decreases its action, reducing spatial memory ability.

The table below gives a brief description of the major neurotransmitters (there are others) and the areas of the brain where they take effect. (Again, there are others).

Neurotransmitter	Function	Excitatory/ inhibitory	Agonist/ Antagonist
Acetylcholine (ACh)	Responsible for stimulation of muscles, for some memory functions, and has a role in sleep. There is a link between ACh and Alzheimer's disease: there can be up to a 90% loss of ACh in the brains of	Usually excitatory	Scopolamine = antagonist

	people suffering from this disease.		
Dopamine	Strongly associated with reward mechanisms in the brain. Drugs like cocaine, opium, heroin and alcohol increase the levels of dopamine, as does nicotine. If it feels good, dopamine neurons are probably involved! Low dopamine levels are associated with Parkinson's disease, and too-high levels have been correlated with schizophrenia and social anxiety.	Usually inhibitory, but can be excitatory, depending to which receptors it binds.	Alcohol = agonist Antipsychotic drugs (Haloperidol) = antagonist
Noradrenaline	Increases heart rate and blood pressure. Plays a role in wakefulness and arousal, eating, depression and mania.	Usually excitatory	Amphetamines ('speed') = agonist
Serotonin	Intimately involved in emotion and mood. Too little has been shown to lead to depression, problems with anger control, obsessive-compulsive disorder and suicide. Too little also leads to an increased appetite for carbohydrates (starchy foods) and trouble sleeping, which are also associated with depression and other emotional disorders.	Usually inhibitory	Hallucinogens such a LSD, mescaline and Ecstasy = agonist

Table 4.1 Some major neurotransmitters and their functions

Focus on Research – serotonin - Walderhaug et al. (2007)

Walderhaug et al, (2007) aimed to investigate the role of serotonin on mood regulation and impulsivity and the role of the 5-HTT gene in the brain. conducted a study on healthy participants using a technique called acute tryptophan depletion, which decreases serotonin levels in the brain. Serotonin is a hormone in the body and a neurotransmitter in the brain, but it cannot cross the blood-brain barrier. Therefore it has to be made in the brain, and tryptophan, an essential amino acid found in animal protein can cross the blood/brain barrier and is the main building block of serotonin.

A volunteer sample of 39 men and 44 women participated in a randomized, double-blind experimental study using a technique called acute tryptophan depletion, which decreases serotonin levels in the brain. Behavioural measures were taken of impulsivity and mood.

The study showed that men exhibited more impulsive behaviour as a result of the serotonin depletion but the technique did not alter their mood. Women, on the other hand, reported how their mood worsened and they also showed signs of more cautious behaviour, a response that is linked with depressive behaviour. This means that women and men appear to respond differently to neurochemical changes.

It is already known from a significant amount of research in this field that reduced serotonin transmission contributes to the functional changes in the brain associated with a major depressive disorder (MDD) and this study, therefore, reinforces such findings. Furthermore, in the female participants, it was shown that the tryptophan depletion affected a region of the SLC6A4 gene, a gene which influences the serotonin transporter (5-HTT) in the synapse.

Such findings have contributed to the development of most of today's most popular antidepressants being designed to temporarily block the serotonin transporter so that serotonin remains in the synaptic gap for longer.

It is also known that people with MDD are frequently found to have less impulse control, and this observation was also reinforced in this study. However, this was the first study to identify sex differences in the way that men and women react to reductions in serotonin function, specifically in terms of their mood and impulsivity.

Focus on Research – acetylcholine – Martinez and Kesner (1991)

Martinez and Kesner (1991) aimed to investigate the role of the neurotransmitter acetylcholine (ACh) in spatial memory formation. They carried out an experiment on laboratory rats who were trained to run a maze.

The rats were then divided into groups as follows:

- Group 1 was injected with scopolamine which blocks ACh receptor sites and therefore reduces the availability of ACh.
- Group 2 was injected with physostigmine which blocks production of cholinesterase, an enzyme which cleans up ACh from the synapses. This injection increased the availability of ACh.
-

Group 3 was the control group and received no injections.

The investigators found that Group 1 rats (scopolamine, less ACh) made more mistakes and were slower as they ran the maze compared to Group 2 rats (physostigmine, more ACh) that ran more quickly through the maze and made fewer mistakes. So, Group 1 was slower and made more mistakes than the control group. Group 2 was faster and made fewer mistakes than the control group.

The investigators concluded that ACh is a neurotransmitter that boosts spatial memory.

Remember that Antonova (2011) conducted a similar experiment to this, but on humans, and concluded the same. If you are answering an SAQ on the influence of one neurotransmitter on behaviour, do not use an animal study. An animal study may be used as supporting evidence for a human study in an ERQ. Both Martinez and Kesner and Antonova et al. also show that scopolamine acts as an antagonist for ACh.

Ask Yourself

How does Martinez and Kesner's study show the value of animal research when investigating the brain and human behaviour?

3.5 Assessment Advice

Question	Study/Studies
SAQs Outline/describe/explain	**Suggested studies**
One research method (approach to research) used when investigating the brain and behaviour	Any one of the studies listed below are suitable fo these SAQs
One ethical consideration when investigating the brain and behaviour	Any one of the studies listed below are suitable fo these SAQs
One technique (or one study into one technique) used to understand the brain and behaviour	Maguire et al. (2000) or Antonova et al. (2011)
Localization (or one study into localization) of function and behaviour	Maguire et al. (2000) or Antonova et al. (2011)
Neuroplasticity (or one study into neuroplasticity) and behaviour	Maguire et al. (2000) or Draganski et al. (2006)
Neural networks (or one study into neural networks)	Maguire et al. (2000) or Draganski et al. (2006)
Neural pruning (or one study into neural pruning)	Draganski et al. (2006)
One neurotransmitter and its effect on behaviour	Antonova et al. (2011) or Walderhaug (2007)
How one excitatory **or** inhibitory neurotransmitter (synapse) affects behaviour	Antonova et al. (2011)

One agonist and its effect on one behaviour	Antonova et al. (2011) (ACh)
One antagonist and its effect on behaviour	Antonova et al. (2011) (scopolamine)
ERQs **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the relationship between the brain and behaviour.	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
Ethical considerations of research investigating the relationship between the brain and behaviour.	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
ERQs **Discuss/evaluate/contrast/to what extent?**	
Studies (research) investigating the relationship between the brain and behaviour.	Maguire et al. (2000) and Draganski et al. (2006)
Techniques used to study the brain in relation to behaviour	Maguire et al. (2000) and Antonova et al. (2011)
Localization (or studies into localization) of function and behaviour	Maguire et al. (2000) and Antonova et al. (2011)
Neuroplasticity (or studies into neuroplasticity) and behaviour	Maguire et al. (2000) and Draganski et al. (2006)
The influence of one or more neurotransmitters (or studies into the influence of one or more neurotransmitters) on behaviour	Antonova et al. (2011) and Martinez and Kesner (1991) or Walderhaug (2007)

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4. Hormones, Pheromones and Behaviour

4.1 Hormones and Their Effect on Behaviour

Hormones are chemical messengers that are secreted (secrete = given out) by glands. The difference between a hormone and a neurotransmitter is that, while both are secreted inside our bodies, hormones are produced by endocrine glands and neurotransmitters are produced within neurons when triggered by an electrical impulse. Hormones enter directly into the bloodstream, while neurotransmitters are secreted at neuron synapses. However, it is important to be aware that some chemical messengers can act both as hormones and neurotransmitters. Adrenaline is an example: it is secreted as a hormone in the body by the adrenal medulla (at the centre of each adrenal gland, just above the kidneys) when we encounter a stressful situation. Its purpose is to prepare the body for a fight or flight response by increasing the heart rate. However, it is also used by adrenal-specific neurons in the brain in the control of appetite for example.

Unlike neurotransmitters, which act in a split second, a hormone may take several seconds to be stimulated,

released and reach its destination. If an immediate behavioural reaction is required, neurotransmitters and the nervous system play the major role. For a slow, steady response over a period of time, we have hormones.

Testosterone is primarily secreted in the gonads (in the testes of males and the ovaries of females), although small amounts are also secreted by the adrenal glands. It is the main male sex hormone and plays a key role in the development of male reproductive tissues such as the testes and prostate as well as promoting secondary sexual characteristics such as increased muscle and bone mass and hair growth. On average, an adult human male produces about ten times more testosterone than an adult human female, although there is a wide variation in the amounts, and there may be overlaps between high testosterone-producing females and low testosterone producing males.

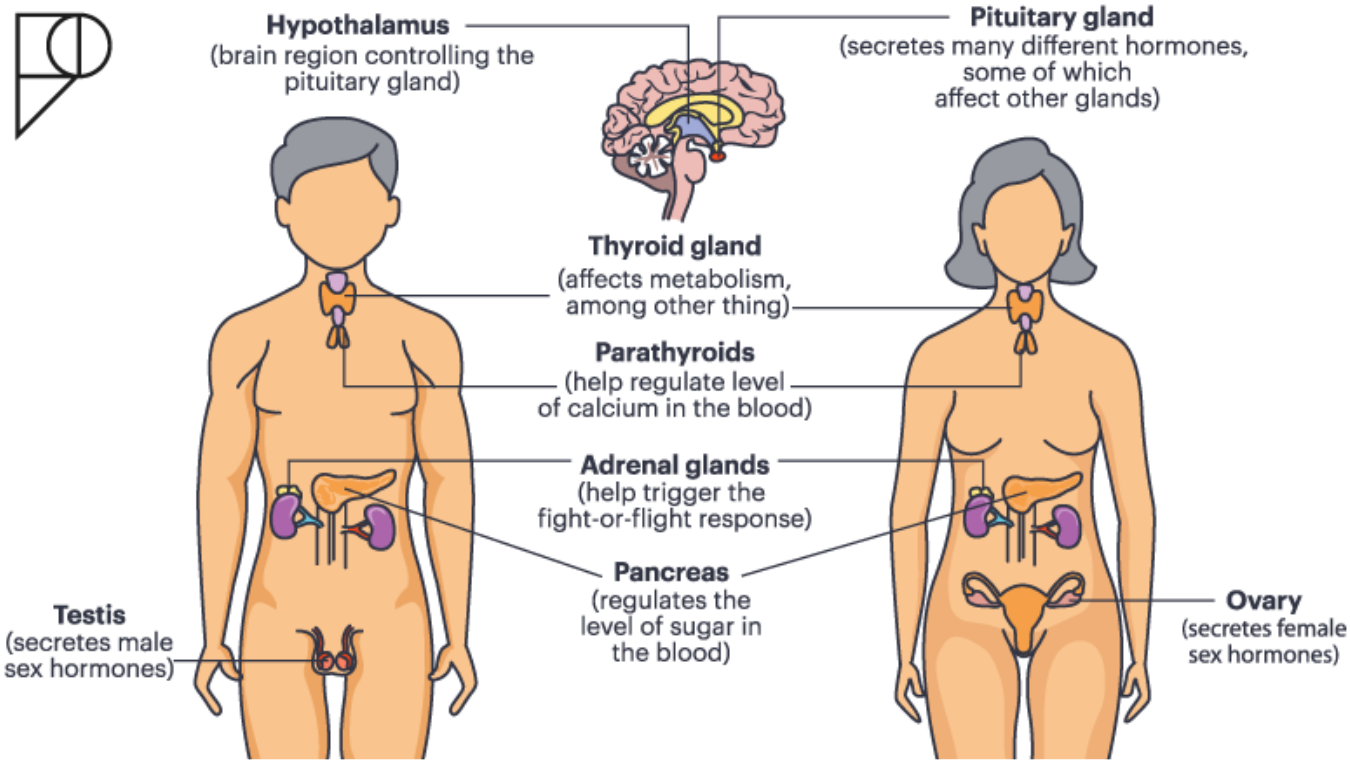

Figure 4.6 The endocrine system

Studies have connected testosterone with aggression in both males and females, but Archer (1994) reviewed the research, and concluded that there was a low positive correlation between testosterone levels and aggression in males, but a much higher positive correlation between testosterone levels and measures of dominance. While hormones may influence our responses, the social and cultural contexts must not be ignored.

> Ask Yourself
>
> Which sociocultural factors are likely to be involved in aggressive behaviour?

> Focus on Research – testosterone – Carré et al (2016)
>
> Carré et al. (2016)noted that research into the link between aggression and testosterone levels has produced inconsistent results over the last few decades. In this experiment, the researchers

aimed to find out whether aspects of personality would affect aggressive responses to a game. 121 healthy male participants were randomly allocated to two groups, where one group received a placebo and one group an injection of testosterone. It was a double-blind technique wherein neither the experimenters nor the participants knew which injection they had received. All of the participants then underwent a decision-making game that was designed to assess aggression after social provocation within the game by a partner (actually the computer).

Measures of personality with regard to dominance and impulsivity traits were assessed using questionnaires. The researchers found that an increase in testosterone levels alone was not enough to provoke aggression. Only those men who had received additional testosterone and had scored high in dominance and low in impulse control exhibited higher aggression than the control group and the rest of the testosterone group who did not possess these personality characteristics.

Focus on Research – testosterone – Nave et al. (2017)

Similarly, Nave et al. (2017) investigated the effect of testosterone on cognitive reflection in males. It would seem logical that as testosterone interacts with already low impulse control and high dominance to produce aggression, maybe it also reduces cognitive reflection. Before the 243 healthy male participants randomly received either testosterone or a placebo in a single dose of gel applied to the skin, they gave a baseline saliva sample. They then went away for a few hours to give the testosterone time to stabilise in the bloodstream, returned and gave another sample to check for the level of the hormone. After this all the participants took the Cognitive Reflection Test (CRT) that tested their ability to override impulsive judgements and snap decisions with deliberate correct responses. A sample was taken during the testing and another at the end. The results showed that the participants who received testosterone had significantly lower scores on the CRT than the control group. This demonstrates a clear effect of testosterone on cognition and decision-making. It remains to be seen if the findings found in both of these experiments would be the same in females.

4.2 Pheromones and Their Effects on Behaviour

Unlike hormones, which act inside the individual body, pheromones are produced individually, but act outside the body at species level. Therefore they are sometimes referred to as ‘exogeneous hormones’. Insects and mammals possess pheromones and there is some evidence that pheromones may play a role in human behaviour, predominantly in either mating behaviour or mother-baby bonding; however, none is conclusive. A discussion of the effects of pheromones on behaviour is a useful exercise in critical thinking.

One of the newest areas of research in psychology is the field of evolutionary psychology, an area we will be revisiting later in the biological chapter, in the section on genetics and behaviour. Evolutionary explanations of behaviour argue that some of the behaviours we witness in modern life are the legacy of genetic adaptations that contributed to survival in of the species during the time of our earliest ancestors. Although this field in psychology raises a number of practical problems in assessing how far evolutionary processes affect modern behaviour, it also raises many interesting questions regarding how we act.

One behaviour that is argued to be adaptive is the choice of a suitable mate. It is important that we choose a mate whose genes are sufficiently different from our own to avoid any problems that could be created by ‘in-breeding’. This is why there is a strong feeling against marrying people to whom you are too closely related and why brother–sister marriages are illegal in most countries. Some researchers have argued that one way

in which we can identify if a person is genetically distant from ourselves is through pheromones. These are chemical hormones that, despite not having a smell, are detected by the vomeronasal organ, which lies at the base of the nasal cavity, in the soft tissue and just above the roof of the mouth.

Pheromones can only act within species and in 1959 the first to be detected was in female silkworm moths who produced the pheromone bombykol to attract males. However, later research in humans suggested that our behaviour can also be influenced by pheromones being emitted from other humans. McClintock (1971) published research that showed how women living in dormitories together often develop synchronous menstrual cycles over time. This study proposed that a pheromone emitted by each woman caused the synchronisation but did not suggest what chemical structure the pheromone may have. It has been later criticised and has been difficult to replicate successfully.

MHC (major histocompatibility complex) is a group of genes that, while possibly not pheromones, can be smelt in sweat, and if attraction to those with different MHC than our own is followed by mating (a big 'if'), this maximises the immune responses in offspring, making them stronger.

Focus on Research – putative (possible) human pheromone – Wedekind et al. (1995)

Wedekind et al. (1995) conducted a study to investigate whether females prefer male odours from males with a different MHC from their own. This could suggest an influence of pheromones on human adults. In this study, 44 male students were asked to wear the same T-shirt during two consecutive nights. The T-shirt was kept in a plastic bag between the two nights and the men were asked to remain as odour-neutral as possible by avoiding sexual activity, smoking and the use of strongly perfumed products and foods that produced strong odours. The mean age of all participants was 25 years old and prior to the study, all male and female participants had been classified in terms of their immune system similarity via a specialised blood test.

The day after the men had worn their T-shirt for the second night, 49 female students were each asked to rate six T-shirts for pleasantness and odour intensity. three of them had been worn by males with a similar MHC to them and the other three by males with a very different MHC from them. The females had to smell the T-shirts by via a triangular hole cut into a cardboard box in which the T-shirt had been placed. Each T-shirt was assessed by the females according to how intense and how pleasant they found their smell.

The researchers found that a woman whose MHC was different from the male's MHC found his body odour to be more pleasant than women with a similar MHC to the male's. This finding, however, was opposite if the woman was taking the oral contraceptive pill: these women were more attracted to males who had a similar MHC to their own. Women are normally attracted to males with a different MHC than their own, but the contraceptive pill may interfere with natural mate choice based on MHC dissimilarity. Because the women who were on the contraceptive pill preferred men with similar MHC to their own, as would be found in men with a family connection to them, for example, Wedekind et al. speculated that this reflected a hormonally-induced shift owing to the pregnancymimicking effect of the pill, leading to increased association with kin who could assist in childcare.

Roberts et al. (2008) followed up on Wedekind's findings and tested directly whether taking a contraceptive pill altered odour preferences. The procedure for the male participants mirrored that of Wedekind et al. and all participants undertook blood tests to assess immune system similarity. This study, however, used a longitudinal design with the females being divided into two groups. The first group of women were tested before and after using the contraceptive pill, whilst the

second group of women formed a control group (no contraceptive pill use) but attended the testing sessions in comparable intervals to the contraceptive use group.
The findings supported those of Wedekind et al. in that there was a significant preference shift towards MHC similarity between males and females associated with pill use, which was not evident in the control group. Both Wedekind et al. and Roberts et al. concluded that contraceptive use may be interfering with natural biological mating mechanisms if dissimilarity of MHC (which is possibly a pheromone) between mates plays a role in maintaining attraction between partners within a relationship.

Focus on Research – argument against human pheromones – Doty (2010)

Despite the evidence outlined above, other researchers have disputed completely the idea that humans emit pheromones that can be detectable by other humans. One of these researchers is Richard Doty who, in his book The Great Pheromone Myth, discussed his arguments against the existence of human pheromones. Doty (2010) states that one major problem in this area of research is that no current scientific definition exists about what a mammalian pheromone actually is. Although many scientists have claimed that pheromones play an integral part in not only human mate selection but also other behaviours such as emotion and mood, Doty raises the point that human pheromones have not been chemically isolated.

He also speculates on the dangers of using research on insects that has shown evidence of pheromone action and using these findings to assume that such pheromonal processes must also exist in humans. In addition, Doty objects to the idea that one chemical can influence behavioural changes in other members of the same species given that there are multiple chemicals in the environment influencing behaviour at any one time.

Riley (2016) analysed the claims for the existence of human pheromones and, like Doty, also believes that they do not exist. Riley further states that the human vomeronasal organ has no nerve links to the brain and is therefore unlikely to influence our behaviour.

Ask Yourself

What challenges do you think researchers face in trying to isolate possible human pheromones?

4.3 Assessment Advice

Question	Study/Studies
SAQs **Outline/describe/explain**	**Suggested studies**
One research method (approach to research) used when investigating the relationship between hormones and/or pheromones and behaviour	Any one of the studies listed below are suitable fo these SAQs
One ethical consideration when investigating hormones and/or pheromones and behaviour	Any one of the studies listed below are suitable fo these SAQs

One hormone (or one study into one hormone) and its effect on one behaviour	Carré et al (2016) or Nave et al. (2017)
One pheromone (or one study into one pheromone) and its effect on one behaviour	Wedekind et al. (1995)
ERQs **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the relationship between hormones and/or pheromones and behaviour	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
Ethical considerations of research investigating the relationship between hormones and/or pheromones and behaviour	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
The relationship between one or more hormones and behaviour (or research/studies into the relationship between one or more hormones and behaviour)	Carré et al (2016) and Nave et al. (2017) or Alber (1986) (See HL extension, animal research)
The relationship between one or more pheromones and behaviour (or research/studies into the relationship between one or more pheromones and behaviour)	Wedekind et al. (1995) and Doty (2010)

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5. Genetics and Behaviour

5.1 Genes and Behaviour

Genetic information is contained in chromosomes and each human has 23 pairs of chromosomes (tightly-wound strands of DNA) in each of their cells and one of each of these pairs is from each parent. Our DNA, therefore, forms a blueprint for the structure and functions of our body. The term genome is used to signify all the genes an individual possesses. Genes contain biological instructions to form protein molecules from amino acids. Proteins are essential to life because they are the building blocks of our brain and body. It is no surprise therefore that psychologists have taken an interest in how genetics may affect behaviour. The development of new techniques as a result of advances in scientific technology has meant that this area of psychology research has been able to advance in recent years.

Research has indicated that the genes in our DNA are not all active at the same time and can be ‘silenced’ or ‘de-silenced’, i.e., switched on or off. This process is called gene regulation and leads to differences in gene expression. In other words, processes within cells regulate which genes are expressed or active. To switch a gene off, and therefore prevent it from making the protein it was designed to produce, cells can use chemicals in the body called methyl groups and initiate a process called methylation to block a gene’s effects. However, a gene can be switched back on by the reverse process of demethylation. The study of how genes are switched on and off is called epigenetics. It is important to note that the genes are not

permanently altered but their ability to influence our biology is manipulated: the genes will work normally again once switched back on. During development in children, however, if certain proteins are no longer needed the methylation process will be permanent. Gene expression, therefore, plays an extensive role in the developing brain.
Research has also shown that negative events during childhood can influence gene expression, as shown in the Suderman et al. (2014) study.

Focus on Research – epigenetics – Suderman et al. (2014)

Research by Suderman et al. (2014) demonstrated that 12 adults who had suffered childhood abuse were more likely to show methylation in their DNA compared to a control group of 28 who had suffered no such abuse. The participants were 45 year-old males and their blood DNA was analysed.

In particular, the study showed that there was increased methylation of the gene PM20D1 in the sample who had suffered abuse. This gene is responsible for the metabolism of amino acids and is associated with control over eating habits. Those with childhood abuse were also shown to have long-term associations with negative health outcomes, specifically, a greater prevalence of obesity among those who reported physical abuse in childhood. This supported previous research that links this gene with childhood abuse and increased obesity as an adult. This finding, therefore, shows how an environmental trigger like abuse can contribute to switching off a gene which contributes in some way to a person's food intake. Evidence from this study indicates that there is a correlation or relationship between the methylation of gene PM20D1, child abuse, and eating habits in adults. This suggests that the interaction between genes and environmental influences can predispose a person to behave in a certain way.

Suderman et al.'s epigenetic study provides evidence for how gene expression can be affected by traumatic environmental events. Other studies with animals have also found similar results as shown in the study by Weaver et al. (2004, also referenced in some texts as Meaney et al., 2004) which investigated maternal behaviour in rats.

Focus on Research epigenetics - Weaver et al. (2004)

Weaver et al. (2004) investigated stress responses of rat pups (babies) who had received vigorous licking and grooming from their mothers in the first ten days after birth and compared them to rats who had not received much attention from their mothers. The stress response was measured by placing each rat into a small tube for twenty minutes and measuring their reaction to this confined situation. The stress hormone corticosterone (a glucocorticoid) was measured in each rat.

It was found that the rats who had more attention from their mothers had lower levels of corticosterone than the rats who had not. It could be argued that the reason these differences emerged was that the rats inherited their temperament from their mothers: the calmer rats may have had calmer mothers who as a result of being calmer in temperament were able to engage in high attention maternal behaviour with their offspring. To test this possibility the researchers carried out another study in which the offspring of anxious rats were placed with calmer mothers who frequently licked their pups, and the offspring of calmer rats were placed with more anxious mothers who did not engage in high levels of maternal licking. It was found that the reactivity to stress depended on adoptive mother behaviour and not biological mother behaviour.

This is an example of epigenetics and is explained by **gene expression**. The researchers showed

> that the **glucocorticoid receptor genes** in the brain are methylated (switched off) when mothers neglect their pups and these pups went on to become worse mothers. Rat pups raised by nurturing mothers were less sensitive to stress as adults. Acquired epigenetic modifications can be inherited and passed on to offspring; this is not just learned behaviour.

We can conclude from this section therefore that although we are the product of the genetic information received from our parents research has highlighted how far the environment can have an impact on genes through the process of gene expression.

> Ask Yourself
>
> Why would it be impossible to conduct Weaver et al.'s animal study with humans?

5.2 Genetic Similarities

Genetic similarity is referred to as relatedness. The greater the genetic similarities between two individuals or a group of individuals the higher the degree of relatedness.

(Source: *IB Psychology Guide*)

Twin studies

An awareness of the degree of relatedness between MZ and DZ twins, siblings, parents and children and parents and adopted children provides a critical perspective in evaluating twin or kinship studies.

(Source: *IB Psychology Guide*)

As described above, psychologists have more recently been able to gain insights into how gene expression plays a role in behaviour, but a long-standing traditional technique that is still widely used today is to study how behaviour varies according to the degree of genetic similarity between relatives. This is called relatedness. As genes cannot ethically be manipulated in humans to see the effect on behaviour, family-based studies are an ideal way to assess how genes influence behaviour. Such studies are therefore correlational in nature.

As mentioned earlier, in Section 2.1, any correlational studies into the relationship between genes and behaviour measure the concordance rate of a personality characteristic or a behaviour between individuals. This means that they look at the extent to which the pairs of individuals (usually twins, both identical/monozygotic and non-identical/dyzygotic) share a behaviour. A concordance rate of 1 for a behaviour is 100% concordance, which in real life is impossible to achieve. It would mean that one twin behaved exactly the same as or had exactly the same intelligence or attitude as the other. Concordance rates of 0.7 (70%) are considered extremely high. A zero concordance rate means that there is no correlation at all between two people's behaviour. Twin studies can be carried out in two ways: they can assess twins who have been reared together or they can study twins who have been separated and raised in different environments. The latter strategy is the most desirable in terms of research because if there is a concordance rate for certain behaviours between the twins that is higher than the rate in siblings (brothers and sisters) who are not twins, this suggests a genetic influence as they are being raised in different environments. However, the strategy of testing twins reared apart is extremely difficult to implement in reality because twins are so rare and twins raised separately are even rarer.

You will explore correlational studies as part of the biological explanations for mental disorder when you study Abnormal Psychology.

Focus on Research – correlational (twin) study – McGue et al. (2000)

McGue et al. (2000) investigated the genetic and environmental influences on adolescent addiction to tobacco and marijuana. They interviewed 626 pairs of male and female twins born in the same year. Males: 188 identical (monozygotic, MZ) and 101 non-identical (dizygotic, DZ). Females: 223 MZ and 114 DZ. They were interviewed about their history and experience of legal (tobacco) and illegal (marijuana) drug use, details of their home life; and they also completed a questionnaire.

The researchers found a slight heritability for marijuana use of 10% -25%, with no significant differences between males or females. But tobacco use showed a heritability of 40%-60%. However, the importance of shared environment was also a prominent finding: the participants with a well-established habit and history of drug-taking (both legal and illegal) reported that such drugs were a regular part of family life, with reports of parents or family members openly taking drugs, and drugs being a normal part of the home environment.

They concluded that the environment appeared to be more influential in determining drug use than genetic inheritance.

Focus on Research – correlational (twin) study – Kendler et al. (2006)

Kendler at al. (2006) conducted a very large Swedish twin study with 15,493 complete twin pairs listed in the national twin registry. The researchers used telephone interviews over a period of 4 years to diagnose major depressive disorder (MDD) on the basis of (a) the presence of most of the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) symptoms or (b) having had a prescription for antidepressants.

The researchers found an average concordance rate for MDD across all twins was 38%, in line with previous research. They also found no correlation between the number of years that the twins had lived together and lifetime major depression, suggesting this was a true heritability rate. The rate among female monozygotic twins was 44% and amongst males 31%, compared with 16% and 11% for female and male dizygotic twins respectively. If the disorder was purely genetic, we might expect the monozygotic concordance rates to be much higher. But the difference between monozygotic and dizygotic concordance rates is enough to indicate a strong genetic component.

The difference in concordance rates between female and male twin pairs is interesting. The findings suggest that the heritability of MDD is higher in women than in men and that some genetic risk factors for MDD are sex-specific.

Limitations of twin studies

Studies into twins raised apart have weaknesses that must be taken into account when interpreting their results. Joseph (2002) argues that the main problem with studies of raised apart identical twins is that the investigators mistakenly compare reared-apart identical twins with raised-together identical twins, forgetting that both sets share several important similarities, which include common age, common sex, similar appearance and a common prenatal environment. Therefore, they are bound to have many similarities in

behaviour. Joseph (2002) points out that the better comparison group would be with pairs of unrelated people of the same generation. Similarly, as McGue et al.'s study shows, it is difficult to disentangle environmental and genetic factors when testing twins who live together with their families.

Kinship (Family) studies

Family studies (the IB also calls them 'kinship' studies) investigate genetic heritability of a behaviour by looking at the incidence of a behaviour over a number of generations and controlling for other variables, such as environment. Usually, this is limited to three generations in most populations.

Focus on Research – correlational kinship (family) study – Fernandez-Pujals et al. (2015)

Fernandez-Pujals et al. (2015) conducted a large family study into the heritability of MDD. Around 126,000 individuals were asked to participate from the large Generation Scotland: Scottish Family Health Study (GS:SFHS). Each was asked to recommend one relative to the study. Participants were informed that the purpose of the study was to study the health of the Scottish population. From those invited and their relatives, 20,198 volunteered and were screened by clinical interview for symptoms of MDD. A final 2,706 were diagnosed as suffering or having suffered one or more episodes of MDD.

Correlations were calculated between relatives and the unadjusted heritability was found to be 44%. Once adjusted for same environment (i.e. taking into account all relatives who lived together and therefore for whom environmental factors could be relevant) the heritability of MDD was 28%. This is lower than for identical twins, which is to be expected, as these relatives shared 50% or lower of their genes, not the nearly 100% that MZ twins share. The heritability of recurrent MDD was significantly larger than that for single MDD and heritability for females was higher than that for males, but not significantly higher.

This evidence certainly suggests a genetic component in MDD.

> Ask Yourself
>
> What are some of the difficulties involved in conducting twin and kinship research?

5.3 Evolutionary Explanations for Behaviour

Evolution is the process by which plants and animals developed by descent, with modification, from earlier existing forms. These changes happen at the genetic level as organisms' genes change and combine in different ways through reproduction and are passed down the generations.

Darwin's evolutionary theory is based on the principle of natural selection. This means that the variations possessed by members of the same species have different values when it comes to survival. Those variations that are 'adaptive' will be the ones that allow those possessing them to survive and therefore will be passed on to future generations. If the environment stays the same the adaptive traits will remain in the gene pool, but if the environment changes, previous adaptive traits become less adaptive.

A well-known example is the long necks of giraffes which evolved to allow them to feed on the tops of trees and thus avoid starvation when other animals were feeding lower down. Giraffes without this adaptation died out. These useful adaptations are inherited and eventually, over a very long period of time, give rise to

new species. Evolutionary psychologists working within the biological approach believe that many different human behaviours can be explained as being useful adaptations. We discuss evolutionary explanations for behaviour further on in this section.
Not all psychologists who believe in heritability (that our personality and behaviour are at least partly inherited from our parents) are evolutionary psychologists. Many twin and adoption studies have been carried out, exploring the relationship between heritability and intelligence, for example, but not all of these psychologists claim that intelligence is an adaptation that has proved useful through natural selection.

Evolutionary psychologists believe that if behaviour exists in society today, then it must be a useful adaptation that has helped us survive and reproduce, a concept known in evolutionary theory as 'the survival of the fittest'. They also point out that despite the wide diversity of human beings in different cultures scattered all over our planet, there are some reactions that seem to be almost universal. Examples of these are the response of disgust to the smell of rotten eggs; ideas of what is attractive in a mate; fear or dislike of spiders and snakes. This is, they argue because such responses are adaptive.

Evolutionary psychologists are a long way from being able to prove a cause and effect relationship between our genetic inheritance and such responses, but they have generated some interesting ideas.

In addition, some evolutionary psychologists have argued that some phobias could have an evolutionary basis. One of the first researchers to put forward the idea that humans may have an innate tendency to fear certain animals, for example, was Martin Seligman in the early 1970s. This speculation was enshrined in his 'preparedness' theory (Seligman, 1971) in which he suggested that we are biologically 'prepared' to fear particular creatures for evolutionary reasons. In other words, fears and phobias of animals are adaptive for humans because they promote the survival of the species in some way. This idea makes more sense when we consider the environments that our ancestors needed to survive in. It is important to realise that many humans today live in some comfort compared to our ancestors. For example, we have more comfortable housing, we generally do not have to hunt for our food, and we have more sophisticated ways of protecting ourselves. Our ancestors, however, faced danger regularly and therefore it is possible that evolution equipped them with the necessary biological mechanisms to ensure their survival, i.e., innate tendencies to fear things such as strange animals, heights, deep water, etc.

The essence of Seligman's preparedness theory, therefore, is that humans today are still influenced by their evolutionary origins and hence are more biologically prepared to be fearful of certain things. Another evolutionary mechanism that may have evolved to increase chances of survival could be the sense of disgust when we view certain stimuli. The wide-ranging study by Curtis et al. (2004) set out to test this possibility.

> Focus on Research – evolutionary adaptation of disgust – Curtis et al. (2004)
>
> Curtis et al. (2004) added a survey to the BBC Science website after a documentary had been shown about instinctive human behaviour on one of the BBC channels. A sample of over 40,000 people completed the survey. The majority of participants came from Europe but a small proportion of the sample came from the Americas, Asia, Oceania and Africa. The participants, 75% of whom were aged between 17 and 45 years old, viewed twenty photographs and rated them for the level of disgust on a Likert scale of 1-5.
>
> The results indicated that photographs with objects representing a threat of disease were rated as more disgusting. A final question on the survey asked participants to choose with whom they would least like to share a toothbrush. Least acceptable was the postman (59.3%), followed by the boss at work (24.7%), the weatherman (8.9%), a sibling (3.3%), a best friend (1.9%) and the

spouse/partner (1.8%). Sharing a person's bodily fluid becomes more disgusting when the person is less familiar because there is viewed to be more of a disease threat from a stranger.
Curtis et al. suggested these results were evidence that disgust is an evolutionary mechanism for detecting disease thus plays a role in survival.

Earlier, we considered Wedekind et al.'s research on pheromones and how pheromones could be an adaptive evolutionary mechanism involved in mate choice. Although it was argued that the existence of pheromones in humans has been the subject of debate, other research has indicated that mate choice can be influenced by evolutionary processes like sexual selection, the process that favours individuals possessing features that make them attractive to members of the opposite sex or help them compete with members of the same sex for access to mates.

According to evolutionary theory, differences in terms of sexual selection should be expected in males and females of species (including humans) with internal fertilization. This is because if a female is unfaithful to her male partner, the male risks lowered paternity probability and runs the risk that his female mate is investing energy and resources mothering the child of a rival that does not contain his genes. Females of course don't risk lowered maternity probability if their partner cheats on them, but they do risk losing their mate's commitment and his resources to a rival female if he becomes emotionally committed to her.

Focus on Research – sexual selection – Buss et al. (1992)

Buss et al. (1992) investigated differences between men and women in terms of sexual selection. They asked participants (an opportunity sample of 202 undergraduate students) to vividly imagine scenarios involving either sexual or emotional infidelity by their partner. Participants' distress while imagining these scenarios was assessed by monitoring various indices of emotional (e.g., questionnaire) and physiological arousal (e.g., sweat response).

The results showed that sexual infidelity generated the most distress in males, whereas emotional infidelity elicited the most distress in females. This difference corresponds with what evolutionary psychology would predict.

Buss et al. concluded that men are concerned that their sperm will be replaced by another man's thus reducing the chances that genes will be passed on. They suffer from paternity uncertainty: they can't be sure a baby is theirs if their female partner is unfaithful. A woman always knows a baby is hers but is concerned if her male partner becomes emotionally entangled with another woman, as this increases the likelihood that her mate will redistribute his resources and she and her baby may suffer.

This study, therefore, illustrates differences between male and females in terms of sexual selection in line with what would be predicted in evolutionary theory.

Limitations of evolutionary psychology

Evolutionary psychology has been accused of biological reductionism, reducing everything to a genetic level and ignoring human free will and the complexity of human behaviour. Evolutionary psychologists have responded to this by saying that it is the popularisation of their theory, rather than the theory itself, that has led to these criticisms. Just because they are trying to trace human behaviour back to its functional origins does not mean they do not acknowledge its complexity.

In addition, it is important to be cautious about interpreting the results of research in this area because male and female differences in sexual selection strategies for example are quite simplistic. How can they explain mate choice by females who never want children? Furthermore, the lack of archaeological evidence for how our ancestors lived their daily lives means that ancestral behaviour has to be viewed in the context of modern behaviour. Moreover, naturally we cannot know for certain what modifications over evolutionary time have been made to our genetic makeup and therefore the evolutionary approach to explaining behaviour has many difficulties in terms of its methodology.

5.4 Assessment Advice

Question	Study/Studies
SAQs **Outline/describe/explain**	**Suggested studies**
One research method (approach to research) used when investigating genetics and behaviour	Any one of the studies listed below are suitable fo these SAQs
One ethical consideration when investigating genetics and behaviour	Any one of the studies listed below are suitable fo these SAQs
One gene (or one study into one gene) and its influence on one behaviour	Suderman et al. (2014)
Genetic similarity in relation to one behaviour	Kendler et al. or Fernandez-Pujals et al. (2015)
One twin study or kinship study into one behaviour	Kendler et al. or Fernandez-Pujals et al. (2015)
One evolutionary explanation for one behaviour	Curtis (2004) or Buss et al. (1992)
ERQs **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the relationship between genetics and behaviour	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
Ethical considerations of research investigating the relationship between genetics and behaviour	Any two of the studies listed below are suitable fo these ERQs. (Ensure for a methods question, tha each study uses a different methods).
The relationship between (or research/studies investigating the relationship between) genetics and behaviour	Suderman et al. (2014) and Weaver et al. (2004)
One or more genes (or research/studies into one or more genes) and their influence on behaviour	Suderman et al. (2014) and Weaver et al. (2004)
Genetic similarity (or research/studies into genetic similarity) in relation to behaviour	Kendler et al. (2006) and McGue et al. (2000) or Fernandez-Pujals et al. (2015)

One or more evolutionary explanations (or research into one or more evolutionary explanations) for behaviour	Curtis (2004) and Buss et al. (1992)

6. The Role of Animal Research in Understanding Human Behaviour

6.1 Can Animal Research Provide an Insight into Human Behaviour?

In this chapter, animal research has been included in a number of sections in order to illustrate to some extent how far such research is fundamental to investigating the biological foundation of human behaviour. Given that some psychologists studying within the biological approach view the human as just another type of animal, sharing a similar, and similarly inherited, biological makeup, human behaviour can be understood by conducting studies on non-human animals and generalizing the results to humans. Charles Darwin also argued that the physiological makeup of different species was similar enough to warrant animals and humans being considered as comparable with each other.

Mammals such as rats, mice and non-human primates are particularly useful in psychology research because humans are also mammals hence our anatomy and physiology are comparable to these animals. For example, monkeys' and apes' brain activity can give an insight into human brain activity and behaviour given the similarities in structure and function. The different areas of animals' brains are presumed to have the same function as human brains, and neurotransmitters in animals' brains are presumed to have the same action in human brains. Rat behaviour is particularly complex and rats are strikingly similar to humans in their anatomy, physiology and genetics. With regard to mice, mice and humans share around 97.5% of their DNA. In addition, they have a short generation time and an accelerated lifespan. One mouse year, for example, equals about thirty human years. This is one reason why rats and mice are used in much animal research because effects can be observed at an accelerated rate in comparison to humans.

In clinical psychology and psychiatry, animal research has also played a major role in developing modern treatments for mental illness such as medication for illnesses like schizophrenia and depression. Using humans as the initial receivers of drugs in development would not be ethical because of the potential for physical and psychological harm, hence refining psychiatric medication on animals is seen as the only viable way of ensuring these drugs are as safe as possible. It can be seen therefore that within the fields of clinical psychology and medicine, animal-based studies have been instrumental in helping countless patients live better lives.

6.2 The value of animal models in research into the brain and human behaviour

Although the advent of sophisticated neuroimaging technology has revolutionised the study of the brain in both human and animal participants, the fact remains that this technology still cannot provide a detailed enough assessment of brain structure and physiology in comparison with invasive techniques used in animal brain research. These invasive techniques include surgical ablation and lesioning. Such procedures, as mentioned earlier, involve the deliberate removal of brain tissue (ablation) or the deliberate destruction of tissue (lesioning). The idea is that surgery of this type can be used to ascertain which brain structures are involved in different types of behaviour. The benefit of these invasive measures is that the brain can be

studied in much finer detail and in a more controlled way because scientists can choose the size and location of the damage. This leads to much more precise measurements of brain function.
Studies

Martinez and Kesner (1991) conducted experimental research with rats that you read about in Section 3.4 on neurotransmitters. Their findings that acetylcholine (ACh) acted in the hippocampus and surrounding medial temporal lobe area and was important for spatial memory led to later research in humans. Antonova et al. (2011) carried out a similar experiment on humans to see if ACh acted in exactly the same way in the human brain and found that it did. See their research in Section 2.3, as an example of a well-controlled experiment demonstrating cause and effect.

Some of the human research was focused on diseases characterised by a loss of memory, such as Alzheimer's disease. It was discovered that loss of ACh activity in the medial temporal lobe and hippocampus was one of the very early signs of Alzheimer's disease. Drugs targeting the production of ACh in the brain have been developed for the treatment of Alzheimer's disease. Therefore, discovering how neurotransmitters act in animal brains can lead to later clinical research on humans that can improve lives.

6.3 The value of animal models in research into hormones and/or pheromones.

Psychologists who are interested in understanding the role that hormones and/or pheromones play in shaping human behaviour rely on several types of research approaches. These would include animal research where hormone levels are experimentally altered, such as injecting mice with testosterone to measure levels of aggression or dominance. Hormones work in the same way in non-human mammals as they do in humans and therefore animal experiments with well controlled variables can isolate the effect of a hormone. The hormone insulin, which is used to treat diabetes, was discovered in an animal experiment. Testosterone seems to have a protective effect against depression. We read earlier that more women than men suffer from major depressive disorder (MDD). The study below investigates this further, using rats.

Focus on research – testosterone – Albert et al. (1986)

Albert et al. (1986) investigated the effect of testosterone on aggression in male rats. They placed the rats in cages and identified the alpha males (dominant males) by their size and strength. They measured their aggression levels when there was a nonaggressive rat placed in the same cage, by measuring behaviour, such as attacking and biting.

They then divided the alpha male rats randomly into four groups to undergo four separate surgeries:

1. Castration
2. Castration followed by implanting of empty tubes
3. Castration followed by implanting of tubes with testosterone
4. A "sham" castration followed by implanting of empty tubes (They cut open the rat and sewed it back up without actually removing the testicles).

They then measured the change in aggression when non-aggressive rats were reintroduced to the cage. Those that had the operations that reduced testosterone levels (Groups 1 and 2) had a decrease in aggressiveness but those that had the operations that kept testosterone levels intact (Groups 3 and 4) didn't have a significant change in aggression levels.

Then the rats in Group 2 had their testosterone replaced and they showed returned levels of aggressiveness similar to those in Groups 3 and 4.

> Moreover, the researchers observed that when a non-aggressive male is placed in the same cage as a castrated alpha rat then he becomes the dominant rat in the cage. Also, when a rat that had the sham operation is put in a cage with a castrated rat, the sham operation rat shows higher levels of aggression. This suggests that testosterone may facilitate behaviour associated with social dominance in rats. By experimenting on rats, Albert et al. were able to manipulate levels of testosterone and conclude that levels of testosterone affect aggression and dominance.

This study is a pre-cursor to investigations into human males and the effects of testosterone on behaviour. Of course, researchers cannot castrate human males to test the hypothesis that reduced testosterone levels correlate with reduced aggression, but they can increase testosterone levels and see if that results in increased aggression or dominance. Because of socialization, aggression or dominance in humans is not usually expressed by attacking or biting, but it is nonetheless measurable through competitive games, as in Carré et al.'s research (Section 4.1) Note that Carré et al. found that it was only when testosterone interacted with already present traits of high dominance and low impulse control that it resulted in aggression. Nave et al. (Section 4.1) found that testosterone reduced cognitive reflection, which is linked to impulse control. How might this link to Albert et al.'s selection of alpha males for their experiment?

Animal and human research into the effects of testosterone on male behaviour has also shown a reduction in this hormone to be linked to depression (Carrier and Kabbaj, 2012). It is helpful to see how animal studies can lead to human studies that test the hypotheses generated.

While there is animal research into pheromones and behaviour, none of it has been successfully generalized to humans yet, so the animal models for a hormone and behaviour remain the most useful.

6.4 The value of animal models in research into genetics and behaviour

Animal research is used to generate theory for comparable research in humans and the results of animal research are also compared with findings in humans. This is an area where there is a lot of animal research using specially bred mice. Mice share many of their genes with humans and can be bred to show specific genotypes. Also, because rodents have a much shorter lifespan that humans, differences in behaviour in response to genes is much quicker to observe. The following two studies are from earlier in this chapter, and both demonstrate gene expression in relation to environment.

Studies

Weaver et al. (2004) showed that the glucocorticoid receptor genes in the brain are methylated (switched off) when mothers neglect their baby rats (pups). This study was detailed in Section 5.1. It was a controlled experiment wherein pups were taken from their caring mothers and fostered with neglectful mothers and vice-versa, in order to identify the genetic and environmental effects of the mothers' licking and grooming. It was found that even when pups had been born to uncaring mothers, once they were with their caring foster mother, then the glucocorticoid receptor genes were de-methylated (switched on) and their stress decreased. So this genetic response is not inherited but is a response to environment. This demonstrates epigenetics - genetic changes in response to environment.

This is similar to what was found by Suderman et al. (2014), who found that 12 adults who had suffered childhood abuse were more likely to show methylation in their DNA compared to a control group of 28 who had suffered no such abuse, even at the age of 45 years old. In particular, the study showed that there was

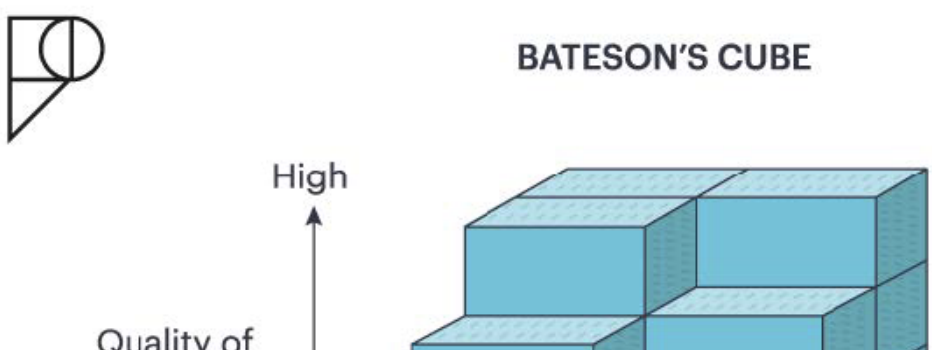
increased methylation of the gene PM20D1 in the sample who had suffered abuse. This gene is responsible for the metabolism of amino acids and is associated with control over a person's eating habits. Those with childhood abuse were also shown to have a greater prevalence of obesity in adulthood.
Weaver et al.'s study can show a cause and effect relationship between the licking and grooming of the pups and the demethylation of the glucocorticoid receptor genes because it is a wellcontrolled experiment. However, Suderman's is a quasi-experiment with no random allocation to groups or control of other variables, and so can only show a correlation between the abuse, the methylation of the gene and the obesity of those who had suffered abuse as a child. This is one advantage that animal studies have over research into humans. With humans, researchers often investigate naturally-occurring events that result in biological changes in the brain and alterations in behaviour. With animals, researcher will instigate such changes in order to manipulate and control variables. This of course leads to ethical considerations. Any of the animal studies from this chapter can be used to discuss the ethical considerations of animal research.

6.5 Ethical considerations in animal research

There has been considerable debate about whether animal research should be used to further our knowledge about human behaviour. Some academics have taken a more philosophical viewpoint in this debate and discussed whether the use of animals in research is akin to concepts such as racism among humans. For example, Singer (1990) uses the term speciesism to reflect this and argues that humans and animals should be seen as equal. In addition, he believes that morally humans do not have the right to put one species' rights before another's. Regan (1984) agrees with this view and argues that animals should never be used in research. It can also be argued that evidence of self-awareness in animals should be a consideration against using them in psychology studies. For example, adult bonobos and chimpanzees have been shown to exhibit this ability. In one study, Gallup (1970) showed that chimpanzees could recognise themselves in a mirror, a behaviour that indicates self-awareness.

Such arguments, however, have not deflected psychology as a discipline from continuing to use animal research to explore the foundations of human behaviour. To counter ethical issues arising from such research, ethical guidelines have been developed to ensure researchers adhere to practices that minimise animal suffering. As mentioned earlier in the chapter, The American Psychological Association (APA) regularly updates its guidelines for animal research. Researchers can also use a cost-benefit analysis to weigh up the pros and cons of carrying out animal research projects. Bateson (1986), for example, proposed a decision-making tool for research called Bateson's Cube. When researchers propose a new project with animals, Bateson outlined three factors as being important in the decision-making process. These are:

- the degree of suffering by an animal
- the quality of the proposed study
- medical benefits of the study



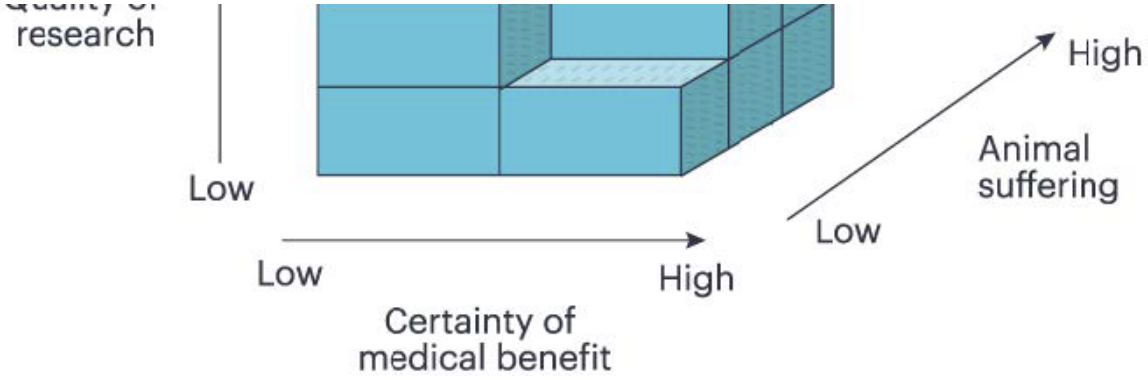


Figure 4.5 Bateson's cube

As written earlier, the APA and BPS have issued regularly-updated guidelines regarding animal research and in the UK, a government licence is needed to carry out animal research. The BPS has identified the '3 Rs' of animal research. These are to:

- Replace animals with other alternatives - such as stem-cell research or computer modelling
- Reduce the number of individual animals used (and where possible use single-cell amoebae, fruit flies or nematode worms rather than mammals)
- Refine procedures to minimise suffering - ensuring all animals are well looked after

Ethical considerations should also consider whether animals could be used in natural circumstances as well as, or maybe instead of, in experiments. Observations of primates in their natural habitats, and of the effects of changing environment and family disruption on the treatment of young animals may yield richer data gained more ethically than data gained from lab studies in highly artificial circumstances. Xu et al. (2015) argued that using lab rats and mice in experiments to investigate depression that occurs naturally in a social context is not realistic. Instead, they used macaque monkeys in order to describe and model a naturally-occurring depressive state amongst monkeys raised in socially-stable groups at Zhongke Feeding Centre in Suzhou, China, where they are provided with environmental conditions and surroundings approximating those found in the wild. These circumstances make the research ethical to a greater extent than laboratory conditions would.

6.6 Assessment advice

Question	Study/Studies
ERQs **Discuss/evaluate/contrast/to what extent?**	
The value of animal models in understanding the relationship between the brain and human behaviour.	Martinez & Kesner (1991) and Antonova et al. (2011)
The value of animal models in providing insight into the influence of hormones and/or pheromones on human behaviour	Albert et al. (1986) and Carré (2016)
The value of animal models in providing insight into	Weaver et al. (2004) and Suderman et al (2014)

the influence of genetics on human behaviour	
Ethical considerations in animal research	Any of the animal studies from this chapter may b used
Ethical considerations in animal research investigating the brain and behaviour	Martinez & Kesner (1991)
Ethical considerations in animal research investigating hormones and/or pheromones and behaviour	Albert et al. (1986)
Ethical considerations in animal research investigating genetics and human behaviour	Weaver et al. (2004)

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the biological approach to understanding behaviour.

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Chapter 5: Cognitive Approach to Understanding Behaviour

Chapter Outline

1. **The Cognitive Revolution**
2. **Research Methods of the Cognitive Approach**
   - 2.1 Case Studies
   - 2.2 Experiments
   - 2.3 Observations
   - 2.4 Interviews

- 2.5 Ethics and Research Methods of the Cognitive Approach

3. **Cognitive Processing**
   - 3.1 Models of Memory
   - 3.2 Schema Theory
   - 3.3 Thinking and Decision-making
   - 3.4 Assessment Advice
4. **Reliability of Cognitive Processes**
   - 4.1 Reconstructive Memory
   - 4.2 Biases in Thinking and Decision-making
   - 4.3 Assessment Advice
5. **Emotion and Cognition**
   - 5.1 The Influence of Emotions on Cognitive Processes
   - 5.2 Assessment Advice
6. **Cognitive Processing in a Technological (Digital/Modern) World (HL only)**
   - 6.1 Assessment Advice

Essential Questions

- How do psychologists adopting a cognitive approach study behaviour?
- How is human memory modelled by cognitive psychologists?
- What are schemas and how do they influence memory?
- What factors influence our thinking and decision-making?
- How reliable are our cognitive processes?
- How do emotions influence our thinking and decision-making?
- How does digital technology influence cognitive processes? (HL only)

Myths and Misconceptions

Psychologists should only investigate what they can observe.

This was the point of view of psychologists called behaviourists. They believed only direct observable behaviour should be the focus of psychological studies. Psychologists interested in memory and thinking rejected this idea. In this chapter we will examine the contribution of cognitive psychologists to our understanding of human behaviour.

People think logically and make sensible decisions.

Though our biological classification of *Homo sapiens* comes from Latin meaning ‘the wise human’, our

thinking is often illogical and our decisions prone (prone = susceptible, liable, predisposed) to biases. In this chapter we will investigate why our cognitive processes are not always reliable.
Some experiences in our lives are unforgettable.

A common belief is that deeply emotional experiences produce vivid, exact and long-lasting memories. In this chapter, we will read research into whether memories can be imprinted upon the mind so powerfully that they can be recalled in photographic detail.

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1. The Cognitive Revolution

The historical background to cognitive psychology is **behaviourism**. Behaviourists argued that only direct observable behaviour should be the focus of investigations into human behaviour. From this viewpoint, psychologists argued that the mind cannot be studied scientifically as the mind cannot be observed directly. By the second half of the 20th century, psychologists interested in memory and thinking rejected this approach. They noted there are many phenomena we cannot directly observe. For example, we cannot observe air but we can infer (infer = to guess that something is correct because of the information that we have) its presence. We can breathe air and see how it moves trees. In a similar way, cognitive psychologists cannot observe mental processes but we can assume mental processes from human behaviour.

Researchers taking a **cognitive approach** study the mental structures and processes involved in behaviours such as attention, perception, memory, thinking and decision-making, problem-solving and language. Such processes are labelled **cognition**. While psychologists taking a biological approach study the relationship between the brain and nervous system and human behaviour, cognitive psychologists examine the relationship between cognition and human behaviour. Cognitive psychologists argue they are able to study mental processes by building **theoretical models** and then testing predictions based on these models. As computers became more widespread, psychologists likened mental processing to the operation of a computer. Information was seen as being inputted through our senses to our brains. This data then underwent mental processing. Behaviour was the output of this system. These ideas were revolutionary and cognitive psychologists produced a huge outpouring of research studies.

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2. Research Methods of the Cognitive Approach

Cognitive psychologists use several research methods:

- Case studies
- Experiments
- Observations
- Interviews

> Ask Yourself
>
> Which research method would be most effective in understanding Malala’s decision to campaign for the education of girls in Pakistan? (See Chapter 1)

2.1 Case Studies

Case studies examine correlations between mental processes and behaviour. Case studies sometimes focus on people with unusual mental abilities, or with mental processing problems. They can be **longitudinal**, which means the investigator studies the person for several years by re-testing or re-interviewing them at regular intervals.

Case studies investigate mental processes of one person or a few people. They provide in-depth information about phenomena that cannot be studied experimentally.

2.2 Experiments (laboratory/field/quasi/natural)

To examine the links between brain activity, mental processing and behaviour, psychologists design **laboratory (true) experiments** and use brain imaging technology. Though mental processes are not being directly observed, these processes are inferred from the brain activity and the behaviour.

Experiments are useful because they can identify cause-and-effect relationships between two or more variables. Some of the experiments we will study are actually **natural or quasi-experiments** because the independent variable is often age or gender.

2.3 Observations

Observation is often part of case studies and experiments. Observation can be quantitative and qualitative, depending on how the data is collected. If the researcher uses a list or grid that involves checking whenever a particular behaviour is exhibited, then the data is quantitative. If the researcher makes notes about the behaviour being observed and then writes down their own thoughts about that behaviour, then the data is qualitative.

2.4 Interviews

Structured interviews comprise a checklist of questions with tick boxes or yes and no answers. **Unstructured interviews** are similar to a conversation between two people, with a video or sound recorder used to capture the tone of the interviewee's comments and replies. Interviews can be a mixture of closed questions that need factual answers and other more open-ended questions that allow the interviewee to expand and discuss. Focus group interviews involve the interviewer facilitating a discussion amongst a group of interviewees.

Cognitive psychologists use interviews to supplement other methods, to develop theories and to gain in-depth insight into behaviour. Cognitive testing can sometimes form part of an interview. The interview is used to gain access to the person's mental processes through conversations about their behaviour and feelings.

2.5 Ethics Consideration of the Cognitive Approach

Psychologists endeavour to consider the following in their research into cognitive processes:

- anonymity
- debriefing
-

deception
- informed consent
- right to withdraw
- undue stress or harm

As you read about studies conducted by cognitive psychologists, think about the following:

- Why are these considerations important?
- How did the psychologist resolve any ethical issues? For example, how could the use of deception or stress be justified? Should psychologists undertake a cost/benefit analysis before undertaking research?

- Have ethical considerations changed over time?

---

3. Cognitive Processing

3.1 Models of Memory

Memory models provide a framework for an understanding of conceptualizations of human memory processes over time. Examples relevant to the study of memory models include explicit/implicit memory, sensory memory, short-term memory, long-term memory, central executive, phonological loop, episodic buffer, and visuospatial sketchpad.

Source: IB Psychology Guide

James (1890) was the first psychologist to suggest there are two separate types of memory. He called them primary memory and secondary memory. Information is first stored in primary memory. Secondary memory is where the memory stays when it is not being retrieved. Information in primary memory is continuously accessible because it takes an active cognitive process to retrieve information in secondary memory.

Miller (1956) investigated the capacity of short-term information storage. He conducted tests of memory such as repeating a series of digits and found that memory was limited to seven items in most people. Some people could remember nine and some five, but for most seven items was the norm. However, the definition of an item is flexible, and if the information was **chunked** into seven items, each containing several pieces of information, then the capacity for remembering was extended.

In the 1960s and 1970s, several models of memory were proposed. Early theories like the **multi-store model** (MSM) focused on storage of information. As computer functions became more complex, so theories of memory as operating as a computer also looked at processing rather than just at capacity and storage. An example of this model is the **working memory model** (WMM).

To evaluate any model of behaviour a series of questions need to be asked: Are the concepts? Is the model static or dynamic in the way it shows a psychological process? Have studies supported the model?

Keep these questions in mind as we study these models.

The **multi-store model (MSM)** was first proposed by Atkinson and Shiffrin (1968). Their theory suggests that

information flows through three stores. Each store has different capacities and can store information for different durations. Information is first stored in **sensory memory** for a fraction of a second. This information is then transferred to **short-term memory** if we attend to and make note of it. Short-term memory has a limited capacity of seven items +/−2. Information is stored in the form of sound for about 30 seconds. This information will then be transferred to **long-term memory**. When the material is not rehearsed, new information that enters the short-term memory store will displace older information. The information in long-term memory is processed semantically (semantically = by meaning). The capacity of this store may be unlimited.

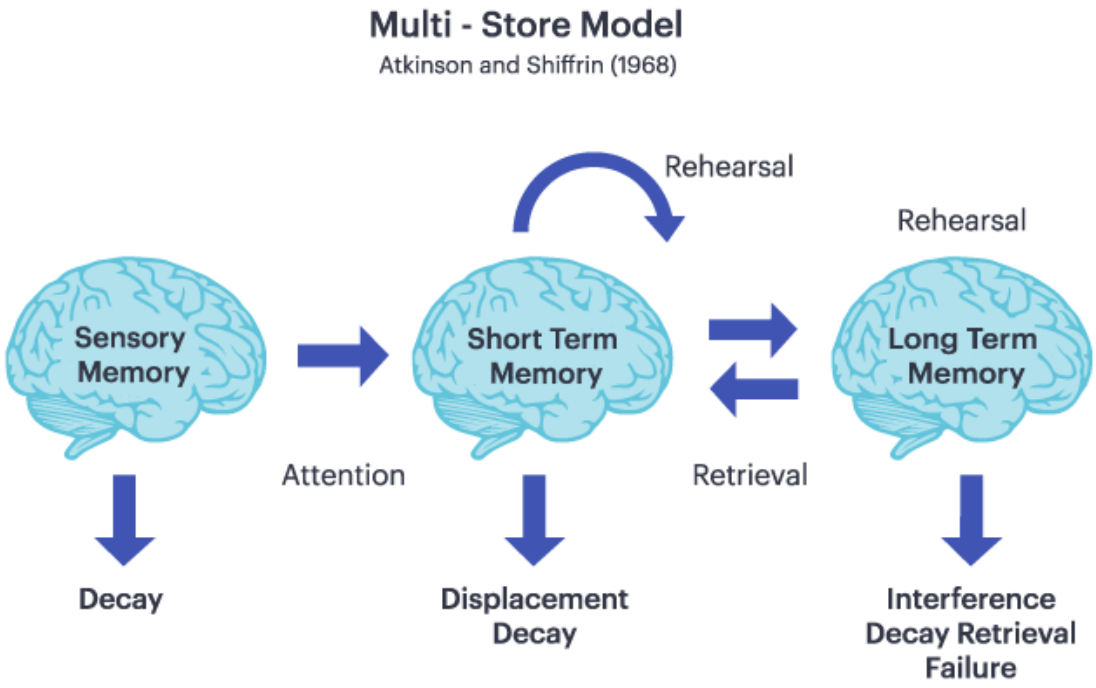

Figure 5.1 Multi-store model

> Ask Yourself
>
> Based on your experience, does this model make sense to you?

Strengths of the multi-store model

The multi-store model was an influential theory and prompted a great deal of research into memory. For example, Glanzer and Cunitz (1966) provided evidence that confirmed the model. They did this by conducting studies on the **serial position effect** using **free recall experiments**. These experiments involve giving participants a series of twenty or more words to remember and then asking them to recall these words in any order. The results generally fall into a pattern the researchers call the serial position curve. As you can see, participants recalled more of the first words and the last words on the list (see Figure 5.2). This **primacy effect** showed these first words had been transferred into long-term memory. The **recency effect** indicates that the last words on the list were also remembered as well as they were still in short-term memory when the participants recalled the words.

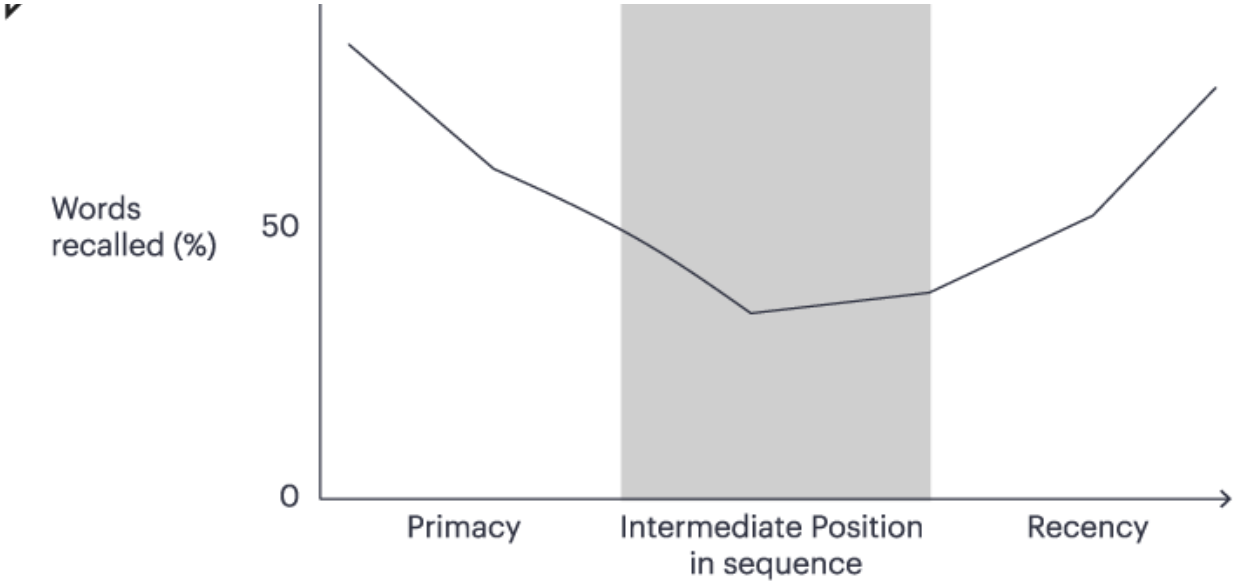

Figure 5.2 Serial position curve

Focus on Research

Building on this research, Glanzer and Cunitz (1966) designed experiments to test their Multi-Store Model of Memory (MSM). They aimed to test the hypothesis that there are two distinct storage mechanisms the STM store and the LTM store.

Two repeated measures experiments were conducted. In Experiment I, 240 Army enlisted men were presented with lists of 20 common one-syllable nouns. The presentation rate, the time intervals between one word and the next, varied from 3 to 6 to 9 seconds.

The results indicated that spacing affects the shape of the serial position curve, but the effect is limited to the beginning of the list, not the end. The investigators concluded that this was evidence that the LTM store was distinct from the STM store.

In Experiment II, 46 Army enlisted men were presented with lists of 15 common one-syllable nouns. They were asked to recall the list immediately or after a 10 or 30-second interval in which they performed a distraction task of counting backwards.

Results showed that the recency effect was strongest for immediate recall but declined after that. This variable did not impact the primacy effect. The investigators once again concluded that the results demonstrated the existence of two distinct memory stores.

Weaknesses of the multi-store model

The MSM was criticised as being simplistic. The models did not capture how the different stores interact with each other. For example, the information stored in the LTR could influence what information is judged important by the STM. Baddeley and Hitch (1974) argue that the memory stores are more complex than depicted by the MSM. Craik and Lockhart (1972) point out that rehearsal alone does may not account for the transfer of information from STM to LTM. The type of information being processed and the level at which this information is processed may also influence what information is transferred to the LTM. You can find more information about Craik and Lockhart here.

A further criticism was that many of the studies that support the model lack ecological validity as they rely on

random lists of words presented to participants in a laboratory setting.

The working memory model

While the MSM showed that a theoretical model could be effective in investigating cognitive processes there were significant limitations. As a result, some psychologists argued that there must be more than one type of long-term memory store. Shallice and Warrington (1970) undertook a case study of KF who was involved in a motorcycle accident. They found he was still able to form new long-term memories even though his short-term memory capacity was nearly zero. Short-term memory is, according to the MSM, the gateway to long-term memory, so his long-term memory should also have been damaged, at least for events that happened after the accident. As KF could still form new long-term memories, Warrington and Shallice argued there must be another way to access long-term memory other than what is depicted by the MSM.

Building on Atkinson and Shiffrin's research, Baddeley and Hitch (1974) developed an alternative model of short-term memory which they called the **working memory model** (see Figure 5.3). They argued that short-term memory is not a static store, but is a complex and dynamic information processor.

The **central executive** is the most important part of the model, although little is known about how it functions. The central executive monitors and coordinates the operation of the **visuo-spatial sketchpad** and **phonological loop** and relays information to long-term memory. The central executive decides which information is attended to and where to send it. Baddeley suggests the central executive acts more like a system which controls attention rather than as a memory store. The central executive enables the working memory system to selectively attend to some stimuli and ignore others. The phonological loop and the visuo-spatial sketchpad are specialised storage systems. See this interview with Baddeley on the functions of the central executive.

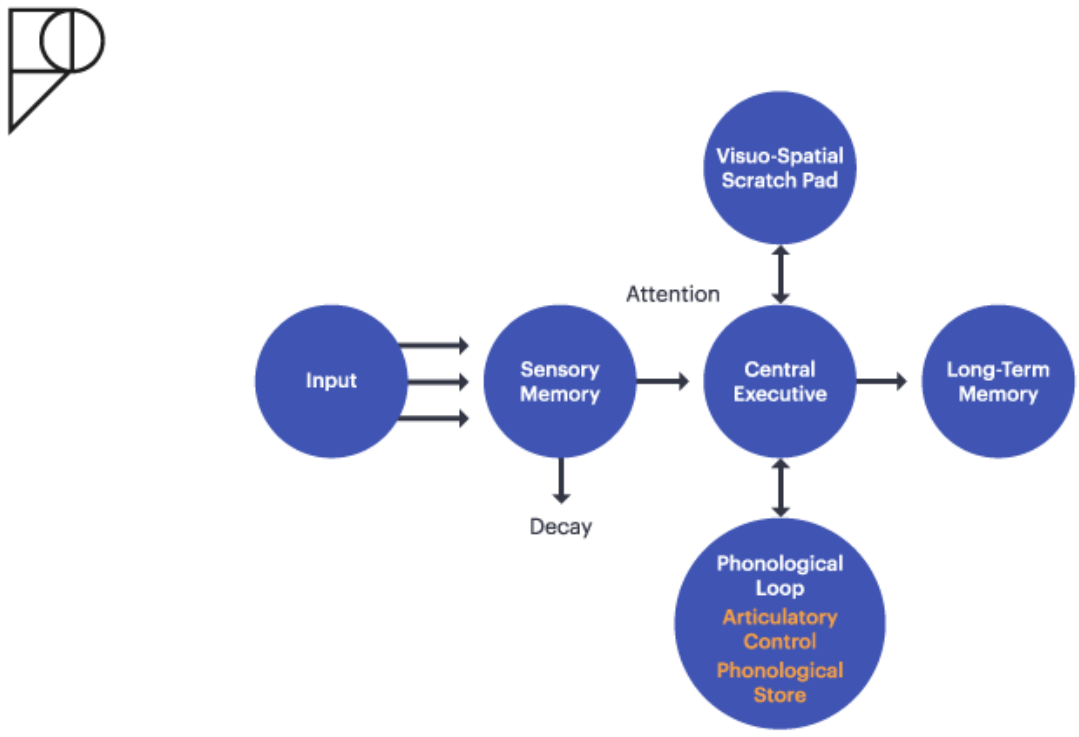

Figure 5.3 Working memory model, Baddeley and Hitch (1974)

The phonological loop is the part of working memory that deals with spoken and written material. It consists of two parts: one is the phonological store, which acts as an inner ear and holds information in a speech-based form for 1–2 seconds. Spoken words enter the store directly. The other part is the **articulatory control**

process. This process converts written words into an articulatory (spoken) code so they can enter the phonological store and it acts like an inner voice rehearsing information from the phonological store. It circulates information round and round like a tape loop. This is how we remember a telephone number we have just heard. We say it aloud or in our minds over and over again and so keep it in our working memory. The visuo-spatial sketchpad deals with what things look like and how we are in relation to other objects as we move around. If we are asked what our friend looks like, we see a picture of them in our minds. This is our visuo-spatial sketchpad drawing from our long-term memory.

Baddeley (2000) updated the working memory model after it failed to explain the results of various experiments, adding the **episodic buffer**. The episodic buffer acts as a 'backup' store which communicates with both long-term memory and the components of working memory.

> Ask Yourself
>
> Based on your own experience, does this model make sense to you?

Strengths of the working memory model

The WMM provides a more comprehensive and thorough explanation of memory storage and processing compared to the MSM. Most psychologists now agree that short-term memory is a working memory with processing and filtering powers. The model can be applied to reading and tasks like mental arithmetic and verbal reasoning. The model explains what happens to memory in cases of brain damage.

Experimental studies also support the model by showing that there are separate systems in working memory. Hitch and Baddeley (1976) conducted a **dual-task study** to find if working memory had more than one process. Their model predicts that two tasks cannot be performed successfully if they use the same component of working memory. On the other hand, if two tasks use different components, they can be carried successfully.

To test this theory, participants were asked to do two tasks at the same time – a task which required them to repeat a list of numbers, and a verbal reasoning task which required them to answer true or false to various questions. The participants could carry out both tasks satisfactorily, and the researchers suggest that this is because each task using a different element of working memory.

This finding was supported by Robbins et al. (1996) who conducted a number of experiments that asked participants to play chess and do another cognitive task at the same time. They found that playing chess involved using the visuo-spatial sketchpad and there was no interference when participants were asked to play chess and repeat words at the same time. However, when participants tried to play chess and tap numbers on a keyboard at the same time, there was interference as the model would predict.

Limitations of the working memory model

Andrés and Van der Linden (2002) examined patients with frontal lobe damage and concluded that not all central executive processes are located there. Evidence indicates there are common brain areas but there are also differences in how different tasks are performed.

There is little direct evidence for how the central executive works and what it does. The capacity of the central executive has never been measured. The working memory model only involves short-term memory, so it is not a comprehensive model.

Finally, the model does not explain changes in processing ability that occur as the result of practice or time.

3.2 Schema Theory

Cognitive schemas are seen as mental representations that organize our knowledge, beliefs, and expectations. Examples relevant to studying schema processing include but are not limited to: top-down/bottom-up processing; pattern recognition—the matching of a current input to information in memory; effort after meaning—the attempt to match unfamiliar ideas into a familiar framework; stereotyping—a fixed mental representation of a group of individuals.

Source: IB Psychology Guide

Bartlett (1932) first introduced **schema theory** to psychology. A schema can be defined as an internal mental representation that helps us organise and make sense of information. While conducting a series of studies with British students recalling Native American folktales, he noticed the participants often recalled information inaccurately. He found familiar information replaced unfamiliar information as the participants tried to make sense of the story as they recalled it. To account for these findings, Bartlett proposed that people have schemas which can be defined as unconscious mental structures that represent an individual's experience and knowledge of the world. Schemas are composed of old knowledge. He stated that they are 'masses of organized past experiences' (1932: 197–198). These experiences affect a person's current understanding and memory. For example, going to school helps us to develop a schema of a typical classroom and what you would find in it. Schema processing is automatic and below our level of awareness but as we shall see later in the chapter, biases in thinking and memory can result.

Focus on Research

Bartlett (1932) investigated schemas and the constructive nature of remembering. He believed that when people are asked to remember a story they make sense of it in their own way. We use schemas to help us understand the world and we try to fit any new information into these existing schemas. He proposed that memory is a reconstructive process affected by our own culture and expectations.

Bartlett based these ideas on a series of memory exercises. His participants were British male and female undergraduate students in Bartlett's university classes. One study investigated how well a North American folk story called 'War of the Ghosts' could be remembered. The story contained several unusual and strange supernatural elements. To the British participants, parts of this story may have made little sense. Participants read the story and then repeated the story from memory after differing periods (the procedure is called repeated reproduction, which should not be confused with serial reproduction when information is passed from one person to the next). These periods varied from days to years. Bartlett found that the participants changed the story as they tried to remember it. He noted:

1. The story became more consistent with the participant's own cultural expectations, that is, names and places were unconsciously changed to fit the norms of British culture. For example, a canoe was recalled as a boat. He called this a process of **assimilation**.
2. The story became shorter with each retelling as participants omitted information judged as unimportant. He called this a process of **levelling**.
3. Participants changed the order of the story to make sense of it and added details. The overall theme of the story was remembered but unfamiliar elements were changed to match the participant's culture. This process was called **sharpening**.

Loftus and Palmer (1974) supported this early work by Bartlett schema and introduced the idea

that schemas are susceptible to manipulation by information introduced after an event. They focused on eye-witness testimony and found that changing the verb used when questioning eyewitnesses about a video of a car accident changed how the event was remembered. The different verbs in the questions activated different schemas which then influenced the estimations of speed. For example, the typical schema of cars *smashing* into one another implies the cars were moving very fast compared to cars *contacting* each other.

Rumelhart and Norman (1983) wanted to understand the properties of schemas and how they affect memory. They argued that schemas represent all kinds of knowledge including semantic meanings and procedures. Schemas could consist of sub-schemas. For example, a restaurant schema would comprise an ordering schema, an eating schema and a paying schema. They noted that all schema are based on personal experience and are updated to make sense of new information.

Schema theory has also been used to explain cross-cultural differences. For example, Filmore (1975) noted that the English verb *to write* and the Japanese word *kaku* are direct translations of each other, but to write in English does not mean the same as it does in Japanese. To the Japanese, *kaku* can be an image, a sketch or a word or a character. The *writing* schema in English is broader and includes language. You cannot write an image. Schema theory has been used by psychologists to explain why people from different cultures can misunderstand each other.

Schema theory has been applied to treat people suffering from mood disorders. Beck (1979) argued that faulty cognition can lead to depression, and he devised a schema therapy to correct this faulty thinking in the mind of the sufferer.

Critiques of schema theory have focused on the vagueness of the concept (Cohen 1993). Others say schemas are too rigid and simplistic. For example, Clark (1990) writes that schema theory tries too hard to use a single framework to explain how knowledge is acquired, stored and retrieved.

Despite the limitations outlined above, there is broad support for schema theory.

Focus on Research

Tuckey and Brewer (2003) examined how a crime schema influenced the types of details witnesses recalled over several interviews. Some witnesses experienced a delay before the initial interview and some between subsequent interviews. Data showed that, in general, schema-irrelevant memories (memories that neither confirmed nor contradicted the crime schema) were more often forgotten than schema-consistent and schema-inconsistent memories after the initial interview. Delaying the initial interview negatively affected recall at the initial interview, but led to less decay over subsequent interviews.

Witnesses used their schemas to interpret any unclear information and, as a result, made more schema-consistent mistakes and were more likely to report false memories about any ambiguous details.

3.3 Thinking and Decision-making

Thinking involves using information and doing something with it, for example, making a decision. Modern

research into thinking and decision- making often refers to rational and intuitive thinking. Examples of thinking and decision- making could be but are not limited to framing, heuristics, loss aversion, and appraisal.
Source: IB Psychology Guide

We take thinking for granted but it is complex and an active process. Information is gathered, stored and analysed to make judgements and decisions and to reach conclusions. These cognitive processes are aspects of **directed thinking** because this type of cognition aims to achieve a goal. Several models of thinking and decision-making have been proposed to understand how we think and make decisions to achieve these goals. We will examine:

1. **Dual processing model**

Dual processing model

The dual processing model assumes that we think in two ways across several tasks: **System 1** thinking and **System 2** thinking. System 1 thinking is automatic, quick and requires little effort. Kahneman (2011) describes this as fast thinking. System 1 tends to be our default system of cognition when we are short of time or too tired to give a question a lot of thought. Thinking in this mode operates below our level of conscious awareness and is a more instinctive way of processing information and figuring things out. System 1 relies on feelings, intuition and a toolkit of hidden mental shortcuts to help guide our way through the choices we make, rather than thinking about each one methodically and consciously. Though fast, it is prone to biases. We will explore these biases in the next section on the reliability of cognitive processes. System 2 is more rational, analytical and goal-directed thinking and requires deliberate effort and time. System 2 refers to the processes that kick in when we stop, pay attention and think. Kahneman describes this as slow thinking. Though slow, it is less prone to biases.

One way to contrast these two thinking systems is to examine how we learn to drive a car. At first, a new driver needs to concentrate on each of the actions involved in driving. With more experience and confidence, automatic processing takes over and the driver can talk to a passenger or listen to music. If the weather changes or an emergency arises, the driver can quickly revert to more deliberate driving.

Cognition involves both types of thinking depending on the problem to solve or the decision to make. At times we might make more instinctive and emotional choices and on other occasions, decisions may be less emotional and more analytical.

Table 5.1 summarises some of the differences between the two systems as outlined by Kahneman.

System 1	**System 2**
Unconscious reasoning	Conscious reasoning
Automatic	Controlled
Low effort	High effort
Large capacity	Small capacity
Rapid	Slow

Includes recognition, perception, orientation	Includes rule following, comparisons, weighing of options
Independent of working memory	Limited by working memory capacity
Non-logical	Logical

Table 5.2 Differences between System 1 and System 2 thinking

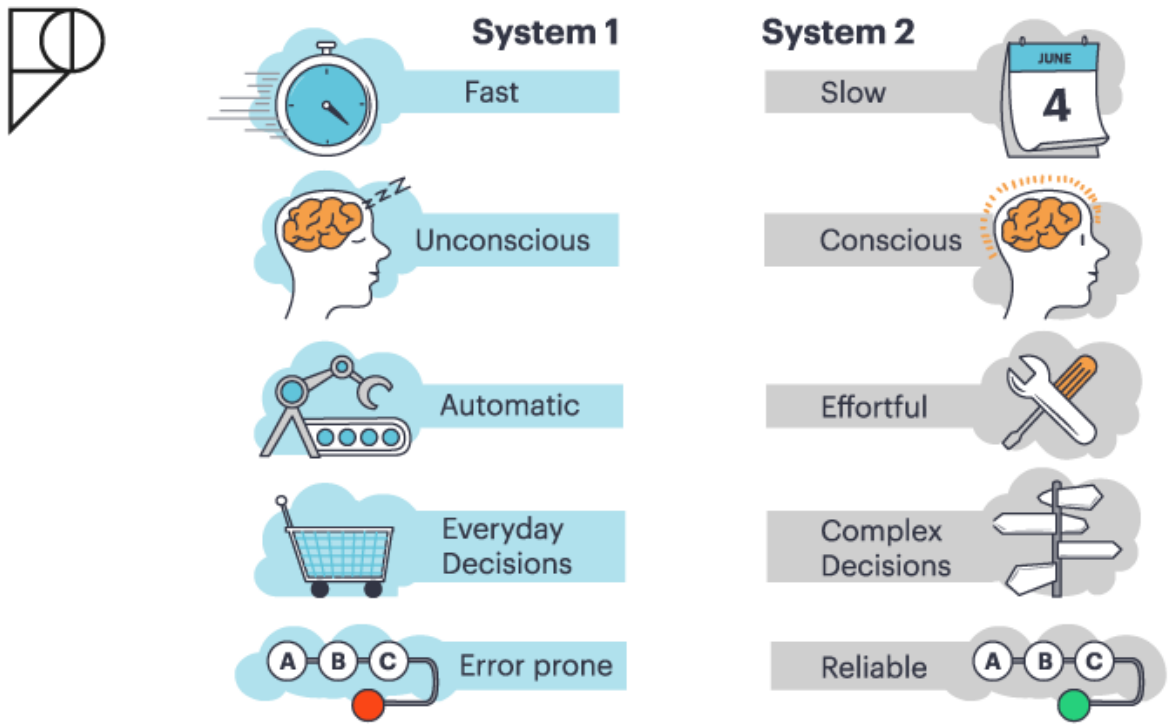

Figure 5.4 System 1 and System 2 thinking, Kahneman (2011)

Focus on Research

Bonke et al. (2014) aimed to determine if unconscious thought (intuitive and automatic thinking) led to better performance than conscious thought (rational and controlled).

Aims: Determine whether "educated intuition" led doctors to make more accurate estimations about patients' survival probabilities than more deliberate thought.

Type of study: Experiment.

Participants: 86 medical experts and 57 novices selected by purposive sampling from academic and non-academic hospitals and from a university medical centre in the Netherlands between April 2009 and May 2011.

Procedures: The participants were presented with four fictitious medical case histories. The four case histories were presented by a computer in the form of statements and clinical test results. Half of the participants were encouraged to engage in conscious thought for four minutes about the patient's life expectancy. The other half were distracted by performing an anagram task for four minutes. The participants were then asked to estimate the probability that each patient would be alive in 5 years.

Results: There was a significant difference in task performance between the novices and the

> experts. There was no significant difference in accuracy between the conscious and unconscious thinking conditions.
> **Conclusion**: Unconscious, intuitive thought did not lead to better or worse performance than deliberate, conscious thought.

Algorithms and heuristics

Algorithms can help people solve problems and make decisions. An algorithm is a well-defined process that will produce the right solution or the best decision. Algorithms are an example of System 2 as they require deliberate thinking, logical rules and procedures. Solving a maths problem by using a formula is an example of an algorithm in action. Finding a solution by trial and error is another example as is following a recipe to bake a cake. Follow the steps and you get the right outcome.

Heuristics are mental shortcuts or rules of thumb that generally, but not always, produce the right outcome. Heuristics offer a trade-off between helping us make quick decisions and being occasionally wrong. Some of these easy and quick mental shortcuts are described below.

Representative heuristic

We make decisions based on whether an individual, object or event looks like what we expect it to be.

Imagine this situation:

A stranger tells you about a person from the US who is short, slim and likes to read poetry and then asks you to guess whether the person is more likely to be a professor of classics (Ancient Latin and Greek language and culture) at Harvard or a truck driver. Which would be the better guess?

Like most people, you guessed the Harvard professor. You could make that quick decision because your view of a poetry-lover did not conjure up an image of a truck driver. However, as Nisbett and Ross (1980) pointed out, this representative heuristic leads you to ignore relevant information. At most, there might be 20 classics professors at Harvard and perhaps only half of them like poetry and even less are short and slim. But how many truck drivers are there in the US? Hundreds of thousands. How many are slim and short? Even 10% is a huge number. How many of them like poetry? Maybe only 1%, but that is still more than our slim, short, poetry-loving Harvard professors.

The **availability heuristic** is used to judge the likelihood of an event based on how easily examples of that event come to mind. Tversky and Kahneman (1974) investigated the availability heuristic by asking a simple question: Are there more words in the English language that start with the letter ‘k’ than words that have ‘k’ as the third letter? As expected, most participants answered words starting with ‘k’ as those words came more readily to mind compared to words like ‘joke’ or ‘bake’.

While the above example is probably only of interest to avid Scrabble players, the availability heuristic can also be at play in our social relationships. Ross and Sicoly (1979) investigated fairness in social relationships when people were engaged in a joint project. The researchers asked different groups of people about how they contributed to a joint project. For example, married participants were asked about shared household and child-rearing duties, academics were asked about how they contributed to the completion of a project and sports people were asked about about their efforts in supporting their team. The results showed that participants were more likely to recall their contributions than the contributions of others.

Ask Yourself

Think of group projects you have been involved with. Have you felt you did more of the work than others? Is there a possibility that the available heuristic leads you to make a wrong judgement about how the work was completed?

Focus on Research

Fox (2006) aimed to understand how the availability heuristic (or in this case the unavailability of information) influences judgements about the quality of university courses. In this field experiment, sixty-four business students at an American college completed a mid-course evaluation form. They were randomly assigned to two conditions. Half of the participants were asked to list two ways the course could be improved before they provided an overall rating for the course from one to seven with seven being the highest. The other participants were asked to list ten ways the course could be improved before they gave their overall evaluation. The results showed that there was a statistically significant difference between the mean score of 4.92 for the group asked to list two improvements and the mean score of 5.52 for the group asked to list ten improvements. Fox explained this paradoxically (paradoxically = not what is expected) in terms of the availability heuristic. When participants struggled to think of ten ways to improve the course they misinterpreted the difficulty of recalling problems with the course as evidence that there were not so many problems after all.

3.4 Assessment Advice: Cognitive Processing

Question	Study
SAQs **Outline/describe/explain**	**Suggested Studies**
One research method (approach to research) used when investigating cognitive processing	Any of the studies listed below are suitable for these SAQs
One ethical consideration of research into cognitive processing	
The multi-store memory model	Glanzer & Cunitz (1966)
The working memory model	Baddeley and Hitch (1974) or Robbins et al. (1996)
One model of memory	Glanzer & Cunitz (1966) or Robbins et al. (1996)
One study into one model of memory	Glanzer & Cunitz (1966) or Robbins et al. (1996)
(Cognitive) schema theory	Bartlett (1932)
One study investigating (cognitive) schema theory	Bartlett (1932)

One model of thinking and decision-making	Kahneman (2011) Bonke et al. (2014)
Intuitive (automatic) thinking	Kahneman (2011) Bonke et al. (2014)
Rational (controlled) thinking	Kahneman (2011) Bonke et al. (2014)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating cognitive processing	Any two studies listed below are suitable for these ERQs
Ethical considerations of research into cognitive processing	Any two studies listed below are suitable for these ERQs
Two models of memory	Glanzer & Cunitz (1966) & Robbins et al. (1996)
Research (studies) investigating one or more memory models	Glanzer & Cunitz (1966) & Robbins et al. (1996)
(Cognitive) schema theory	Bartlett (1932) & Tuckey and Brewer (2003)
One or more models of thinking and decision-making	Kahneman (2011) Bonke et al. (2014) & Fox (2006)
Research (studies) investigating thinking and decision-making	Kahneman (2011) Bonke et al. (2014) & Fox (2006)

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4. Reliability of Cognitive Processes

4.1 Reconstructive Memory

Human memory is not an exact copy of events, but rather a reconstruction that may be altered over time, through discussions with others or input from the media. Research shows that memory may be changed during storage, processing and retrieval, due to schema processing.

Source: IB Psychology Guide

Freud proposed the first psychological theory of memory. According to his psychoanalytic theory, people force themselves to forget painful memories by repressing them into the **unconscious**. These memories continue to exist but can only be recovered by a psychologist or psychotherapist using hypnosis or dream analysis. Many researchers disagree and believe that **recovered memories** were created memories of

events that never took place. Less controversial is research into the subtle factors that can influence how we recall events. Bartlett (1932) showed how schemas can change how we recall stories and his pioneering studies were supported by Loftus and Palmer (1974) who investigated eyewitness testimony.

Focus on Research

'Reconstruction of automobile destruction: An example of the interaction between language and memory', is a study by Loftus and Palmer (1974) that investigated the reliability of memory. The study aimed to investigate how information provided after an event influenced a witness's memory of that event. The researchers changed the verb in a question when asking the witnesses to recall an event. The hypotheses for the study were as follows:

Null hypothesis: Modifying the wording of questions after an event will not influence the accuracy of memory of a witness for that event.

Research hypothesis: Modifying the wording of questions after an event will influence the accuracy of memory of a witness for that event.

Two laboratory experiments made up the study. Both experiments adopted an independent measures design. The IV was the verb used to describe the event. In the first experiment, the DV was the participant's estimate of speed in miles per hour of the cars involved in the accident and in the second experiment the DV was whether or not the participant believed they saw broken glass at the crash scene.

The researchers used an opportunity sample of 45 college students of the University of Washington for the first part of the study and 150 participants for the second part.

The study had two parts.

First study

In the first study participants were shown seven 5–30 seconds film clips of traffic accidents. The clips were excerpts from safety films made for the education of drivers. After each film participants filled in a questionnaire about the accident. The critical question (IV) here was, 'About how fast were the cars going when they hit each other?' Different conditions were used, where the verb was changed to 'smashed', 'collided', 'bumped', 'hit' and 'contacted'. Participants were asked to estimate the speed in miles per hour.

The films were shown in different orders in each condition. This first study was conducted over one-and-a-half hours.

Second study

This study used 150 participants divided into three groups. All participants watched a one-minute film on a multiple-car accident. They then answered some questions about the film. The critical question was, 'How fast were the cars going when they hit each other?' The verb was changed to 'smashed' in the comparison group. The control group was not asked to estimate the speed.

Results and conclusions

When the critical question had the word 'smashed' or 'collided' speed estimates were higher than that for the other words. For 'smashed' it was 40.8, for 'collided' 39.3, while for 'contacted' the estimate was 31.8 miles per hour.

According to Loftus and Palmer, the speed estimate was moderated by the verb used to describe the intensity of the crash. The greater the intensity conveyed by the word, the higher the speed estimate to match it. The researchers did note that the estimate could be the result of demand

characteristics. Since the participants were unsure of the speed, they offered a figure that they thought would be most suited for the purpose of the study. Again, the choice of verb acted as a cue to make the participant guess what range of speed the researcher might be looking for.

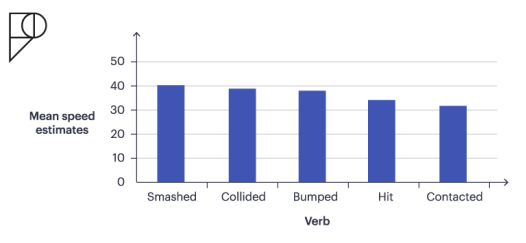

Figure 5.5 Speed estimates for the verbs in Experiment 1

In the second study participants were asked about the speed of the cars and about seeing any broken glass around the scene of the accident. See Table 5.2.

Response	Smashed	Hit	Control
Yes	16	7	6
No	34	43	44

Table 5.3 Response to the question ‘Did you see any broken glass?’

The word ‘smashed’ which employs a more forceful impact, drew more than twice the ‘yes’ responses than when the word ‘hit’ was used.

This result indicates that questions can alter the memory of events and lead to distortions. One initial change in wording can have prolonged effects on memory. Loftus and Palmer offered the reconstructive hypothesis to explain the phenomenon: A person obtains two kinds of information about an event – the first is the information obtained from witnessing the event itself; the second is the information supplied or acquired after the event. If there is some difference between the two sources, integration of information can lead to memory distortions.

How did this study contribute to understanding human behaviour?

The findings of this study have implications for examination of witnesses and how courts should consider eyewitness testimony. Questions that lead a witness to answer in a particular way lessen the accuracy of testimony given by witnesses to crimes. As demonstrated, a single change of word can bring significant changes in how an event is remembered.

4.2 Biases in Thinking and Decision-Making

Humans rely on intuitive thinking and take cognitive shortcuts resulting in a number of well- researched biases.

Source: IB Psychology Guide

Human beings are not always rational thinkers. Instead, they rely on intuitive thinking and take cognitive shortcuts. We have already investigated System 1 thinking and the use of heuristics to make decisions that can lead to poor outcomes. Cognitive psychologists have investigated a wide range of cognitive biases, two of which are confirmation bias and illusory correlations.

Confirmation bias is defined as the tendency to seek out information to confirm what you already believe. We unintentionally look for material that supports our opinions and tend to overlook evidence that does not support our viewpoint. When we consider evidence, we tend to interpret it to support our views. Our memories are also affected as we tend to selectively recall information that reinforces our views.

Imagine you are writing an essay on refugees. You believe nations should do all that they can to help these people in need. The tendency will be for you to search for information that supports your view and give lesser weight to any evidence that argues against refugee programmes.

Nickersen (1998) reviewed investigations of the confirmation bias and concluded that it is problematic, pervasive and strong. So powerful is the bias that he was doubtful you can give fair consideration to a belief that opposes your viewpoint. He advises that making people aware of the bias can help guard against it, as can encouraging people to adopt an alternative hypothesis as early as possible in the thinking process.

> Ask Yourself
>
> When you studied approaches to research you examined the term ‘experimenter bias’. Is this bias related to confirmation bias? Why? Why not?

> Focus on Research
>
> Hill et al. (2008) investigated the role of confirmation bias in interviewing a suspect to a crime. They designed a study to examine whether an expectation of guilt on the part of the interviewer influenced their behaviour. Sixty-one undergraduate students were asked to make up questions they wanted to ask a person suspected of cheating. Before they wrote their questions, they were either led to believe that the suspect was guilty or that they were innocent. Those participants who had heard that the suspect was guilty formulated more questions that presumed the suspect was guilty than presumed the suspect was innocent. These results indicate that expectations of guilt can have an effect on questioning style.

An **illusory correlation** is a belief that two things are associated when there is no actual or only a minor association. Imagine a situation where a person concludes Chinese students are better at studying maths because they knew a couple of Chinese students who won an international maths competition. They may be making an illusory correlation. This belief could then be reinforced by the confirmation bias. The person ignores other students from different races who are also good at maths while ignoring Chinese students who are average or poor maths students.

> Focus on Research
>
> Hamilton and Rose (1980) investigated illusory correlations in the maintenance of social stereotypes in three experiments with seventy-three male and seventy-seven female high school

and undergraduate students and adults. In the first experiment, participants read sets of sentences that described different occupations with pairs of adjectives. For example doctors (thoughtful, wealthy), and salesmen (enthusiastic, talkative). Other non-stereotypical traits were included such as boring, clever, demanding and courteous. In the second experiment, the trait adjectives were either consistent with stereotypic beliefs about one of the occupational groups or unrelated to the group's stereotype; in the third study, traits were either inconsistent with or unrelated to a group's stereotype. Participants estimated how frequently each of the trait adjectives had described members of each of the occupational groups. Each study revealed systematic biases in the participants' judgements so that the perceived correlation between traits and occupations was more congruent (congruent = similar to or in agreement with something) with existing stereotypical beliefs than the actual correlation. Findings indicate a cognitive bias in the processing of new information about social groups that are influenced by existing stereotypes.

The study shows an example of **stereotypical thinking**. Hamilton and Rose (1980) argued that illusionary correlations are triggered when two fairly infrequent situations or events occur together. The observer's heightened attention to these events results in them being better encoded and remembered. As we know from the availability heuristic the more easily a memory is retrieved, the more it influences our thinking. We tend to overestimate the frequency of these events. For example, if we see a car driven by a young man mount a pavement and narrowly miss hitting a child, we only need to see a young man driving a little erratically a few days later to become convinced that 'all young people are bad drivers'. Illusory correlations can lead people to remember information that confirms the expected relationship.

Focus on Research

Risen et al. (2007) conducted four studies to explore the phenomenon of 'one-shot' illusory correlations. These correlations were formed from a single instance of unusual behaviour by a member of a rare group. In Studies 1, 2 and 3, unusual behaviours committed by members of rare groups were processed differently than other types of behaviours. They received more processing time, prompted more attributional thinking, and were more memorable. In Study 4, the authors obtained evidence from two implicit measures of association that one-shot illusory correlations are generalised to other members of a rare group.

The results suggest that one-shot illusory correlations arise because unusual pairings of behaviours and groups uniquely prompt people to consider group membership as the explanation of the unusual behaviour. (i.e. 'The only reason for this strange behaviour must be that they are members of this particular unusual group').

4.3 Assessment Advice: Reliability of Cognitive Processes

QUESTION	STUDY
SAQs **Outline/describe/explain**	**Suggested Studies**

One research method (approach to research) used when investigating the reliability of one cognitive process	Any of the studies listed below are suitable for these SAQs
Ethical considerations of research into the reliability of one cognitive process	Any of the studies listed below are suitable for these SAQs
The reliability of one cognitive process	Loftus and Palmer (1974)
Reconstructive memory	Loftus and Palmer (1974)
One (cognitive) bias in thinking and decision-making	Hamilton & Rose (1980) or Hill et al. (2008)
One theory of cognitive bias	Hamilton & Rose (1980) or Hill et al. (2008)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the reliability of cognitive processes	Any two studies listed below are suitable for these ERQs
Ethical considerations of research into the reliability of cognitive processes	Any two studies listed below are suitable for these ERQs
The reliability of one or more cognitive processes	Loftus and Palmer (1974) & Tuckey and Brewer (2003)
Reconstructive memory	Loftus and Palmer (1974) & Tuckey and Brewer (2003)
One or more theory of reconstructive memory	Loftus and Palmer (1974) & Tuckey and Brewer (2003)
Cognitive bias in thinking and decision-making	Hamilton & Rose (1980) & Risen et al. (2007)
One or more theory of cognitive bias in thinking and decision-making	Hamilton & Rose (1980) & Risen et al. (2007)

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5. Emotion and Cognition

5.1 The Influence of Emotions on Cognitive Processes

Psychological and neuroscientific research has revealed that emotion and cognition are intertwined. Memories of emotional events sometimes have a persistence and vividness that other memories seem to lack, but there is evidence that even highly emotional memories may fade over time.

Source: IB Psychology Guide

Psychological and neuroscientific research has revealed that emotion and cognition are intertwined. Emotions involve physiological changes like arousal but we may not be fully aware of these biological events. They also involve a subjective feeling of the emotion and associated behaviours. These emotions perform an adaptive function as they shape the experience of events and guide the individual in how to react to events, objects and situations regarding personal relevance and well-being.

To understand how emotions influence cognitive processing this section will focus on memory. In general, emotional episodes tend to be better remembered. We tend to pay close attention to them as they connect us to important people and issues in our lives. These connections increase the strength of the memory. The biological changes associated with emotions also facilitate how memories are consolidated.

Freud's theory about repression was an early attempt to understand how emotions affected memory. Levinger and Clark (1961) set out to test this theory by looking at the retention of **associations** to emotionally charged words, such as 'quarrel', 'angry' and 'fear', compared with the retention of associations to neutral words like 'cow', 'tree' and 'window'. When participants were asked to give immediate free associations with the words, it took them longer to respond to the emotionally charged words, and their **galvanic skin responses** were higher. (Galvanic skin response is a method of measuring how the skin conducts electricity, which varies according to its moisture level. Galvanic skin responses are a way of measuring psychological stress or arousal). Immediately after the word association tests, participants were given the words again and asked to remember the associations. They still had difficulty remembering the associations to the emotionally charged words. This study supports Freud's repression hypothesis.

Focus on Research

Brown and Kulik (1977) aimed to test their theory that flashbulb memories are more vivid and more accurate than normal memories. They conducted structured interviews of eighty US participants, forty African Americans and forty Caucasians, between twenty and sixty years old. The participants answered questions regarding ten different important events. Nine events were public and most related to assassinations or attempts to kill well-known personalities. The tenth event was of a personal nature. They were asked to recall where they were and what they were doing when they first heard the news of each event. They were also asked to indicate how often they had rehearsed information about each event. The researchers found the assassination of President Kennedy generated the most flashbulb memories, with 90% of participants recalling where they were and what they were doing when they heard the news. Most participants' personal flashbulb memories related to the death of a parent. They concluded the level of emotional arousal determined whether a memory was a flashbulb one or not and these findings supported their theory.

Subsequently, psychologists have questioned the idea that flashbulb memories are a special category of memory. The challenge for researchers is determining whether these memories as described by participants are accurate.

In order to test the theory of flashbulb memory, Neisser and Harsch (1992) interviewed participants about the 1986 Challenger space shuttle disaster, one day after it happened and again two-and-a-half years later. One day after the event, 21% of participants reported hearing about the disaster on TV. But two-and-a-half years later, 45% reported hearing about it on TV. Their memories of how they knew about the Challenger explosion had changed over time. In the second interview, some of the participants incorrectly reported where they were when they first heard of the disaster.

Neisser and Harsch concluded that although flashbulb memories are vivid and long-lasting, they are not always reliable.

Parkin et al. (1982) replicated Levinger and Clark's study but challenged their conclusion. While Levinger and Clark tested participants immediately after asking them to recall associations, Parkin added a time delay: participants were asked to recall their associations seven days after the original test. They found that emotions did reduce immediate recall, but one week later the associations to the emotionally charged words were remembered *better* than those relating to the neutral words. These results refuted the theory of repression.

Further research into how emotion can affect cognitive processes has focused on flashbulb memory theory (FMT). **Flashbulb memories** are defined by Brown and Kulik (1977) as memories of highly charged emotional information. They tend to be more vivid, long-lasting and accurate than other memories. They theorised that these events are maintained in a unique memory store through discussion and rehearsal.

Focus on Research

Talarico and Rubin (2003) conducted a study to investigate FMT theory. On 12 September 2001, fifty-four university students recorded their memory of first hearing about the terrorist attacks of September 11th in New York and also their memory of a recent everyday event. This is the first study into flashbulb memory that has used the memory of an everyday event as a control. Participants were interviewed again either one, six or thirty-two weeks later. Consistency for the flashbulb and everyday memories did not differ, in both cases declining over time.

However, self-ratings of vividness, recollection and belief in the accuracy of memory declined only for everyday memories. Initial emotion ratings correlated with a later belief in the accuracy, but not consistency, for these flashbulb memories. Initial emotional ratings also predicted later post-traumatic stress disorder symptoms. The researchers concluded that flashbulb memories are not special in their accuracy, as previously claimed, but only in their *perceived* accuracy.

In summary, the current view of FMT is that emotions enhance the vividness of the memory and confidence in the reliability of that memory. The true question is not why flashbulb memories are so accurate because they are not, but why people are so confident for so long in the accuracy of their flashbulb memories.

5.2 Assessment Advice: Emotion and Cognition

QUESTION	STUDY
SAQs **Outline/describe/explain**	**Suggested Studies**
One research method (approach to research) used when investigating emotion and cognition	Any of the studies listed below are suitable for these SAQs
Ethical considerations of research into emotion and cognition	Any of the studies listed below are suitable for these SAQs
One theory of the influence of emotion on one	Brown and Kulik (1977)

cognitive process	
One theory of the influence of emotion on cognition	Brown and Kulik (1977)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating emotion and cognition	Any two of the studies listed below are suitable fo these ERQs
Ethical considerations of research into emotion and cognition	Any two of the studies listed below are suitable fo these ERQs
One or more theories of the influence of emotion on one or more cognitive processes	Brown and Kulik (1977) & Talarico and Rubin (2003)
Research (studies) into the influence of emotion on one or more cognitive processes	Brown and Kulik (1977) & Talarico and Rubin (2003)

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6. Cognitive Processing in a Technological (Digital/Modern) World

Cognitive process in the technological (digital/modern) world (HL only)

Remarkable advances in technologies in the last few decades have seen a dramatic increase in the distribution and use of information encoded as digital sequences. How this digital world impacts cognitive processes is an HL extension topic. In particular, you will study:

- The influence (positive and negative) of technologies (digital/modern) on cognitive processes.
- Methods used to study the interaction between technologies and cognitive processes.

Memory

How digital technology affects cognitive processes and human interaction is a controversial topic. Both positive and negative effects have been the subject of research. On the positive side, some argue digital technology can enhance cognitive functioning. For example, video gaming can improve perception, mental rotation skills, visual memory, attention, task-switching, multi-tasking and decision-making. On the negative side, some contend that digital technology can lead to distraction, reduced attention spans, a sense of social isolation, scattered thinking and a decline in the ability to think analytically.

Memory has been the focus of several investigations. For example, Sparrow et al. (2011) were interested in how search engines might affect memory. They likened these search engines to external memory sources accessible when information is needed. In this way, digital technology is changing the way information is stored. You may not remember the information, but you do know where you can find that information when necessary.

Sparrow et al. were confident that memory is adapting to new computing and communication technology and they reached this conclusion after a series of experiments. The researchers showed participants trivial pieces of information, for example ‘an ostrich’s eye is bigger than its brain’. These statements were then typed into a computer by the participants. Half the participants believed what they typed would be saved

while the other half were informed the information would be lost. Participants who believed the information would be lost recalled more statements than the participants who were told that the information would be saved.

Additional experiments followed the same set of procedures but this time the computer responded either by saying ‘Your entry has been saved’, ‘Your entry has been erased’ or ‘Your entry has been saved to…’ followed by a folder name. Each person was then shown a list of statements and asked two questions: ‘Have you seen this fact before?’, ‘Was this fact saved or deleted?’ or ‘Where was this fact saved?’

When a fact had been flagged as one that the computer erased, participants had a better memory of the fact itself. However, when the computer told them that the fact had been saved and where it had been saved, they more accurately remembered that it had been saved and where it had been saved compared to remembering the fact itself.

Based on these results the researchers challenged simplistic arguments that digital technology is detrimental (detrimental = make something worse) to cognitive processes like memory. Some people argue that knowing where to find information, which is almost immediate with a digital device in our hands, critically evaluating that information, and then using the information in an analytical process is better than having a basic memory of the information. Especially in a learning (school) context, higher order thinking skills can be developed sooner with outsourcing some factual knowledge to ‘search engines’ because the testing of regurgitated factual information takes away time from developing higher order thinking skills.

> Ask Yourself
>
> Do you think that the potential to ‘outsource’ information to digital devices has a positive or negative effect on cognitive processes? Why? Why not?

With the widespread use of search engines like Google, commentators used the term the ‘Google effect’ to describe the tendency to forget information that can be found readily online. Kaspersky Lab, an internet security company, used the term ‘digital amnesia’ to describe this process and they conducted a survey on their customers to understand the process.

> Focus on Research
>
> Kaspersky Lab (2015) conducted an internet survey of 6,000 consumers aged from sixteen to over fifty-five. Males and females were equally represented, with 1,000 participants from each of the following countries: the UK, France, Germany, Italy, Spain and Benelux. Participants were asked to recall important telephone numbers. They were also asked how and where they stored information they located online.
>
> An analysis of their data found that:
>
> - More than half of adult consumers could recall their home phone number, 53% of parents could recall their children’s phone numbers and 51% their work phone number.
> - One in three participants reported they were happy to forget or risk forgetting information they can find – or find again – online.
> - 36% of participants reported that they would turn to the internet before trying to remember information.
> -

24% reported they would forget an online fact as soon as they had used it.

The results were consistent across male and female respondents but higher rates of amnesia were prevalent in older age groups. The overall conclusion of the study was that connected devices enrich lives but they can result in digital amnesia.

Video games

How video games affect children and adolescents remains a contested and unresolved issue. Those who oppose video games argue they increase aggressive behaviour, bring social isolation and teach antisocial values. In addition, excessive video-gaming can adversely affect academic performance and lead to poor health. Others argue video gaming can improve cognitive functions including memory, spatial skills, pattern recognition, analysis and decision-making. No consensus has yet emerged from the psychological research.

The following study investigates video gaming and visual working memory (VWM) and argues that gaming can have positive outcomes. VWM is the ability to hold visual information in mind for a brief period. This information is used to navigate the visual world. The storage capacity of VWM is limited.

Focus on Research

Blacker et al. (2014) theorised that video games could expand the capacity of VWM. Of interest were action video games as they provide the player with a complex and changing visual environment in which accurate visual memories often decide the player's success or failure in the game. The hypothesis of the experiment was that exposure to games with rich visual environments over an extensive period would enhance VWM performance compared to games that did not involve rich visual environments.

Thirty-nine male undergraduates with a mean age of 20 were randomly assigned to an action game group or control group. The action game group played video games like 'Call of Duty', while the control group played games like 'Sims'. Both groups played their games for one hour per day for 30 days. After training, the participants' VWM was tested. Individuals who played on an action game showed significant improvement on measures of VWM capacity compared with those who played the control game. The investigators concluded that exposure to rich visual environments over an extensive period is a distinctive form of training that may allow individuals to extend the capacity of VWM.

Ask Yourself

Were you surprised by these results? What are the limitations of this experiment?

Focus on Research

Pei-Chi Ho, Szu-Ming Chung and Yi-Hua Lin (2012) investigated how visual cognition could enhance the development of a young child's learning, especially reading and writing. In particular they wanted to determine the extent to which augmented virtual reality technology could enhance creativity and learning.

The investigators developed an enhanced reality teaching tool called *GoGoBox*. The game was

designed to engage a child's interest and stimulate the player's visual abilities, including visual discrimination, visual memory, visual form-constancy and visual closure.

The experimental design involved a pre-test followed by exposure to the *GoGoBox* followed by a post-test. The investigators used the *Motor-Free Visual Perception Test-Revised* (MVPT-R) to test the participants before playing the game and then again after 10 hours of playing sessions over five days. Twenty-seven participants were randomly selected from a kindergarten located in Taiwan. Ages ranged from five to six.

The average score on the MVPT-R increased from a pre-test of 59 to a post-test of 64 and was significant at p=<.05. The investigators concluded that digital learning system could enhance young children's cognitive skills.

Source:

https://www.euppublishing.com/doi/pdfplus/10.3366/ijhac.2012.0046

6.1 Assessment Advice: Cognitive Processing in a Technological (Digital/Modern) World

QUESTION	STUDY
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Methods used to study Cognitive processing in a technological (digital/modern) world OR the influence of technologies on cognitive processing OR the reliability of cognitive processing or emotions and cognition.	Any two studies listed below.
Cognitive processing in a technological (digital/modern) world	Sparrow et al. (2011) Blacker, Curby, Klobusicky and Chein (2014) Pei-Chi Ho, Szu-Ming Chung and Yi-Hua Lin (2012) Kaspersky Lab (2015)
The influence (positive and/or negative) of technologies (digital/modern) on cognitive processing, OR the reliability of cognitive processing OR emotion and cognition.	Sparrow et al. (2011) Blacker, Curby, Klobusicky and Chein (2014) Pei-Chi Ho, Szu-Ming Chung and Yi-Hua Lin (2012) Kaspersky Lab (2015)

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the cognitive approach to understanding behaviour.

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Chapter 6: Sociocultural Approach to Understanding Behaviour

Chapter Outline

1. A Historical Perspective on the Sociocultural Approach to Behaviour

2. Research Methods of the Sociocultural Approach

- 2.1 Case Studies
- 2.2 Natural Experiments
- 2.3 Field Experiments
- 2.4 Observations
- 2.5 Etic and Emic Approaches to Research

- 2.6 Ethics and Sociocultural Research Methods

3. **The Individual and the Group**
   - 3.1 Social Identity Theory
   - 3.2 Social Cognitive Theory
   - 3.3 Formation of Stereotypes and their Effects on Behaviour
   - 3.4 Assessment Advice
4. **Cultural Origins of Behaviour and Cognition**
   - 4.1 Culture and its Influence on Behaviour and Cognition
   - 4.2 Cultural Dimensions
   - 4.3 Assessment Advice
5. **Cultural Influences on Individual Behaviour**
   - 5.1 Enculturation and Acculturation
   - 5.2 Assessment Advice
6. **The Influence of Globalisation on Individual Behaviour (HL only)**
   - 6.1 Globalisation and Behaviour
   - 6.2 Methods used to Study the Influence of Globalisation on Individual Behaviour
   - 6.3 Assessment Advice

Essential Questions

- How do psychologists adopt a sociocultural approach to study behaviour?
- How does membership to groups influence our sense of self?
- How do we acquire behaviour by observing group members?
- What factors influence the formation of stereotypes and what are their effect?
- What is culture?
- What are cultural dimensions?
- How do the processes of enculturation and acculturation influence individual attitudes, identity and behaviour?
- How has globalisation influenced behaviour? (HL only)

Myths and Misconceptions

The more people are present during an emergency the higher the likelihood people will help.

This is not necessarily so. We will read about studies that investigated factors that influence a person's willingness to help someone in an emergency. Surprisingly, the more people who are present, the less likely it is that an individual will help.

Men are from Mars and Women are from Venus.

That men and women have different ways of communicating was a popular idea of the 1990s but it is an overstatement. Lilienfeld et al. (2009) found that there is little difference in how much each gender talks and women are only slightly more willing to self-disclose (self-disclose = share private information) than men. The only significant difference was that women were better at reading non-verbal cues than men. The authors argue that the myth that men and women have totally different communication styles is an exaggeration.

The majority can impose their beliefs and attitudes on a minority.

We will examine the factors that influence conformity. Asch (1955) showed how male college students will give the wrong answer on a visual perception test so as to fit in with the group and avoid social rejection. On the other hand, researchers have shown that the minority can influence the majority in situations when the minority expresses a strong commitment to an alternative opinion.

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1. A Historical Perspective on the Sociocultural Approach to Behaviour

Social psychology is the study of how groups influence behaviour. Early social psychologists included Asch (1955) who studied conformity, Milgram (1963, 1974) who investigated obedience and Haney et al. (1973) who examined the power of social settings like prisons to dramatically change behaviour. Darley and Latané (1968) wanted to know why we ignore cries for help. Why we hold stereotypes and prejudices against others is another topic of interest. Two new interests have emerged in modern social psychology, social cognition and culture. How do we construct our social world and form opinions and attitudes about others? How does culture influence behaviour?

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2. Research Methods of the Sociocultural Approach

2.1 Case Studies

The section below demonstrates the range of methods used by social psychologists and the types of question they ask about human behaviour.

Sociocultural researchers take a holistic approach to studying human behaviour. They argue that all humans are social animals and their behaviour cannot be explained solely by either the actions of neurons or an individual's cognition. Instead, human behaviour also needs to be examined in its social and cultural context. **Case studies** are useful because they aim to give a detailed picture of an individual or small group of people in different contexts. They have the potential of generating rich data with real relevance to a participant's life.

2.2 Natural Experiments

In a **natural experiment** the independent variable is not manipulated. Instead it occurs naturally, in the normal course of life. It can be a factor like gender, ethnicity or age; it can also be an event such as unemployment in a town or even the introduction of TV to a remote area.

2.3 Field Experiments

Field experiments are conducted in the participants' own environments. Like all experiments, the investigators manipulate an independent variable (IV) and measure the effect on the DV. Participants are often unaware that they are in an experiment. Because of their natural location which offers less control over variables other than the IV, field experiments are much less artificial than experiments carried out in a laboratory and their results are more ecologically valid.

2.4 Observations

Observations are frequently carried out by researchers taking a sociocultural approach because this method examines behaviour in its social settings. Researchers have a number of options including participant or non-participant observations carried out covertly or overtly (see Chapter 2). To triangulate methods, participants who have been observed may also be interviewed.

More recently there has been a shift away from covert observation to either participant or non-participant overt observation. New filming techniques have made observations and recording less obstructive and participants are more likely to act naturally.

2.5 Emic and Etic Approaches to Research

The words 'emic' and 'etic' refer to two different approaches to researching human beings. The terms originated in linguistics and anthropology in the 1950s and 1960s. The **emic approach** to research focuses on the perspectives and words of participants. The researcher using this emic approach will use accounts and descriptions given in the very words used by the members of the group or culture being studied. The researcher focuses on specific features of the group or culture. The researcher tries to put aside psychological theories and let the data from the participants 'speak for itself'. This approach is the basis for 'grounded theory' in which the theory grows out of the material, rather than the theory being used to examine if the data supports it or not. The data creates the meaning. Therefore, the emic approach is often used when researching new topics. The emic approach appreciates the uniqueness of the context being studied and local viewpoints.

The **etic approach** to research is the opposite as it is focused on the universal. The etic approach uses as its starting point theories and concepts from outside of the setting being studied. The researcher using this etic approach will use existing theory and see if it applies to a new setting or population. The categories used are those that have meaning for the researcher. One of the strengths of the etic approach is that it allows more general cross-cultural concepts to emerge. Sometimes both approaches are used to provide a more holistic picture of behaviour within and across cultures.

2.6 Ethics and Sociocultural Research Methods

Ethics refers to a system of moral values or the way people distinguish right from wrong. The American Psychological Association (APA) and the British Psychological Society (BPS) require all their members to adhere to its code of ethics, which applies to the treatment of both humans and animals.

The desire to investigate human behaviour under natural circumstances has sometimes led to ethical

problems associated with the sociocultural research methods. They are mainly related to informed consent, access to the research after the data has been collected and causing distress to participants once they learnt they had been deceived. A significant amount of research is naturalistic – that is 'as it really is' – and has involved covert participant observation. This approach has been criticised on ethical grounds. Many studies from the past would not be accepted by current ethics committees. However, these studies have contributed significantly to knowledge regarding human behaviour and it could be argued that the end justifies the means.

As you read about the studies in this chapter, note any ethical considerations the researchers will have taken or needed to take before, during and after the research.

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3. The Individual and the Group

3.1 Social Identity Theory

Social identity theory refers to the way someone thinks about themselves and evaluates themselves in relation to groups. Social identity theory posits that a person's sense of who they are is based on their membership of social groups.

Source: IB Psychology Guide

Social identity theory was first proposed by Henri Tajfel (1971). He argued that the groups to which we belong are an important source of pride and self-esteem. We can feel good about ourselves by boosting the status of any group we belong to. Age groups, sporting teams, hobbies, gender, religions, ethnic groups and nations are all examples of groups that can give us our sense of social identity and belonging. For example, we may believe that our country, our team, our school is better than any other, and therefore other groups and their members are inferior. Unfortunately, identifying with a specific '**ingroup**' to improve our self-esteem can lead to competition and intolerance against an '**outgroup**'. Tajfel's theory is very influential in explaining stereotyping, discrimination and prejudice.

Tajfel identified three processes in his theory of social identity.

Categorisation is a process of organising objects and people (including ourselves) into groups. Social categories such as young, old, teacher, bus driver, Asian, student and so on are used as they describe important attributes of that person. If we belong to such a category, then we share those attributes. Group membership involves acting appropriately and following the group's norms of behaviour. We all belong to many different groups and appropriate behaviour as a student might differ somewhat from appropriate behaviour in the family or with a group of friends.

Social identification is when we adopt the identity of 'our' group. If you have categorised yourself as a student, the chances are you will adopt the identity of a student and begin to conform to the norms of the 'student' group. Your self-esteem will be linked to this group and other groups you belong to and help define who you are.

Social comparison involves comparing your group with others. To maintain or improve your self-esteem, your group needs to compare well with other groups. This is critical to understanding prejudice because once two groups identify themselves as rivals they are likely to compete so that members can maintain and improve their self-esteem.

Focus on Research

Tajfel et al. (1971) investigated social categorisation and intergroup behaviour. The aim of the laboratory experiment was to discover the minimum requirements for participants to identify themselves as members of a group through the process of social categorisation. Their research question was: Can social categorisation lead to intergroup behaviour which discriminates against the outgroup and favours the ingroup?

Forty-eight 14–15-year-old schoolboys from a British school were the participants of the study. They were randomly assigned to be members of a 'Klee' group or a 'Kandinsky' group. (Klee and Kandinsky are abstract painters of the 20th century.) Though the assignment to the groups was arbitrary, they were told they had been assigned to the group based on their preferences for the art of either painter. The boys had no contact with each other and all personal details were anonymous. Each participant was given a code number. All tasks in the experiment were completed in private.

Participants were asked to distribute small sums of money between pairs of recipients using specially constructed reward matrices. The amount of money distributed was the DV of the experiment.

Participants had to make decisions about these monetary rewards by filling out forty-four different matrices. The three different types of matrices were the IV.

Number 07 of your group receives...	7	8	9	10	11	12	13	14	15	16	17	18	19
Number 52 of the other group receives...	1	3	5	7	9	11	13	15	17	19	21	23	25

Figure 1.1 - An example of one of the tasks the participants were given.

An example of Maximum Joint Profit (MJP) would be the choice of 13 and 13 as that selection provides the largest reward to members of both groups. An example of the Maximum Ingroup Profit (MIP) would be a choice of 19 and 25 as that would be the largest reward for the member of their own group irrespective of the reward provided to the other group. An example of Maximum Difference (MD) would be the choice of 7 and 1 as that has the largest possible difference in reward between members of the different groups (in favour of the ingroup). By analysing the choice of the participants, the researchers could determine if the ingroup and outgroup were rewarded equally, or if there was favouritism towards the ingroup or derogation against the outgroup (derogation = the act of treating someone in a way that shows you do not respect them).

In general, participants were fair in how they awarded rewards but there was a significant tendency to give more money to ingroup members than to outgroup members. The researchers noted there was no rationale for any of these schoolboys to feel that they somehow 'belonged' to their groups. There was no important shared history with other group members but ingroup favouritism and outgroup derogation did occur.

Tafjel's research led to other social psychologists investigating social groups and how membership of groups influenced individuals. One theory about how we make sense of our social world is **social representation theory** proposed by Moscovici and Nemeth (1974). They are similar to cognitive schemas but in this case applied to a group. This schema provides information about the group's norms and how

members communicate with each other. They establish a common understanding between group members and they contain all information about the identity of the group and how it functions in society. The study outlined below uses this theory to understand the social world of people living in a distinct area of London.

> Focus on Research
>
> Howarth (2002) aimed to understand the impact of social representations on self-esteem and identity of young people living in Brixton, South London, UK. At the time, Brixton had a high proportion of people of colour and the media often associated the area with crime, drugs and violence. Her research question focused on the social consequences of being seen as part of a community labelled 'violent, 'criminal' and 'unruly'.
>
> The study consisted of eight focus groups based on friendship with a total of forty-four teenagers between the ages of twelve and sixteen as participants. Five interviews with the head teachers of Brixton's secondary schools were also undertaken. Questions were concerned with what it was like living in Brixton and what people outside Brixton thought about Brixton. As is standard procedure in focus groups, the researcher used a topic guideline to ensure that questions on community, inclusion, exclusion, identity, ethnicity, the media, prejudice, racism and schools were covered.
>
> After data collection, Howarth undertook a thematic analysis and some of the themes that emerged included the role of media, the role of the family, the perception that Brixton is black and the presence of self-hatred. Howarth noted that a very negative representation of 'being from Brixton' by those from outside the area was not shared by all the people living there. Some participants found that members of their community were 'diverse, creative, and vibrant', a very different view to most outsiders.
>
> The conclusion of the study supported social identity theory.

3.2 Social Cognitive Theory

Social cognitive theory suggests behaviour is modelled by other members of a group and acquired through observation or imitation based on the consequences of a behaviour.

Bandura (1977) was one of the first psychologists to investigate how behaviour is modelled and acquired through observation or imitation. He argued that behaviour is learned from the environment through the process of observation. Children observe the people around them behaving in various ways. This is illustrated by his famous Bobo doll (Bobo doll = inflatable toy clown) experiment (Bandura et al., 1961).

> Focus on Research
>
> Bandura et al. (1961) aimed to test if children will imitate aggression modelled by an adult and, if so, to examine if children were more likely to imitate same-sex models.
>
> Four hypotheses were tested:
>
> 1. Children observing aggression modelled by an adult will imitate the behaviour, even if the model is no longer present.
> 2. Non-aggressive models will have an aggression-inhibiting behaviour (self-control).
> 3. Children will imitate the behaviour of the same-sex model more than that of a model of the

opposite sex.

4. Boys will show more aggressive behaviour than girls, with the highest aggression being demonstrated by boys exposed to a male model.

This was a laboratory experiment. The IV was the aggression of the model and the DV was the observed aggressive behaviour of the participant. An opportunity sample used 36 girls and 36 boys from the nursery of an American university from an age group ranging from three years to six years, with the average age being four years and four months. The children were matched for their level of physical and verbal aggression and aggression towards objects.

The children were divided into three groups as follows.

	Condition 1 Aggressive Model	**Condition 2 Non-Aggressive Model**	**Condition 3 Control Group No Model**
Same-sex model	6 female participants 6 male participants	6 female participants 6 male participants	12 female participant 12 male participants
Opposite sex model	6 female participants 6 male participants	6 female participants 6 male participants	

Each child in Condition 1 was exposed for about ten minutes to a model showing physical and verbal aggression towards an inflatable Bobo doll. Children in Condition 2 were exposed for a similar period to a non-aggressive model who assembled toys. Children in the control group did not see any model.

All the children were then taken individually to play in a room full of toys. After a short while, the child was told that the toys were for other children and not for them. The child was then taken to a third room filled with toys, including a Bobo doll.

The child was allowed to play in this room for twenty minutes while the researchers observed the children from behind a one-way mirror. Measures were taken of physical and verbal aggression that imitated the earlier model. Researchers also measured the child's non-imitative aggressive behaviour.

The researchers concluded that children exposed to aggressive behaviour imitated the same aggression physically and verbally. This indicated the role of observational learning. Participants exposed to the non-aggressive model and those in the control group did not demonstrate these aggressive behaviours.

The results for testing aggression-inhibiting behaviour were mixed. Children who observed the non-aggressive male model showed much less non-imitative aggressive behaviour than the control group. However, boys who observed the opposite sex non-aggressive model showed more imitative aggressive behaviour as compared to boys in the control group.

Violent behaviour by boys in Condition 1 was influenced significantly more by an aggressive male model than by an aggressive female model. Results for girls were less extreme. They did, however, appear more influenced by an aggressive female model than by an aggressive male model. In same-sex aggressive conditions, girls were more likely to imitate verbal aggression while boys showed more physical aggression.

In all of the conditions, boys were significantly more physically aggressive than girls.

Bandura's study provided many insights into social learning and much subsequent research was carried out by other psychologists. There is an awareness that children are surrounded by many influential role models, such as family members, television characters, friends and teachers at school. These models provide examples of behaviour which are observed and, under certain circumstances, imitated. A child is more likely to attend to and imitate those people it perceives as similar to itself, either the same age and/or the same sex. If a child imitates behaviour and the consequences are rewarding, the child is likely to continue performing the behaviour. If a parent sees a little girl consoling her doll and says 'what a good girl you are', this makes it more likely that she will repeat the behaviour. Her behaviour has been reinforced. **Reinforcement** can be external or internal and can be positive or negative. If a child wants approval from parents or friends, this approval is an external reinforcement, but feeling happy about this approval is an internal reinforcement. Finally, the child will also take into account what happens to other people when deciding whether or not to copy someone's actions. This is known as **vicarious reinforcement**. If they see someone punished for imitating behaviour, the child will learn the behaviour, but will not display it. Identification with the role model occurs and involves adopting observed behaviours, values, beliefs and attitudes of the person with whom the child is identifying.

Bandura built upon his original theory of social learning to broaden its scope and he introduced the concept of **self-efficacy**. The idea here is the importance of a person's perception of their chances of success based on their previous experiences. When a person's sense of self-efficacy is high, they believe that they can behave in ways that will lead to success. By contrast, when a person's sense of self-efficacy is low, they believe they are incapable of success and may not even try. These beliefs are very powerful and impact relationships, health and work as well as traits of persistence. This sense of self-efficacy is shaped by past situations and experiences that a person encounters in life.

Berry (2003) undertook research into social cognitive theory. He explored how cross-cultural images and portrayals on television might influence the multicultural attitudes, values and beliefs of children. Based on his research, he argued for more culturally diverse role models on North American television: '[children] need to understand from television that to be female, disabled, or religiously and ethnically different does not make you "disadvantaged," "deprived," or "inferior," and that it is important for all children to take pride in their unique customs, skin colour, language, and lifestyle' (p. 365).

The social cognitive theory has been applied to developmental psychology to understand how adolescents look to role models to identify with because they are in the process of developing their own identities. One focus has been on the effect on young people of playing violent video games. While most research has concluded that the highly interactive nature of these games leads to identification with the role models and subsequent imitation of their behaviour, there is no consensus of opinion about the negative and positive effects of video gaming.

Focus on Research

Konijn et al. (2007) tested the hypothesis that violent video games are especially likely to increase aggression when players identify with violent game characters. One hundred and twelve Dutch adolescent boys with low education ability were randomly assigned to play a realistic or fantasy violent or non-violent video game. Next, they competed with an ostensible partner (seemingly a true partner, but in reality a confederate who was employed by Konijn to act in a certain way) on a reaction time task in which the winner could blast the loser with loud noise through headphones (the aggression measure). Participants were told that high noise levels could cause permanent

> hearing damage. Habitual video game exposure, trait aggressiveness and sensation seeking were controlled for. As expected, the most aggressive participants were those who played a violent game and wished they were like a violent character in that game. These participants used noise levels loud enough to cause permanent hearing damage to their partners, even though their partners had not provoked them. These results suggest that identifying with violent video game characters makes players more aggressive. Players were especially likely to identify with violent characters in realistic games and in games in which they felt immersed.

An evaluation of social cognitive theory

Social cognitive theory has remained popular. It convincingly explains why children raised in aggressive or racist households tend to grow up to be aggressive or racist adults (there is a strong link to stereotype formation here). It explains how teenagers can turn to peer role models that are conformist or non-conformist and how some television programmes and video games can have a powerful influence on children because they will imitate the violence shown. This approach to understanding behaviour takes into account cognition and social pressures to provide insights into the learning of aggression and gender role development. Social cognitive theory has also formed the basis of treatments for phobias, with modelling-based therapies.

Social cognitive theorists are committed to the controlled experimental approach so as to establish cause and effect. However, this does mean that some of the studies lack ecological validity.

> Ask Yourself
>
> Do you think violent television and video games should be banned for certain ages? Why? Why not?

3.3 Stereotypes

A stereotype is a generalized and rather fixed way of thinking about a group of people. Examples of stereotypes influencing behaviour could be prejudice and discrimination. The theory of stereotype threat indicates that internalized stereotypes could influence an individual's self-perception and behaviour in negative ways.

Source: IB Psychology Guide

Cardwell (1996) defines a **stereotype** as a fixed, over-generalised belief about a particular group of people. The word 'stereotype' originally described a solid plate of type-metal that was used for printing instead of using the original. Over time it became a metaphor for developing a set of unchanging and often exaggerated ideas about others. 'All women are bad drivers' would be an example of an inaccurate stereotype with no truth behind it. In fact, often car insurance for women is less expensive as they have fewer accidents than men. 'All men are physically stronger than women' is an example of a stereotype with some truth behind it. Because of their ratio of muscle to fat and bone, most men are physically stronger than most women.

Stereotypes can be both positive or negative, but they fail to consider any variations from one individual to another. A stereotype can be considered a schema, as we categorise people into a group and apply general characteristics, forming a schema of how members of this group behave. If we limit our perceptions of others to the definitions of the stereotypes, and do not add specific information for each person, then we can develop biases against whole groups of people.

Our social world is very complex and provides us with a great deal of information. To avoid information

overload, we use stereotypes because they can easily be applied to people. We all use categories of people, places and things to understand and make sense of the world around us. In the course of stereotyping, a useful category – say, women – becomes coloured by additional associations, sometimes negative. We process the gender, age and ethnicity of others and our minds respond with messages that say things like 'weak, sentimental, hostile'. When these qualities do not reflect reality, a stereotype is no longer an aid to understanding but rather a source of misunderstanding.

One explanation of the formation of stereotypes is Tajfel and Turner's (1979) social identity theory. As you recall, this theory proposes that we categorise others into ingroups and outgroups. We tend to favour the ingroup which leads to a positive stereotyping of the ingroup. We tend to see our group in a positive light. Members of the outgroup are stereotyped in a negative way. To Tajfel, stereotyping lifts the self-esteem of members of the ingroup.

Brigham (1986) conducted a study into stereotyping that supports social identity theory. He researched eyewitness identification procedures and found that Caucasians were more likely to stereotype African Americans as criminals than other whites in eyewitness identification. This is likely due to the tendency to view people that belong to our group more favourably, while we tend to view members of other groups as having undesirable qualities.

To explain stereotyping, Hamilton and Gifford (1976) developed a **theory of illusory correlations**. (See Chapter 5.) This theory distinguishes between stereotyping as the encoding of new information and stereotyping as the application of existing knowledge. They focused on the formation of new stereotypes which they argued are the result of illusory correlations. These illusory correlations are triggered when two fairly infrequent situations or events take place at the same time. This unusual combination captures the observer's attention and leads to stronger encoding. To test their theory, Hamilton and Gifford performed an experiment in which participants read desirable and undesirable trait adjectives about the members of one majority group and one minority group. Proportionally, there were the same amount of desirable and undesirable traits for each group. However, they found that participants over-estimated the frequency of undesirable traits in the minority group. Though Hamilton and Gifford (1976) acknowledged that society and culture help form stereotypes, they argued that 'cognitive factors alone can be sufficient to produce differential perceptions of social groups' (p. 405).

In the same way that the theory of illusory correlations provides insights into how stereotypes might first form, the **availability heuristic** and the **confirmation bias** help explain why stereotypes persist. According to the availability heuristic, the more easily an event is retrieved, the more likely we are to overestimate its frequency. For example, if we see a car driven by a young man being involved in an accident, we only need to see a young man driving a little erratically a few days later to become convinced that 'all young people are bad drivers'. Due to the confirmation bias, we may ignore examples of good driving and focus more on poor driving by young people.

Other theories of why stereotypes can arise are the **grain of truth hypothesis** and **gatekeeper theory**. Campbell (1967) states that stereotypes can be formed from two sources: from a person's own experiences with that group of people, or they can learn about groups of people through gatekeepers like the media, parents and friends. In both cases, there is often a small amount of evidence ('grain of truth') that gets exaggerated and generalised. Gatekeepers use stereotypes to define groups and their members, and these stereotypes become part of the culture and are seen as 'true'.

A key question that several psychologists have asked is whether one individual is more likely to hold stereotypes than others. As early as 1954, Gordon Allport claimed that the cognitive processes of prejudiced people, who form negative stereotypes about others, differed from the cognitive processes of tolerant people (1954, p. 170). This means that a person's stereotyping and prejudice is probably directed at many groups

and is a feature of the prejudiced person's personality. Schaller et al. (1995) conducted two studies that confirmed the 'prejudiced personality' existed, but emphasised that the effects of the social context in either mitigating (mitigate = to make less severe) or increasing the tendency to develop negative stereotypes needed further research.

> Ask Yourself
>
> Do you think there is such a thing as a 'prejudiced personality'? Why? Why not?

Effects of stereotypes

Stereotypes can have powerful effects on how we view and interact with others. Information about other groups can be subject to bias and distortion and poor judgements about others can easily follow.

> Focus on Research
>
> Cohen (1981) performed an experiment to determine whether stereotypes can affect people's memories. Participants were told that the woman in a video they watched was either a waitress or librarian. When participants were asked to recall details about the video, they remembered information more consistent with the commonly accepted stereotypes of these two careers. The participants who thought the woman in the video was a librarian were more likely to remember she wore glasses, and those who thought she was a waitress were more likely to remember her drinking alcohol. Cohen concluded that stereotypes can affect the type of information we focus on and what information we remember.
>
> Steele and Aronson (1995) were also interested in the effects of stereotypes on behaviour and they described a phenomenon called **stereotype threat**. They defined this as a situation where individuals suspect their behaviours are being evaluated on the basis of a negative stereotype. In other words, people fear they are being judged as a member of a group and not as an individual and their performance tends to suffer. This then results in a self-fulfilling prophecy – they perform badly and that confirms the stereotype. To test this theory, participants were asked to take a problem-solving test. Participants were African Americans and European Americans. When African Americans were told that the test would represent their verbal skills, they performed worse than European Americans. But when they were told that the test was just for studying how problems are generally solved, they performed as well as the European Americans. Steele and Aronson claim that stereotype threat, due to the knowledge of a negative stereotype, can cause emotional distress and pressure to perform well. Steele (1997) went on to focus on the poor academic performance of some African Americans compared to Caucasians. He noted that African Americans were well aware of negative stereotypes, which aroused deep-seated fears that distracted them from doing as well as they could.
>
> Inzlicht and Ben-Zeev (2000) investigated if stereotype threat affected females' performance on maths problem-solving if they were placed in an environment where they were outnumbered by males. Seventy-two female undergraduates at a US college were randomly assigned to the minority condition, that is, one female participant to two males or the same-sex condition, that is, three women. The participants were not told of the study's purpose. They were instructed to complete either a maths test or a verbal test. The maths test was used to invoke the stereotype threat as this subject is widely considered more challenging for females than males. They were informed that their results would be shared with their group. Half of the participants were greeted by a female experimenter and the other half by a male experimenter. The results showed that

> females in the minority condition performed worse than females in the same-sex condition. This deficit was not present in the groups who completed the verbal test as males and females obtained similar scores. Inzlicht and Ben-Zeev concluded that placing high-achieving women in an environment in which they are outnumbered by men can cause a decrease in their performance.

> Ask Yourself
>
> Should schools be co-educational or single sex? How does this study contribute to this contentious issue?

3.4 Assessment Advice: The Individual and the Group

QUESTION	STUDY
SAQs **Outline/describe/explain**	**Suggested Studies**
One research method (approach to research) used when investigating the individual and the group	Tajfel (1971)
Ethical considerations of research into the individual and the group	Tajfel (1971)
One study investigating the individual and the group	Tajfel (1971)
How social groups influence the individual and the group	Tajfel (1971)
Social identity theory	Tajfel (1971)
One study investigating social identity theory	Tajfel (1971)
Social cognitive theory	Bandura (1961) or Konijn et al (2007)
One study investigating social cognitive theory	Bandura (1961) or Konijn et al (2007)
Development (formation) of stereotypes	Hamilton & Rose (1980)
One study investigating the development (formation) of stereotypes	Hamilton & Rose (1980)
One effect of stereotypes	Steele & Aronson (1995)
One study investigating one effect of stereotypes	Steele & Aronson (1995)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the individual and the group	Tajfel (1971) Howarth (2002)

Ethical considerations of research into the individual and the group	Tajfel (1971) Howarth (2002)
Research (studies) into the individual and the group	Tajfel (1971) Howarth (2002)
Social identity theory	Tajfel (1971) Howarth (2002)
Research (studies) into social identity theory	Tajfel (1971) Howarth (2002)
Social cognitive theory	Bandura (1961) and Konijn et al. (2007)
Research (studies) into social cognitive theory	Bandura (1961) and Konijn et al. (2007)
One or more theories of the development of stereotypes	Hamilton & Rose (1980) Hamilton and Gifford (1976)
Research (studies) into the development of stereotypes	Hamilton & Rose (1980) Hamilton and Gifford (1976)
One or more theory of the effect of stereotypes	Cohen (1981) Steele & Aronson (1995)
Research (studies) into the effect of stereotypes	Cohen (1981) Steele & Aronson (1995)

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4. Cultural Origins of Behaviour and Cognition

4.1 Cultural and its Influence on Behaviour and Cognition

Matsumoto and Juang (2004, p.10) define culture as ‘a dynamic system of rules, explicit and implicit, established by groups to ensure their survival, involving attitudes, values, beliefs, norms and behaviours.’ A dynamic culture is by definition constantly shifting in response to environmental and social changes.

Cultural norms are part of a culture. They are patterns of behaviour typical to specific groups and are passed down through generations by ‘gatekeepers’ such as parents, teachers, elders and the media. Cultural norms influence almost every element of life, either visibly (as in the particular form of the marriage ceremony) or less visibly (as in assumptions about whom you may marry).

One way that culture has been conceptualised is to make a distinction between surface and deep culture. Surface culture includes things like food, dress, music, visual arts, crafts, dance, literature, language, celebrations and games. These aspects of culture can be easily observed by members of that culture and by outsiders. Deep culture includes concepts of time, ideas about personal space, types and forms of non-verbal communications, ideas about child-rearing, the nature of friendships and the concept of self. These beliefs, values and thought processes can be easily understood by members of that culture but may be less

accessible to outsiders. These invisible aspects of deep culture influence the visible aspects of surface culture.

> **Cultures**
>
> Cultures are made up of a set of attitudes, behaviours, and symbols shared by a large group of people, and usually communicated from one generation to the next. Cultural groups are characterized by different norms and conventions.
>
> *Source: IB Psychology Guide*

Focus on Research

Researchers investigating cultural groups and differences between these groups have adopted various approaches.

These include in-depth studies of single cultures, cross-cultural studies of more than one cultural group, or studies of bicultural groups (e.g. Chinese Canadians).

This study by Sanchez-Burks and Nisbet (2000) investigating Anglo-Americans and Mexican Americans is an example of a cross-cultural study. Their area of particular interest was intergroup dynamics in work settings. They theorised that Mexican and Mexican-American ("Latin") participants' strong interpersonal orientation would influence their preference for workgroups.

Type of study: An independent measures experiment.

Hypothesis: Latin participants would evaluate task and interpersonal workgroups more favourably than Anglo-Americans, and Anglo-Americans would evaluate task workgroups more favourably than Latins. Recommendations by Mexicans for improvements to the performance of workgroups would favour socioemotional aspects.

Participants: Two groups were recruited by volunteer sampling. 110 Mexican university students (52 men; 58 women) and 108 American students (57 men; 51 women) who identified themselves as either "white" or "Anglo-American".

Procedures: Participants viewed one of two 4-minute videotapes of language tutoring sessions that were either task-orientated or a mix of task orientation and socioemotional components (the latter included such interactions as a handshake, small talk, and discussion about a movie). One video depicted Mexicans, and the other depicted Anglo-Americans. Participants then filled out a questionnaire that measured their evaluation of the tutoring session's effectiveness and made suggestions for improvement.

Results: Both groups rated the task-orientated session more favourably, but the Mexican participants rated the task workgroup less favourably than the Anglo-Americans. The ratings of both groups were not affected by the ethnicity of the people depicted in the video. When asked to analyse what might improve the tutoring, the Mexicans emphasised socioemotional considerations more than the Anglo-Americans. Both Mexicans and Anglo-Americans made the same recommendations whether they believed the groups were composed of Anglo-Americans or Mexicans.

Conclusions: For Anglo-Americans, task success depends on minimising socioemotional concerns, whereas, for Latins, socioemotional aspects underpin efficiency and success.

Focus on Research

Psychologists, especially those taking a sociocultural approach, have investigated social and cultural differences in interpersonal space.

Four categories of personal space have been identified: public, social, personal, and intimate. Hall (1966) argues that cultural norms are the most important factor influencing a person's preferred social distance in each of these social situations.

He divided cultures into "contact cultures", which use closer interpersonal distances and more touching, and "non-contact cultures", which use greater distances and less contact. Mediterranean, Latin American, and Middle Eastern societies are often cited as contact cultures, while American and Northern European societies are usually classified as non-contact cultures.

Sorokowska et al. (2017) conducted a study to compare preferred interpersonal distances from a wide range of countries. The team of researchers also aimed to determine if factors other than cultural norms influenced this behaviour.

Type of Study: Survey of 8,943 participants from 42 countries. Participants were volunteers. Ages ranged from 17-88, with a mean age of 39. There were 4,013 men and 4,887 women in the sample.

Hypotheses: This study had three hypotheses.

Hypothesis 1: That there would be significant variability in preferred interpersonal distances across countries when approaching a stranger (social distance), an acquaintance (personal distance), or a close person (intimate distance).

Hypothesis 2: That gender and age would influence the preferences participants would have for interpersonal distance, with women and younger people maintaining closer interpersonal distances.

> Hypothesis 3: That some environmental and psychological factors could predict the variability of interpersonal distance across countries. Lower population growth rate and higher in-group favouritism would be associated with closer interpersonal distance preferences, and closer interpersonal distances would be seen in higher temperature areas.
>
> **Procedures**: Participants completed a questionnaire consisting of demographic questions (age, sex) and three questions using graphics to depict their preferred interpersonal distance. Three separate categories of desired interpersonal distances were measured: distance to a) a stranger, b) an acquaintance, and c) a close person.
>
> **Main results**: Mean comparisons showed significant variability in interpersonal distance across countries for different social interactions. The higher the annual temperature of a country, the closer the preferred distance from strangers.
>
> Women, on average, preferred to maintain greater distance with acquaintances and strangers, and older participants also preferred greater distance.
>
> **Conclusion**: Individual characteristics (age and gender), as well as cultural norms associated with various regions, influence interpersonal space preferences. Some variation in results can be explained by the climatic temperature of a given region.

4.2 Cultural Dimensions

Modern research on **cultural dimensions** comes from Hofstede's original research in the 1960s and 1970s, which is described on Geert Hofstede's website. He based his theory on a large survey of the attitudes and national values of 117,000 employees of IBM from 40 countries. More countries were later surveyed and more occupations were also included.

Hofstede originally distinguished four 'cultural dimensions' by which life in a society is organised. They are as follows.

Power Distance – the extent to which people in societies accept, or do not accept, a hierarchical order in which everybody has a place and which needs no further justification.

Individualism versus Collectivism – the extent to which people prefer a loosely knit social framework in which individuals are expected to take care of themselves and their immediate families or a tightly knit framework where individuals can expect their relatives or members of a particular in-group to look after them in exchange for loyalty. A society's position on this dimension is reflected in whether people's self-image is defined in terms of 'I' or 'we'. Individualist cultures are seen as 'I' cultures and collectivist cultures as 'we' cultures.

Masculinity versus Femininity – the extent to which a society is competitive (masculine) or cooperative (feminine).

Uncertainty versus Avoidance – the extent to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the unknown future. A society high in uncertainty avoidance tries to control people's behaviour through rigid codes of belief and is intolerant of unconventional ideas.

Two dimensions were added later as follows.

Long-term versus Short-Term Orientation is the extent to which a culture values the long term over the

short term. This dimension is also referred to as Confucian Dynamism. Long-term cultures value future rewards, persistence and perseverance, thrift and the ability to adapt to changing circumstance. Societies with a short-term orientation value the past and the present, national pride, respect for tradition, fulfilling social obligations and the role of religion.

Indulgence versus Restraint – this is a final dimension that was added in 2010. It expresses the attitude of a culture to the gratification of natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates drives by means of strict social norms.

As you might notice, there are dimensions that seem to overlap and form clusters. There is a strong chance, for example, that societies scoring high on uncertainty avoidance might also score high on restraint.

> Cultural Dimensions
>
> Cultural dimensions refer to the values of members of a society living within a particular culture.
>
> *Source: IB Psychology Guide*

> Ask Yourself
>
> Do you think the concept of cultural dimensions is an effective way of highlighting the difference between cultures?

Individualism/collectivism: Compliance

One avenue of research to examine how cultural dimensions might influence behaviour is to compare compliance in different cultures. Compliance refers to the act of responding favourably to an explicit or implicit request by others. The request may be explicit, such as a direct request for a charity donation, or implicit, such as an advertisement promoting some product without directly asking for purchase. In all cases, we realise that we are being urged to respond in a desired way. See below for examples.

Reciprocity

We all tend to do something for someone who has already done something for us. If someone does something for you, such as giving you a free sample of a product, then you feel more obliged to do something for them, and buy the product.

Commitment

If we make a small commitment, then we are more likely to commit to something larger in the future. For example, if we just buy a single DVD from an online store then we are more likely to buy other DVDs that they send us.

Manipulating people to comply

Compliance is known to be enhanced by a number of situational manipulations. The 'Foot-in-the-Door' technique involves someone making a small request before they make a much larger request. If you comply with the first, you are more likely to comply with subsequent larger requests. The 'Door-in-the-Face' technique adopts the opposite approach. A request likely to be refused is made and this is then followed up by a smaller request that you are more likely to see as reasonable. The 'That's not all' technique is often used by television marketers. A product is described and then an additional offer of free products is made. The salesperson is trying to make the offer as tempting and appealing as possible.

Ingratiation

This is a compliance technique in which the persuaders get their target person to like them first, through flattery and presenting themselves as like their target, and then attempting to gain compliance with some request. While flattery might seem the most obviously successful, doing small favours, using appropriate body language and exploiting similarities between themselves and the target, are also successful.

Researchers have investigated whether there are cultural differences in a person's willingness to comply with a request. The study by Petrova et al. (2007) is typical of this research interest.

> Focus on Research
>
> Petrova et al. (2007) undertook a field study to determine if the cultural dimension of individualism and collectivism had an influence on compliance. They focused on the 'Foot-in-the-Door' technique. Participants included 1,287 Asian international students (508 from China, 273 from South Korea, 185 from Japan, 184 from Taiwan and 137 from Vietnam) and a 5% random sample of US students at a large south-western university. All participants received emails requesting their participation in an online survey on 'School and Social Relationships'. The email provided a link to the survey website and emphasised that participation in the survey was completely voluntary. At the end of the survey participants indicated their willingness to participate in future similar surveys. The first survey took approximately 20 minutes to complete. One month after receiving the first request, all participants received a second email asking them to participate in another online survey related to the first survey. Participants were also told that the second study would take

> approximately 40 minutes to complete. The results indicated that compliance with the initial request had a stronger impact on subsequent compliance among the US participants than among the Asian participants. Despite their lower rate of compliance with the initial request, the US participants who chose to comply were more likely than their Asian counterparts to agree to the subsequent request. The researchers concluded that differences in levels of compliance were due to the individualistic/collectivistic orientation of the participants from the two cultures. Within both cultures, the more individualistic participants showed stronger consistency with their earlier compliance than the more collectivistic participants.

Individualism/collectivism: Subjective Well being

Globalisation has increased dramatically in its scope and reach in the last several decades. To understand the positive and negative influences on individual behaviour, psychologists have investigated how East Asian students have adapted to the educational practices of European/American cultural contexts.

Another approach focuses on multinational companies' workplace practices based in an individualist culture that set up branch offices in countries with more collectivist orientation. Ogihara and Uchida (2014) took both approaches to investigate the adverse effects of individualism on interpersonal relationship and happiness.

Study 1.

Aim: To investigate the adverse effects of individualism in an East Asian culture by examining the relationship between individualistic values, subjective well-being (SWB), and the number of close relationships in Japan and the U.S.

Type of Study: Survey

Hypotheses: Individualistic values would be associated with a significant decrease in close friends and SWB in Japan, but not to close friends and SWB in the U.S.

Participants: One hundred and fourteen undergraduate students at Kyoto University in Japan and 62 undergraduate students at the University of Wisconsin-Madison in the U.S.

Procedures: The study used various instruments to measure participants' individualist and collectivist orientation, their subject well-being and the number of close friends (see the study for a description of these instruments).

Results: The individualistic orientation score was significantly higher for the U.S. participants than for Japanese participants. The collectivistic orientation score was not significantly different across cultures.

In Japan, an individualistic orientation negatively affected SWB. However, a collectivistic orientation did not affect SWB.

In contrast, in the U.S., a collectivistic orientation negatively affected SWB, but an individualistic orientation did not affect SWB.

In Japan, an individualistic orientation was associated with fewer close friends, but this relationship was not found in the U.S.

Conclusions: An individualistic orientation in Japan is associated with fewer close friends and lower subjective well-being.

The researchers argued that:

"In a more globalised world, culture matters more than ever before. Therefore, the effect of globalisation (in particular, the effects of individualism) on individuals and nations should be examined from a cultural perspective in more detail in the future."

Critiques of Cultural Dimensions

Though the original cultural dimensions were identified in the 1970s, Hofstede (2011) argues that there are still many differences between national cultures. Though the world has undergone globalisation, he contends these differences will continue to play a role into the next century. Psychologists like Bond (1997) have not accepted that the best way to understand a culture is to focus on values. For example, Gelfand et al. (2006) proposed that psychologists should give attention to the structure of societies. They observed that societies have 'tight' or 'loose' structures. Tight societies are characterised by strong and well-developed social norms that can impose sanctions on members of the society that deviate from these norms. In contrast, loose societies do not have strong norms of behaviour and they are much more tolerant of people who deviate from the norm. They used Japan as an example of a 'tight' society because it has clear boundaries about what is acceptable behaviour, it is less tolerant of ambiguity and difference and it imposes a stronger socialisation of children into these norms than a loose society like the USA.

The researchers argued that tightness–looseness is distinct from individualism–collectivism, uncertainty avoidance and power distance. There is variation in tightness–looseness across societies and within societies (e.g. by region and/or ethnic group). The concept of tightness–looseness can also be applied to formal and informal organisations. For example, an understanding of tightness–looseness can provide psychological insights into diverse groups such as the Taliban, the military and gangs.

4.3 Assessment Advice: Cultural Origins of Behaviour and Cognition

QUESTION	**STUDY**
SAQs **Outline/describe/explain**	**Suggested Studies**
One research method (approach to research) used when investigating cultural origins of behaviour and cognition	Petrova (2007) or Sanchez-Burks & Nisbet (2000)
Ethical considerations of research into cultural origins of behaviour and cognition	Petrova (2007) or Sanchez-Burks & Nisbet (2000)
One example of culture and its influence on behaviour and cognition	Sanchez-Burks & Nisbet (2000)
One effect of cultural group membership on behaviour and cognition	Sanchez-Burks & Nisbet (2000)
The influence of one cultural dimension on behaviour and cognition	Petrova (2007)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	

Research methods (approaches to research) used when investigating cultural origins of behaviour and cognition	Petrova (2007) Sanchez-Burks & Nisbet (2000)
Ethical considerations of research into cultural origins of behaviour and cognition	Petrova (2007) Sanchez-Burks & Nisbet (2000)
Research (studies) into the cultural origins of behaviour and cognition	Sanchez-Burks & Nisbet (2000) Sorokowska et al. (2017)
One or more example of culture and its influence on behaviour and cognition	Sanchez-Burks & Nisbet (2000) Sorokowska et al. (2017)
One or more cultural dimension and their influence on behaviour and cognition	Petrova (2007) Ogihara & Uchida (2014)

5. Cultural Influences on Individual Behaviour

5.1 Enculturation and Acculturation

Socialisation is a process of learning the social norms of a culture.There are two ways this may take place. **Enculturation** is a lifelong process that helps a person acquire social values, social norms, behaviours, social roles, expectations, language and other tools of a culture. This is how we acquire our first culture and it is a conscious and unconscious conditioning process. Parents, friends, family and the media are all strong influences in teaching individuals what are acceptable behaviours and what behaviours should be avoided. An individual should conform to the accepted behaviours or risk being considered a deviant by the rest of the society.

Acculturation is a process of socialisation and psychological adjustment that takes place when two cultures come into contact. This is how we acquire our second or third culture. To sum up, enculturation is the process where you acquire your own culture, while acculturation is the merging of two cultures.

While enculturation is a one-way process, acculturation can be a two-way process with both cultures experiencing changes to their language, clothing, customs and practices. However, minorities that have relocated and are now living inside a country are more likely to assimilate to the new culture. Psychologists interested in acculturation have investigated how minorities such as refugees, immigrants and indigenous people interact with the dominant culture and how successfully they have adapted.

> **Focus on Research**
>
> Multiculturalism is becoming increasingly common. If you were to walk along a street of any major world city, you would likely encounter people of varying different ethnic backgrounds and hear numerous languages being spoken.
>
> **Acculturation** is the process of social and psychological adjustment that takes place when two different cultures meet. Acculturation is experienced by immigrants, refugees or anybody taking an

extended stay in a foreign country. Berry (2005) proposed that people experiencing acculturation behave in one of four ways:

1. **Assimilation**: adapting to the new culture and leaving the original culture behind.
2. **Separation**: Avoiding interactions with the new culture and holding on to the original culture.
3. **Integration**: Becoming bi-cultural. Integrating with the new culture whilst still maintaining the original culture.
4. **Marginalisation**: Leaving the original culture behind but struggling to integrate into the new culture due to discrimination.

Berry argued that the process of acculturation could often be stressful. However, it is thought that those individuals who take an integration approach are likely to experience less stress in comparison to the other groups.

Supportive Studies

Berry, Phinney, Sam and Vedder (2006) aimed to discover if there is a relationship between acculturation and adaptation to life in the new culture. They studied immigrant youth aged 13 – 18. It was found that participants who adopted an integration acculturation profile (meaning that they viewed both their original and new culture positively and had frequent contact with both cultures) adapted to life in the new culture most successfully. This was compared to participants who focused primarily on their original culture or their new culture or were confused about their cultural identity. This finding supports the claim that acculturation is more successful and less stressful when an individual seeks integration with their new culture and maintains contact with their original culture.

Lueck and Wilson (2010) studied Asian immigrants to America to discover factors that affect acculturation stress. They studied around 2000 Asian – Americans using semi-structured interviews. Results revealed that fully bilingual participants experienced less acculturation stress than those who weren't, as they could interact with both their original and new cultures. Unsurprisingly, participants who were subjected to discrimination suffered high levels of acculturation stress. This finding also supports the view that taking an integrated approach to acculturation has the most successful outcomes.

Points to consider when evaluating Berry's model:

1. An older theory of acculturation is the Assimilation theory which is uni-dimensional. It claims that the more individuals integrate into a new culture, the less contact they will maintain with their original culture. Berry's theory is bi-dimensional as it claims that contact can be maintained with the original culture while integrating into the new culture.
2. Berry fails to acknowledge that national culture is complex and not homogeneous.
3. Sam (2000) studied a sample of multicultural adolescents living in Norway and found that those who aimed for separation from their new culture reported higher life satisfaction than those who integrated.
4. Many studies into acculturation use self-report methods, such as surveys (questionnaires) and interviews, which are subject to participant bias, especially desirability bias. Many of these studies also only focus on the aspects of culture, which are quantifiable, such as food and language. They tend to ignore areas that are difficult to study, such as religion.

Sources

Berry, J. W. (2005). Acculturation: Living successfully in two cultures. International Journal of Intercultural Relations, 29(6), pp. 697-712

Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. E. (2006). Immigrant Youth in Cultural Transition: acculturation, identity, and adaptation across national contexts. Lawrence Erlbaum Associates.

Lueck, K., & Wilson, M. (2010). Acculturative stress in Asian immigrants: the impact of social and linguistic factors. International Journal of Intercultural Relations, 34(1), pp. 47-57.

Sam, D.K. (2000). Psychological adaptation of adolescents with immigrant backgrounds. The Journal of Social Psychology, 140(1), pp. 5-25

Original research reports can be found here.

Enculturation

Enculturation is the process by which people learn the necessary and appropriate skills and norms in the context of their culture.

Acculturation

People may change as a result of contact with other cultures in order to assimilate into a new culture.

Source: IB Psychology Guide

Focus on Research

Wang and Mallinckrodt (2006) used two theories to predict if Chinese and Taiwanese international students would experience psychological stress while studying in American colleges. They used

Berry's process model of acculturation to gauge an individual's level of acculturative stress and Bowlby's concept of the 'secure base' to gauge an individual's capacity for exploring a new social environment. The study proposed the following hypotheses:
(a) both attachment anxiety and attachment avoidance would be negatively associated with acculturation to the host culture;

(b) high attachment anxiety and avoidance (as indicators of low secure base) would significantly predict more sociocultural adjustment difficulties and more psychological distress;

(c) high acculturation to the US culture and high cultural identification with home culture would predict less sociocultural adjustment difficulty and less psychological distress.

A sample of fifty-four (52%) women and fifty (48%) men were recruited to complete an internet survey. All were students at an American college. Participants answered three sets of survey questions to determine how they formed adult attachments, their attitudes towards their home culture (Chinese) and attitudes towards the host culture (American) and the degree of difficulty that respondents encountered in everyday social situations because of cultural differences. Results suggested that attachment anxiety was negatively associated with students' acculturation to US culture, and that attachment avoidance, attachment anxiety and acculturation to US culture were significant predictors for students' psychosocial adjustment. The researchers concluded that those who avoided social relationships and experienced anxiety about social relationships would not assimilate well and would experience more stress. Those who assimilated to the host culture while maintaining their identification with their home country would not experience stress.

Ask Yourself

Do you think living or studying in a different culture is a stressful experience? Why? Why not?

5.2 Assessment Advice: Cultural Influences on Individual Behaviour

QUESTION	STUDY
SAQs **Outline/describe/explain**	**Suggested Studies**
One research method (approach to research) used when investigating cultural influences on individual behaviour	Sorokowska et al. (2017)
One ethical consideration of research into cultural influences on individual behaviour	Sorokowska et al. (2017)
One cultural influence on individual behaviour	Sorokowska et al. (2017)
One effect enculturation has on individual behaviour	Sorokowska et al. (2017)
The effect of norms on individual behaviour	Sorokowska et al. (2017)
One effect acculturation has on individual	Wang & Mallinckrodt (2006)

behaviour	
The influence assimilation (or the need to assimilate) has on individual behaviour	Berry (2005)
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research (studies) into cultural influences on individual behaviour	Sorokowska et al. (2017) Wang & Mallinckrodt (2006)
Ethical considerations of research into cultural influences on individual behaviour	Sorokowska et al. (2017) Wang & Mallinckrodt (2006)
Research (studies) into one effect enculturation has on human cognition and behaviour	Petrova (2007) Sorokowska et al. (2017)
Research (studies) into one effect acculturation has on human cognition and behaviour	Wang & Mallinckrodt (2006) Berry, Phinney, Sam and Vedder (2006)

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6. The Influence of Globalisation on Individual Behaviour (HL only)

The HL extension topic for the Sociocultural approach focuses on the influence of globalisation on individual attitudes, identities and behaviour. Topics include:

- The effect of the interaction of local and global influences on behaviour.
- Research methods used to study the influence of globalisation on behaviour.

Your understanding of these topics will be tested in Paper 1 Section B (only ERQs will be asked).

6.1 Globalisation and Behaviour

Globalisation is a powerful force comprised of various dimensions, including the economic, the political, the sociocultural, the technological and the environmental. It has helped expand international production and trade, facilitated advances in technology and brought people of diverse societies into contact with each other. This process has a long history, with cultures influencing each other for centuries through trade, migration and war. While some commentators refer to globalisation as an economic process involving the opening and crossing of borders, psychologists are more interested in how social and cultural exchanges influence attitudes, identities and behaviour. In the 21st century, interacting with people from other cultures is no longer limited by time and place. Furthermore, digital technology has made it possible for people worldwide to contact each other instantaneously.

Globalisation has increased dramatically in its scope and reach in the last several decades and sparked a heated debate about the pros and cons. The economic benefits have been questioned, and some people have felt threatened by foreign influences seen as eroding their local culture. Psychologists have contributed to the debate by exploring the psychological impact of globalisation. One focus has been on how people from different cultures react to and make sense of globalisation. Are attitudes open and positive

or closed and negative, and what influences these reactions? Are some individuals adopting a bicultural identity? Are others experiencing cultural confusion or feeling that their local culture is being marginalised and excluded? To determine the effect of the interaction of local and global influences on behaviour, the processes of enculturation (local influences) and acculturation (global influences) will be revisited.

As you read about the following studies, be mindful that you may be asked to discuss methods used to study globalisation's influence on behaviour.

You will recall that enculturation is a lifelong process that helps a person gain social values, social norms, behaviours, social roles, expectations and language. These local influences shape our first culture. Acculturation involves socialisation and psychological change that takes place when we come into contact with other cultures. There are several ways that this might take place. For example, migrants undergo this process when they move to another country. Another consequence of globalisation has been the emergence of Third Culture Individuals (TCIs), who are raised in a culture other than their parents' culture.

The HL extension topic focuses on behaviour and how people living in their own local culture are affected by global influences that are predominately Western and individualistic. One broad approach is to determine the positive and negative consequences of the interaction of local and global effects on mental health. For example, Becker et al. (2002) investigated eating disorders among Fijian female adolescents newly exposed to TV in their homes.

Focus on Research

Becker et al. (2002) aimed to assess the impact that television had on the eating attitudes and behaviours of ethnic Fijian girls. A natural experiment was designed to compare two samples of Fijian schoolgirls before and after the arrival of television, which predominately aired Western dramas, comedies, etc. Before the arrival of television in the 1990s, eating disorders were considered rare among this traditional cultural group. Ethnic studies argued that there was an absence of pressure to be slim through dieting and other measures of restricting weight gain.

The first sample (1995) consisted of 65 secondary female students, and the second sample (1998) of 68 female students who participated in the study three years after television was introduced. Written informed consent was obtained from the participants and their parents/guardians.

Both groups completed a 26-item questionnaire on attitudes to eating, including disordered behaviours like binging and purging. Additional questions were asked of the second group concerning body image and dieting. Quantitative data from the two groups on the extent of television exposure, body mass index, instances of disordered behaviour of bingeing and purging and answers to the questionnaire, Eating Attitudes Test (EAT) were compared.

Qualitative data was gathered on those participants who had self-reported binging and purging. A semi-structured interview was undertaken to determine if these participants met the clinical definition of an eating disorder. This narrative data was audiotaped, transcribed and analysed for thematic content. Several themes emerged, including an admiration for Western actresses and a desire to emulate (emulate = imitate, copy) them, especially in weight and appearance. Participants linked weight loss and successful careers. Arguments with parents were also reported with traditional local influences conflicting with Western cultural influences, mainly about how much food should be consumed.

In summary, girls in the second group with TV in their homes were three times more likely to have

an Eating Attitudes Test (EAT) score greater than 20, which is considered a risk for eating disorders. Girls began saying that they felt fat or were dieting, with 69% of girls having tried dieting and 75% of teenage girls saying they felt too big or fat.
The investigators concluded that television, with its Western imagery, profoundly influenced the increase in disordered eating behaviour despite the traditional local cultural influences that countered dieting, purging and body dissatisfaction.

A study by Ogihara and Uchida (2014) has also argued that globalisation can negatively influence behaviour, particularly on interpersonal relationships and happiness. They focused on multinational companies' workplace practices based on an individualist culture that set up branch offices in countries with a more collectivist cultural orientation.

Focus on research

Ogihara and Uchida (2014) aimed to investigate the adverse effects of individualism in an East Asian culture by examining the relationship between individualistic values, subjective well-being (SWB), and the number of close relationships in Japan and the United States of America.

Type of Study: Survey

Hypotheses: Individualistic values would be associated with a significant decrease in close friends and SWB in Japan, but not to close friends and SWB in the United States.

Participants: One hundred and fourteen undergraduate students at Kyoto University in Japan and 62 American born undergraduate students at the University of Wisconsin-Madison in the U.S.

Procedures: The study used various instruments to measure participants' individualist and collectivist orientation, their subject well-being (SWB) and the number of close friends (see the study for a description of these instruments).

Results: The individualistic orientation scores were significantly higher for the U.S. participants than for Japanese participants. The collectivistic orientation scores were not significantly different across cultures.

In Japan, an individualistic orientation negatively affected SWB. However, a collectivistic orientation did not affect SWB.

In contrast, in the U.S., a collectivistic orientation negatively affected SWB, but an individualistic orientation did not affect SWB.

In Japan, an individualistic orientation was associated with fewer close friends, but this relationship was not found in the U.S.

Conclusions: An individualistic orientation in Japan is associated with fewer close friends and lower subjective well-being.

The researchers argued that:

"In a more globalised world, culture matters more than ever before. Therefore, the effect of globalisation (in particular, the effects of individualism) on individuals and nations should be examined from a cultural perspective in more detail in the future."

Buchan et al. (2009) offer a more positive view of globalisation. Their study aimed to determine how globalisation influences human cooperative behaviour, especially in efforts to find solutions to global challenges of resource depletion, climate change and other social dilemmas.

Focus on Research

Buchan et al. (2009) aimed to examine two competing hypotheses: globalisation favours one's own ethnic, racial, or language group and the alternative that globalisation strengthens cosmopolitan (cosmopolitan = showing interest in different cultures, ideas, etc.) attitudes by weakening local and national sources of identification which in turn can lead to more cooperative behaviour.

To test these hypotheses, 1145 participants were recruited using a quota sampling method from urban centres of industrial nations with varying globalisation levels. These nations included the United States, Italy, Russia, Argentina, South Africa, and Iran. Participants completed a survey to determine their score on the Individual-level Globalisation Index, which measures the extent they participated in global economic, social, and cultural networks.

Participants were asked to make a series of decisions about allocating tokens between a personal account, a local account, and a world account. Incentives were structured so that decisions could be used to measure whether the participants were self-interested (most contributions to their personal account) or willing to cooperate exclusively with people from their own locality (most contribution to the local account) or more willing to cooperate with groups from around the world (most contributions to the world account.)

An analysis of how these tokens were distributed found that as country and individual levels of globalisation increased, so too did an individual's cooperative behaviour at the global level. These results supported the cosmopolitan hypothesis that globalisation strengthens worldly attitudes by weakening the local and national sources of identification. The study concluded that globalisation is a powerful force influencing large-scale cooperative behaviour among citizens from very different countries.

6.2 Methods used to study the influence of globalisation on behaviour

This section on globalisation has introduced you to a range of research methods that psychologists use to analyse how globalisation influences behaviour. One popular method is the use of the survey, as you read in the studies by Becker et al. (2002), Buchan et al. (2009) and Ogihara and Uchida (2014). Becker et al.'s was a natural experiment that also used interviews to obtain data which was analysed using thematic content analysis. Buchan et al. used the survey data to select participants to take part in their quasi-experiment.

6.3 Assessment Advice

QUESTION	STUDY
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Methods used to study the influence of globalization on behaviour, OR the effects of local and global influences on the individual and the	Any two studies listed below.

group OR cultural origins of behaviour and cognition OR cultural influences on individual behaviour.	
The influence of globalisation on individual behaviour.	Becker et al. (2002), Buchan et al.(2009) and Ogihara & Uchida (2014
The effects of local and global influences on the individual and the group OR cultural origins of behaviour and cognition OR cultural influences on individual behaviour.	Becker et al.(2002), Buchan et al.(2009) and Ogihara & Uchida (2014).

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the sociocultural approach to understanding behaviour.

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Chapter 7: Abnormal Psychology

ⓘ Chapter Outline

1. **Factors Influencing Diagnosis**
   - 1.1 Normality versus Abnormality
   - 1.2 Classification Systems
   - 1.3 The Role of Clinical Biases in Diagnosis
   - 1.4 Validity and Reliability of Diagnosis
   - 1.5 Assessment Advice
2. **Etiology of Abnormal Psychology**
   - 2.1 Etiology of Major Depressive Disorder
   - 2.2 Prevalence Rates of Depression
   - 2.3 Assessment Advice
3. **Treatment of Disorders**
   - 3.1 Biological Treatments of Depression
   - 3.2 Psychological Treatments of Depression
   - 3.3 The Role of Culture in Treating Depression
   - 3.4 Assessing the Effectiveness of Treatments for Depression
   - 3.5 Assessment Advice

> Essential Questions
>
> - What is the difference between normal and abnormal behaviour?
> - How reliable and valid is a diagnosis of a psychological disorder?
> - What causes abnormal behaviour?
> - How can psychological disorders be treated?

Myths and Misconceptions

People with mental illnesses are often violent.

This is a myth. People with mental illness are more likely to be the victims of violence rather than being violent themselves. There is a growing body of evidence that:

- The vast majority of people with mental illness are not violent.
- The public is misinformed about the link between mental illness and violence.
- Inaccurate beliefs about mental illness and violence lead to widespread stigma and discrimination.
- The link between mental illness and violence is promoted by the entertainment and news media.

See this fact sheet from Sane Australia.

Mental illnesses are not really illnesses.

This is another myth. The Canadian Mental Health Association (CMHA) argues that mental illnesses create distress, don't go away on their own and are real health problems with effective treatments. When someone breaks their arm, we wouldn't expect them to just 'get over it.' Nor would we blame them if they needed a cast, sling, or other help in their daily life while they recovered.

People with mental illness cannot work.

This is a myth. People with mental illness successfully work across the full spectrum of workplaces. Some people disclose their mental illness and some do not. Most importantly, people with mental illness can succeed or fail, just like any other worker. You may be surprised at the list of celebrities who are open about their mental illnesses.

The study of abnormal behaviour has a long and tragic history. People suffering from a mental disorder were seen as possessed by evil spirits that needed to be driven out by whatever means.

A more humane approach developed in the 18th and 19th centuries and mental illness was seen as a physical disease. The discovery that the infection syphilis would bring on delusions and changes in personality lent support to this perspective. However, not all abnormal behaviours could be linked to a physical disease or injury. One example was the condition known as hysteria which was prevalent in the late 19th and early 20th centuries. Sigmund Freud, the founder of psychoanalysis, argued hysteria was caused by psychological issues to do with unconscious conflict. Treatment consisted of a 'talking cure' that helped the patient resolve inner conflicts, many of which stemmed from early childhood. In the mid-20th century, some psychological disorders were seen as the result of faulty learning and later faulty thinking.

A waxwork of Sigmund Freud

Modern approaches have attempted to understand both the biological and the psychological causes of abnormal behaviour. A **diathesis-stress model** was proposed. This theory contended some individuals may have a biological predisposition to develop a mental disorder but it would only be triggered by a stressful psychological event. Building on this model, most mental health professionals now argue a biopsychosocial perspective should be adopted to understand mental illness. For example, this perspective would explain depression in terms of biological factors such as genetics, a tendency to engage in faulty cognition and a lack of social support.

In our study of depression, we will investigate the interaction of biological, cognitive and sociocultural approaches to diagnosis, as well as **etiology** (etiology = study of causes) and treatment. We will also examine approaches to research and ethical considerations.

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1. Factors Influencing Diagnosis

Abnormal psychology focuses on diagnosing, explaining and treating humans suffering from psychological disorders. Psychologists and psychiatrists are two of the professionals most associated with the processes of diagnosis and treatment. Psychologists have a post-graduate degree in clinical psychology. Psychiatrists are trained as medical doctors and then study a speciality in psychiatry. They adopt different approaches and have different opinions and beliefs about the relative influence of biological, cognitive or sociocultural factors. All would agree however that it is often an interaction of all three that affect abnormal behaviour.

Biological Approach

Psychologists or psychiatrists taking a biological approach will look at the role of inheritance in abnormal behaviour, will explore brain structure and function to see if this is related to abnormal behaviour and will examine animal research into abnormal behaviour to see if the results can inform us about human abnormal behaviour.

Cognitive Approach

Psychologists or psychiatrists taking a cognitive approach will look at faulty schemas (mental representations), types of thinking and beliefs (mental processes) and how these are influenced by social and cultural factors.

Sociocultural Approach

Psychologists or psychiatrists taking a sociocultural approach will look at people's social needs, how their culture affects what is defined as normal and abnormal and how this influences their behaviour and the whole process of labelling and being labelled.

> Ask Yourself
>
> Do you think psychological disorders are harder to diagnose compared to a medical disorder? Why? Why not?

1.1 Normality versus Abnormality

Abnormal behaviour involves disordering of emotions, thoughts and behaviour. Diagnosing such a disorder is a much more challenging process than diagnosing a physical disorder. One difficulty facing mental health professionals is that there is no agreed definition of normality and abnormality. As a consequence, a diagnosis may not be reliable or valid. Cultural issues with diagnosing an individual with a mental disorder add to the complexity. Being diagnosed with a mental disorder has profound consequences which raise important ethical considerations. The following section will explore attempts to define abnormality and examine various classification systems used to provide a valid and reliable diagnosis.

'Abnormal' means 'deviating from what is normal or usual'. But this then raises the question of what is 'normal'. Each cannot be defined without defining the other. And the problem with normal behaviour is that it relies on specific social and cultural norms that are socially constructed and mutually agreed but vary from place to place. When we are born and raised in a particular culture, we internalise the norms and accept them (with the occasional protest), but understanding the norms of another culture can present problems. For example, as Wakefield (2007) points out, inability to learn to read due to a dysfunction in the corpus callosum (assuming that this theory of some forms of dyslexia is correct) is harmful in literate societies, but not harmful in preliterate societies, where reading is not a skill that is taught or valued, and thus not a disorder in those societies.

What is normal also varies with time as well as place. In the 19th century Europe and the USA, psychiatrists believed that both physical and mental activity could be harmful to women. A common diagnosis for women was 'hysteria,' a general term that could be applied to almost any woman. A common 'cure' for hysteria was bed rest to prevent both physical and mental activity.

Though clearly defining abnormality remains a challenge, this does not mean that deviant behaviour does not exist. As Rosenhan explains (1973, p. 250):

> *'To raise questions regarding normality and abnormality is in no way to question the fact that some behaviours are deviant or odd. Murder is deviant. So, too, are hallucinations. Nor does raising such questions deny the existence of the personal anguish that is often associated with mental illness. Anxiety and depression exist. Psychological suffering exists. But normality and abnormality, sanity and insanity, and the diagnoses that flow from them may be less substantive than many believe them to be.'*

Faced with these challenges mental health professionals use several different ways of defining abnormality.

Statistical infrequency

One means of defining abnormal is to refer to **statistical infrequency**. Statistically, rare behaviour becomes

defined as ‘abnormal’. One example might be autism, which only occurs in between 1% and 2% of children in Asia, Europe and North America (Center for Disease Control and Prevention, 2013). One problem here is that behaviour may be rare, such as the ability to speak over five or six languages, without being a sign of a mental disorder. How rare does a behaviour need to be before it is defined as abnormal? The statistical infrequency measure does not apply to disorders like depression and phobias which are very common. Other approaches are needed.

Deviation from social norms

Deviation from social norms is a definition based on social attitudes to behaviour. If someone breaks the unwritten rules of society, by invading personal space or dressing and acting inappropriately, for example, then they might be labelled ‘abnormal’. The danger here is that people who do not conform to society’s expectations are too easily labelled deviant and seen as a threat to society. For example, throughout the mid to late 20th century, many Eastern European governments labelled political activists as mentally ill and confined them to mental institutions.

Another example is homosexuality and transsexuality. While some societies have become much more tolerant of these social and sexual identities, such behaviour is illegal and punishable by public caning and imprisonment in others. It was only in 1973 that homosexuality was removed as a mental disorder from the DSM-II classification. (**DSM = Diagnostic and Statistical Manual of Mental Disorders**, used by mental health professionals to classify abnormal behaviour). ‘Sexual Orientation Disturbance’ replaced the category of homosexuality. This represented a compromise between the view that choosing to be a homosexual was a mental disorder and the view that it is merely a normal sexual variation. If you were homosexual and disturbed by this, then you had a mental disorder. If you accepted your sexuality you did not have a mental disorder.

The newly published DSM-5 adopts a similar approach to transgender people by using the classification of Gender Identity Disorder. A new term is ‘gender dysphoria’, which identifies distress over ‘a marked incongruence between one’s experienced/expressed gender and assigned gender.’ So, again, it is distress created by the difference between your expressed and your birth gender that is the problem.

Though the DSM-5 is published by the American Psychiatric Association and used widely, it is not accepted by all mental health professionals. Just because a disorder is removed from the manual, it does not mean that the behaviour is now seen as normal in many cultures.

> Focus on Research
>
> Szasz (1960) first argued that mental illness was a myth in an article and later in his controversial text *The Myth of Mental Illness.* His basic premise is that many psychological disorders should not be categorised as diseases like physical disorders as they are really ‘**problems in living’**. All of us face dilemmas and struggles but this does not mean that we are mentally ill. He was highly critical of these problems being treated as if they were medical problems and he argued against using diagnostic systems like the DSM because they imply that there is an actual disease.
>
> Szasz’s views remain highly controversial and his central idea that mental illness is a myth has been dismissed as going too far (Poulsen, 2012). However, his ideas still spark debate about how to define normality and abnormality and ensure that the ethical consequences of diagnosis are not overlooked.

Failure to function adequately

Everyone has difficulties in coping with the world sometimes, but if an individual's behaviour, mood or thinking affects their well-being then that behaviour can be judged abnormal. In other words, if a behaviour makes life unbearable then it is abnormal. But judging when a person's behaviour is making life dysfunctional remains a challenge. For example, a heavy smoker or drinker is not necessarily seen as engaging in the abnormal behaviour, even though they are self-harming and may alienate their friends and bring difficulties at work. The person who is not functioning adequately may feel that they are absolutely fine. The issue becomes how much the person's abnormal behaviour is adversely affecting or threatening others, and how judgemental they are.

Wakefield (2007) proposes a model for using the idea of failure to function to categorise behaviours as normal or abnormal. He introduced the term 'harmful dysfunction' for the diagnosis of mental disorder – a behaviour should be negatively valued both by the community and the individual (harmful) and also due to the malfunction of some internal mechanism (dysfunction). While the first of these might be easy to determine, the malfunction of an internal mechanism (such as a neurotransmitter problem) has not been found to be related to many instances of abnormal behaviour, which would then mean they were not diagnosed as a mental disorder. The implications of this for treatment are not clear.

Deviation from ideal mental health

Judging a behaviour as dysfunctional has not been widely adopted as a way of defining normality and abnormality. Jahoda (1958) took a different approach and described some characteristics that mentally healthy people should possess. She outlined the following:

- Individuals should have a positive attitude about themselves.
- Individuals should have a sense of self-actualisation. They should be working towards being the best they can be.
- Individuals should be independent and self-reliant.
- Individuals should be able to cope with stress.
- Individuals should be able to adapt to new situations.
- Individuals should have an accurate perception of reality.

Though the list is focused on positive goals it has been criticised as being subjective. People from different cultures might feel that the ideals of autonomy and independence are far from ideal and represent instead isolation. Recently, a group of psychologists including Martin Seligman (who came up with the 7 features of abnormality in 1989 with David Rosenhan) have developed a discipline within psychology called 'positive psychology', looking at how, why and under what conditions positive emotions and character traits flourish and prevent mental health problems. (See Seligman and Csikszentmihalyi, 2000, and Peterson and Seligman, 2004). They asked, 'Can psychologists take what they have learned about the science and practice of treating mental illness and use it to create a practice of making people lastingly happier?' (Seligman et al., 2005).

Petersen and Seligman (2004) argue that their classification of character strengths and virtues is a positive complement to the various editions of the Diagnostic and Statistical Manual of Mental Disorders. See their table below:

Table 1
Classification of 6 Virtues and 24 Character Strengths (Peterson & Seligman, 2004)

Virtue and strength	Definition
1. Wisdom and knowledge	Cognitive strengths that entail the acquisition and use of knowledge
Creativity	Thinking of novel and productive ways to do things
Curiosity	Taking an interest in all of ongoing experience
Open-mindedness	Thinking things through and examining them from all sides
Love of learning	Mastering new skills, topics, and bodies of knowledge
Perspective	Being able to provide wise counsel to others
2. Courage	Emotional strengths that involve the exercise of will to accomplish goals in the face of opposition, external or internal
Authenticity	Speaking the truth and presenting oneself in a genuine way
Bravery	*Not* shrinking from threat, challenge, difficulty, or pain
Persistence	Finishing what one starts
Zest	Approaching life with excitement and energy
3. Humanity	Interpersonal strengths that involve "tending and befriending" others
Kindness	Doing favors and good deeds for others
Love	Valuing close relations with others
Social intelligence	Being aware of the motives and feelings of self and others
4. Justice	Civic strengths that underlie healthy community life
Fairness	Treating all people the same according to notions of fairness and justice
Leadership	Organizing group activities and seeing that they happen
Teamwork	Working well as member of a group or team
5. Temperance	Strengths that protect against excess
Forgiveness	Forgiving those who have done wrong
Modesty	Letting one's accomplishments speak for themselves
Prudence	Being careful about one's choices; *not* saying or doing things that might later be regretted
Self-regulation	Regulating what one feels and does
6. Transcendence	Strengths that forge connections to the larger universe and provide meaning
Appreciation of beauty and excellence	Noticing and appreciating beauty, excellence, and/or skilled performance in all domains of life
Gratitude	Being aware of and thankful for the good things that happen
Hope	Expecting the best and working to achieve it
Humor	Liking to laugh and tease; bringing smiles to other people
Religiousness	Having coherent beliefs about the higher purpose and meaning of life

Peterson and Seligman's Character Strengths and Virtues is extensive and has empirical cross-cultural support (see Seligman et al., 2005) but nonetheless could be open to debate. For example, some might argue that many of the character strengths are dependent on good physical health and a certain amount of control over one's own life.

> Ask Yourself
>
> Do you think psychological disorders are harder to diagnose compared to a medical disorder? Why? Why not?

1.2 Classification Systems

As mentioned above, manuals of diagnostic criteria have been developed to try and help mental health professionals distinguish between normality and abnormality. The four that you will need to know something about are:

Name	Date of most recent edition	Published by	Comments

Diagnostic and Statistical Manual of Mental Disorders (DSM)	May 2013, 5th edition (DSM 5)	American Psychiatric Association	Used in the USA, South America and parts of Africa and Asia. A recent update has caused controversies, which will be discussed as we come to them.
International Classification of Diseases (ICD)	2010, 10th edition (ICD-10)	World Health Organization	Used in Europe. The 11th edition is now being developed.
Chinese Classification of Mental Disorders	2001, 3rd edition (CCMD 3)	Chinese Society of Psychiatry	Used in China. Written in Chinese and English and has about 40 culturally-related diagnoses.
Great Ormond Street criteria	Continually updated	Great Ormond St Children's Hospital in London, UK	Developed especially for children.

The development and use of these manuals will be examined in the next sections.

1.3 The Role of Clinical Biases in Diagnosis

Clinical biases - culture

Different cultures have different criteria for judging what is normal and abnormal and different ways of explaining abnormal behaviour. For example, the main problems with the cross-cultural diagnosis are culture-bound syndromes that do not exist outside of their own society; mental health professionals' culture blindness and cultural stereotypes; reporting bias; and symptoms that vary cross-culturally.

Culture-bound syndromes

If a particular abnormal behaviour or mental disorder does not exist outside the culture of a patient, and they come to a psychiatrist or psychologist who is not from their culture, then the clinician will not have the tools with which to diagnose and will be as puzzled as anyone else, unless they have taken care to inform themselves about mental disorders from different cultures. This may well result in a misdiagnosis and mistreatment.

Different cultures have different criteria for judging what is normal and abnormal, and different ways of explaining abnormal behaviour.

Two examples of culture-bound syndromes are:

- amok or mata elap: (Malaysia) which is characterised by a period of brooding followed by an outburst of violent, aggressive, or homicidal behaviour directed at people and objects. The episode tends to be precipitated by a perceived insult and seems to be prevalent only among males. It is sometimes the first symptom of a serious mental disorder.
- shenjian shuairuo: (Chinese) equivalent to a diagnosis of ‘neurasthenia’. Symptoms include physical and mental fatigue, dizziness, headaches and other pains, difficulty concentrating, sleep disturbance and memory loss. Other symptoms include gastrointestinal problems, sexual dysfunction, irritability, excitability, and various signs suggesting disturbances of the autonomic nervous system. Very similar to the Western diagnosis of the major depressive disorder, but often without the lowered mood.

The American Psychiatric Association has not included a comprehensive list of culture-bound syndromes in the DSM-5, though some cultural syndromes are detailed in the Appendix of the manual. Instead, the criteria for each disorder have been updated where relevant to reflect cross-cultural variations in presentations, and to give more detailed and structured information about cultural concepts of distress. They explain with two examples:

- Uncontrollable crying and headaches are symptoms of panic attacks in some cultures, while difficulty breathing may be the primary symptom in other cultures.
- The criteria for social anxiety disorder now include the fear of ‘offending others’ to reflect the Japanese concept in which avoiding harm to others is emphasised rather than harm to oneself (APA, 2013a).

While this widens the criteria and makes them more sensitive, it does not solve the problem of totally different disorders being present in some cultures. An important thing to note is that all disorders are culture-bound, including all Western disorders, as they arise in a cultural context. No psychological disorder can escape a cultural influence.

> Focus on Research

A study illustrating how cultural stereotypes can lead to a clinical bias in diagnosis was conducted by Burr (2002) in the UK. She investigated how cultural stereotypes of women from South Asian communities affected mental health care professionals' explanations for patterns of suicide and depression. Burr noted that low rates of treated depression and high rates of suicide in women from some South Asian communities are evident in data from the UK. Burr argued that explanations for these apparent differences are likely to be located in stereotypes of 'repressive' South Asian cultures. She conducted qualitative research using focus groups and individual interviews to determine if there were cultural stereotypes about South Asian communities. Participants were mental health carers from a UK inner city area of relatively high social deprivation. Focus group interviews were conducted with a range of mental health care professionals who worked in both inpatient and outpatient mental health care services. In addition, individual interviews were conducted with consultant psychiatrists and general medical doctors.

Analysis of data from the interviews suggests that health carers held cultural stereotypes. The South Asian culture was perceived as repressive, patriarchal (patriarchal = dominated by males) and inferior to a western cultural ideal. Burr contended that these stereotypes have the potential to misdirect diagnosis.

Culture blindness and cultural stereotypes

As was outlined earlier, there are cross-cultural differences in what is perceived as abnormal behaviour. It is not uncommon for example, in some cultures, to see or hear deceased relatives. So, this should not always be considered as a symptom of a psychological disorder. Studies in New Zealand show that the Maori and Pacific Islanders have different definitions from the New Zealanders from a European background for what is and is not a mental health issue. Using the DSM-IV (APA, 1994), affective disorders account for only 16% of diagnoses given to Maori mental health patients (compared with 30% for Europeans), whereas 60% of diagnoses of Maoris were for schizophrenia, compared with 40% for Europeans (Tapsell and Mellsop, 2007, cited in Law et al., 2010). The symptoms presented by Maoris are normal in their culture – seeing or hearing the deceased, mental withdrawal when feeling at a disadvantage – but can be interpreted as symptoms of schizophrenia by psychiatrists with a lack of cultural understanding.

Focus on Research

Tapsell and Mellsop (2007) conducted a meta-study of research investigating the diagnosis and treatment of Mâori, an indigenous people of New Zealand. Studies were reviewed in terms of methodology, findings and implications.

In some psychiatric settings, the authors noted that Maoris were more likely to present with hallucinations and aggression rather than depression and episodes of self-harm. Studies of prisons and community-based samples reported that Mâori were less likely to access care and, when given a diagnosis of depression, less likely to be prescribed antidepressant medication. The rates of depression were significantly higher in Mâori (women), and Mâori were also overly represented in those experiencing anxiety and substance misuse disorders.

The researchers concluded that these differences between Mâori and non- Mâori in New Zealand might reflect actual differences between certain ethnic and cultural groups, or they may reflect inadequacies on the parts of non- Mâori healthcare workers, their diagnostic tools and the services in which they operate, in catering for Mâori patients.

Reporting bias

Reporting bias occurs when data is gathered about a particular disorder based on hospital admissions. Actual cases of the disorder may not be properly diagnosed or particular cultural groups may avoid seeking the help of mental health care professionals. For example, Chinese patients may present with physical symptoms (Yeung and Kam, 2006). Some ethnic groups may not have full access to mental health care because of their socio-economic status (Tracy, 2017).

Cross-cultural variations in symptoms

The symptoms of the mental disorders in the two main manuals (DSM-5 and ICD-10) are not necessarily the symptoms that will be present in patients from ethnic minority groups. For example, people from East Asia (especially China) will exhibit more somatic (physical) symptoms when depressed than their western counterparts and another example is that black patients in the UK with bipolar disorder (called manic depression in the UK) report fewer suicidal thoughts and more manic episodes, which leads them to sometimes be diagnosed with schizophrenia instead (Kirov and Murray, 1999). See this link to an article by Ethan Watters in the New York Times, on both cross-cultural and historical variations in symptoms and what is classified as a mental disorder.

Haroz et al. (2017) investigated cultural bias in the DSM-5 by conducting a review of qualitative studies into cultural differences in depression worldwide. They argued that the criteria and standard measuring scales and questionnaires based on DSM-5 are not culturally sensitive enough to diagnose depression cross-culturally.

Confirmation bias

You will recall from Chapter 5 that confirmation bias is a tendency to search for or interpret information in a way that confirms one's preconceptions. In the area of abnormal psychology, confirmation bias occurs when psychologists and psychiatrists interpret behaviour as fitting in with their original diagnosis of the disorder and ignore any behaviour that does not.

More recent research supports the theory. Parmley (2006) found confirmation bias to be powerful and ubiquitous (ubiquitous = universal and pervasive).

> Focus on Research
>
> Mendel et al. (2011) investigated the process of diagnosis to determine how prone mental health professionals are to confirmation bias. They observed that errors can have tremendous consequences with one wrong decision leading to others. A decision task was given to 75 psychiatrists and 75 medical students. They found that 13% of psychiatrists and 25% of medical students showed confirmation bias when searching for new information after having made a preliminary diagnosis. A significant number of participants were less likely to change their original diagnosis after searching for conformity information than those who searched for information that challenged the original diagnosis.
>
> Psychiatrists conducting a confirmatory search for information that supported their diagnosis made a wrong diagnosis in 70% of the cases compared to 27% or 47% for a contradictory information or balanced information search. Participants choosing the wrong diagnosis also prescribed different treatment options compared with participants choosing the correct diagnosis.
>
> The researchers' conclusion was that confirmatory information search carries with it the risk of

wrong diagnostic decisions. Psychiatrists should be aware of confirmation bias and instructed in techniques to reduce bias.

1.4 Validity and Reliability of Diagnosis

Validity and reliability of diagnosis are closely related to having an understanding of what is normal or abnormal behaviour and to the use of the classificatory systems. A diagnosis is usually required before anyone can be treated, and therefore it is important to get it right.

Validity

A valid diagnosis is when a diagnosed person really has a particular disorder as defined by the diagnostic classification systems. The problem is that it is difficult to establish this without using a system, and systems all vary to a lesser or greater extent. A term like major depressive disorder refers to a collection of symptoms that vary between the three main manuals. The issue of validity is especially important when there are no biological diagnostic tests for the disorder.

One controversial issue is how to distinguish between a normal response to a life event and the presence of a psychological disorder. For example, depression is a normal response to bereavement (bereavement = mourning for the death of a loved one) and trauma. In the DSM IV-text revised edition (APA, 2000), depression after the loss of a loved one was only diagnosed as a major depressive disorder if the depression had continued for longer than two months. In the new DSM-5, the reference to bereavement has been withdrawn, with the result, according to critics, that grief and anxiety will be classified as mental illnesses. (See, for example, http://www.bbc.co.uk/news/health-20986796). Revision of the classifications implies a revision of the symptoms and changing the validity of past diagnoses.

Focus on Research

Rosenhan's famous 1973 study aimed to determine whether the sane can be distinguished from the insane and if the salient characteristics that lead to diagnosis reside within the patients themselves or within the environments and contexts in which observers find them. His study was a covert participant observation. The participants were the staff and the patients of twelve psychiatric hospitals in a variety of US states.

Procedures: Eight pseudopatients (pseudopatients = not real), including Rosenhan, attempted to gain admittance to 12 psychiatric hospitals in a variety of states by calling the hospital for an appointment and then complaining they had been hearing voices saying 'thud', 'empty' and 'hollow'. Apart from changing their names and disguising their professions in some cases, all other details of their history presented by the patients were accurate and truthful. Once admitted to a hospital, the pseudopatients behaved normally and cooperated with all procedures and directions. They took detailed notes in an open and transparent manner.

In four of the hospitals, the pseudopatients carried out an observation of the behaviour of staff towards patients that illustrated the experience of being hospitalised on a psychiatric ward. The pseudopatients approached a staff member with a request, which took the following form: 'Pardon me, Mr/Mrs/Dr X, could you tell me when I will be presented at the staff meeting?' or 'Can you tell me when I am likely to be discharged?'

To compare the results, Rosenhan carried out a similar study at Stanford University Hospital with students asking university staff a simple question about admissions, directions, etc. All the pseudopatients except one were admitted with a diagnosis of schizophrenia. The other was

admitted with ‘manic-depressive psychosis’. It took between 7 and 52 days for them to be released, with an average hospital stay of 19 days. When released they were not judged as ‘cured’, instead, the schizophrenia was seen as being in remission (remission = a decrease in the severity of symptoms). The patients on the wards often recognised that the pseudopatients were sane when the staff did not. Despite their public show of sanity, the pseudopatients were never detected by the staff. Fellow patients, however, frequently noted the sanity of the pseudopatients and commented on it openly.

The pseudopatients noted that the staff did not mix with the patients, avoided spending time with them, did not make eye contact or respond to their questions. This was in direct contrast to the behaviour of staff at Stanford University when stopped by strangers and asked for directions, advice etc.

Follow-up study: In the light of these findings it was also important to determine if the insane could be judged sane. A follow-up study was therefore conducted at a research hospital where the staff doubted that such an error could be made at their hospital. The staff was told that over the next three months one or more pseudopatients would attempt to gain admission to the hospital. Members of staff were asked to rate each patient who presented themselves for admission on a 1–10 scale, with 1 or 2 indicating a strong confidence that the patient was a pseudopatient. Of the 193 patients admitted, 41 were alleged with high confidence to be pseudopatients, 23 were considered suspect by at least one psychiatrist and 19 were considered suspect by one psychiatrist and another staff member. There were in fact no pseudopatients.

Conclusions: This study revealed that the diagnostic process is prone to errors. The diagnosis appears not to depend on the sanity or insanity of the patients themselves but on where they find themselves. Once labelled with schizophrenia, it was impossible for the pseudopatients to rid themselves of this label. The label profoundly affects the way others regarded them and treated them. Rosenhan concluded that once a person is designated as abnormal, that diagnosis colours all other perceptions of that person and his/her behaviour. The pseudopatients’ normal behaviour was overlooked or misinterpreted. A psychiatric label has a life and influence of its own. The behaviour of the patients was attributed to their own pathology, not to the routines and restrictions of hospital life or the way they were treated by staff. Even note taking was seen as a symptom of a psychiatric disorder.

Rosenhan's conclusions show how confirmation bias influenced diagnosis. Once people are diagnosed, then behaviour that seems to confirm that diagnosis is attended to and anything that doesn’t is ignored. Staff ignored the fact that once admitted, the pseudo-patients all said they no longer heard voices. Instead, they paid excessive attention to other behaviours that were then misinterpreted as confirming their diagnosis.

Rosenhan notes that there is an enormous overlap in the behaviours of the sane and the insane. We all feel depressed sometimes, have moods, become angry and so forth, but in a psychiatric hospital, these everyday human experiences and behaviours were interpreted as pathological. He also observed that psychiatric labels even when they are invalid are ‘sticky’ as a diagnosis would cling to a person for life, influencing every aspect of their existence.

Rosenhan's study was groundbreaking because it provided evidence that the situation affected the diagnosis of mental illness rather than symptoms of the illness itself. This study also revealed that the diagnosis of a mental illness acted as a self-fulfilling prophecy, affecting the family and friends of the patient and the patient themselves. The patient could never be cured of schizophrenia but would be discharged with schizophrenia in remission. The study also revealed that the stigma of mental illness was active amongst the hospital staff responsible for the diagnosis, treatment and

> care of the mentally ill. These attitudes are all the more harmful because they are unconscious. Later Rosenhan in this interview observed that mental health nurses were doing the best they could, but they needed to be reminded that patients are not just a 'collection of symptoms' but are real people with spouses, mortgages, families and friends. This study also highlights the problem of the validity of diagnosis, which in this case was non-existent. The symptoms the pseudopatients described (hearing voices saying 'thud', 'empty' and 'hollow') are not part of the criteria for schizophrenia in any of the manuals, and those admitted as suffering from this disorder were not suffering from anything except a misdiagnosis.

Face validity

Face validity is when criteria appear to measure what they say they do. ADHD as an abnormal behaviour has good face validity, in that the criteria describe the behaviour involved in what is accepted cross-culturally by clinicians as ADHD (Canino and Alegria, 2008). However, the problem with criteria with clear face validity is that they are more vulnerable to a social desirability bias. Individuals may manipulate their response to deny or hide problems, or exaggerate behaviours in order to fall within the criteria.

Construct validity

Construct validity is to do with whether the diagnostic test administered can be used to support the diagnosis. Can psychologists be sure that the questions asked are valid for the disorder being tested? The only way to do this is to test the questionnaires with patients who have already been diagnosed using other measures, and look for consistency. The psychologist Aaron Beck did this with his Beck's Depression Inventory, version 2, using 210 psychiatric outpatients, and found a high level of agreement with other scales. The criteria he used were a mixture of those found in the OCD and DSM manuals, plus agitation, concentration difficulty, worthlessness and loss of energy (Beck, 1967). He found that the questions used had high construct validity, in that those already diagnosed through other measures as having depression, also fit the criteria with their answers to his inventory.

Psychological literature exposes a number of biases that can influence one's judgment (e.g., pathology bias, confirmatory bias, hindsight bias, misestimation of covariance, decision heuristics, false consensus effect and over-confidence in clinical judgment). Clinical judgment, the subjective method of arranging client data to establish a diagnosis and a treatment plan, can also be biased and may lead to inaccurate assessment and inefficient treatment. Taking repeated measures of symptoms, similar to the single subjects research design used in the behavioural sciences, may lead to better therapy because it reduces judgment bias.

Reliability

Reliability is basically accuracy. The two most important forms of reliability when it comes to diagnosis are inter-rater reliability and test-retest reliability.

Inter-rater reliability

Inter-rater reliability is when another mental health professional, preferably without knowing the original diagnosis and using the same classification system, comes to the same conclusion about a patient. Inter-rater reliability from one psychologist to the next can be low because disorders overlap. For example, depression and anxiety disorders have many of the same symptoms.

Test-retest reliability

This is the reliability of diagnosis over time. Disregarding those re-diagnoses that are due to changing classifications, a patient who is diagnosed by a psychiatrist with a certain disorder should, if they have not

recovered, be diagnosed with the same disorder by the same clinician at any future date. The diagnosis should not change. Think of the Rosenhan study: if the mental health staff had reinterviewed the participants immediately after their admission, they should have discharged all of them. If they were admitted because they heard voices, then hearing no voices would logically be sufficient for discharge.

However, as Rosenhan points out, diagnostic labels are ‘sticky’ and all subsequent behaviour becomes interpreted in the light of the original diagnosis (1973, p. 257).

Ethical considerations

As can be seen in the previous examples and discussion, there is a large overlap between cultural and ethical considerations in diagnosis. Those not diagnosed, misdiagnosed or mistreated because of their culture are already being treated unethically. Central issues in the ethics of diagnosis are stigmatisation, self-fulfilling prophecy and confirmation bias.

Stigmatisation

The word stigma refers to shame or disgrace associated with something most people in society see as socially unacceptable. Therefore, stigmatisation of those with a mental disorder is treating them as if they should be ashamed, as if they are in disgrace, because to have a mental disorder is socially unacceptable. Before we say to ourselves that we would never do that, think about if your teacher revealed that they had previously been hospitalised for depression, or your sports coach said that they function much better when on their medication for their bipolar disorder. The very fact that this information is much less likely to be revealed than that concerning a physical problem already shows that there is a stigma attached to it. After all, your reaction if your teacher mentions, ‘Oh, yes, I broke my collar bone last year,’ is likely to be much less strong than your reaction to their previous depression.

Goffman (1961) wrote about the stigmatising consequences for the individual of labelling a particular action or pathological state as deviant, and Rosenhan’s (1973) study shows how once labelled, a person’s actions are all framed within that label.

More recently, researchers have described the experience of stigmatisation at the level of the individual, and differentiated between: self-imposed stigma due to shame, guilt and low self-esteem; socially imposed stigma due to social stereotyping and prejudice; and structurally imposed stigma, caused by policies, practices and laws that discriminate against the mentally ill.

> Focus on Research
>
> Schwenk et al. (2010) investigated the concerning prevalence of depression and suicidal thoughts among medical students, a group that may experience poor mental health care due to stigmatisation. The study was conducted in 2009, covering all students enrolled at the University of Michigan Medical School. A little more than 65% participated in the survey—505 students out of 769 enrolled. Their aim was to examine the perceptions of depressed and non-depressed medical students regarding the stigma associated with depression.
>
> Outcomes of the study revealed that 14.3% of the students were identified as having moderate to severe depression, higher than the 10–12% range found in the population at large. The results also revealed that 53.3% of medical students who reported high levels of depressive symptoms were worried that revealing their illness would be risky. Almost 62% of the same students said asking for help would mean their coping skills were inadequate.

> The researchers suggested that new approaches may be needed to reduce the stigma of depression and to enhance its prevention, detection and treatment. ‘The effective care of mental illness, the maintenance of mental health and effective emotional function, and the care of professional colleagues with mental illness could be taught as part of the ethical and professional responsibilities of the outstanding physician and become a critical component of the teaching, role modelling, and professional guidance that medical students receive as part of their curriculum in professionalism’ (Schwenk et al., 2010, p. 1189).

Self-fulfilling prophecy

A self-fulfilling prophecy is a process by which expectations of other people or groups lead those persons or groups to behave in ways that confirm those expectations. When we are labelled as something, the self-fulfilling prophecy theory would argue that we internalise this label and our belief that we are really ‘depressed’, ‘manic’, or even just ‘different’ means that we act in a way that makes this label, and the attached prediction about our behaviour, come true. In other words, the belief makes reality conform to the belief. While we may not become depressed merely by being labelled depressed, knowing that we are depressed may make us isolate ourselves and feel powerless to change our situation.

> Ask Yourself
>
> Are there stereotypes about abnormal behaviour in your community?

1.5 Assessment Advice

The essay titles for Paper 2 will only use command terms that correspond to assessment objective 3. These are:

Contrast	Give an account of the differences between two (o more) items or situations, referring to both (all) of them throughout.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.
Evaluate	Make an appraisal by weighing up the strengths and limitations.
To what extent?	Consider the merits or limitations of an argument concept. Opinions and conclusions should be presented clearly and supported with appropriate evidence and sound argument.

QUESTION	STUDY
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating factors influencing diagnosis	Any two studies listed below are suitable for these ERQs
Ethical considerations of research into factors influencing diagnosis	Any two studies listed below are suitable for these ERQs
Factors influencing diagnosis	There could be a question here on the role of biological factors or cognitive or sociocultural factors influencing diagnosis. Cognitive factors are addressed in the topic of clinical biases. Biological and sociocultural factors are addressed in the section on the etiology of disorders.
Normality versus abnormality	Szasz (1960) Wakefield (2007) Jahoda (1958) Petersen and Seligman (2004)
Classification Systems	DSM and the ICD
The role of clinical biases in diagnosis	Burr (2002) Tapsell and Mellsop (2007) Mendel et al. (2011)
Validity and reliability of diagnosis	Rosenhan (1973) Schwenk et al. (2010) Pies (2007)

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2. Etiology of Abnormal Psychology

2.1 Etiology of Major Depressive Disorder

MDD is an example of an affective disorder which are disorders related to mood. See the DSM-5 criteria below:

DSM-5 criteria for major depressive disorder (MDD)

- Depressed mood or a loss of interest or pleasure in daily activities for more than two weeks.
- Mood represents a change from the person's baseline.
- Impaired function: social, occupational, educational.
- Specific symptoms, at least five of these nine, present nearly every day:

1. Depressed mood or irritable most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful).
2. Decreased interest or pleasure in most activities, most of each day.
3. Significant weight change (5%) or change in appetite.
4. Change in sleep: insomnia or hypersomnia.
5. Change in activity: psychomotor agitation or retardation.
6. Fatigue or loss of energy.
7. Guilt/worthlessness: feelings of worthlessness or excessive or inappropriate guilt.
8. Concentration: diminished ability to think or concentrate, or more indecisiveness.
9. Suicidality: thoughts of death or suicide, or has a suicide plan. (APA, 2013b)

For the purposes of the IB Diploma, we will be examining major depressive disorder (MDD). We will start by describing the major symptoms of this disorder and then examine theories about its biological, cognitive and sociocultural causes. (Etiology refers to the study of the causes of a disorder.)

> Ask Yourself
>
> Do you find any of these symptoms surprising?

The biological approach

Areas of interest to psychologists taking a biological approach to MDD have been genetic influences and biochemical imbalances.

Genetic influences and MDD

The risk of MDD rises if you have a parent or sibling with the disorder (Sullivan et al., 2000). If one identical twin has MDD, then there is an approximately 50% chance that at some time the other twin will also be diagnosed with it. Kendler et al. (2006) conducted a huge study in Sweden, with personal interviews of 42,161 twins, including 15,493 complete pairs, from the national Swedish Twin Registry. The researchers estimated the heritability of MDD at 35-40%, with heritability being significantly higher in women than men (42% to 29%).

They found that twin pair resemblance for lifetime MDD was not predicted by the number of years the twins had lived together in the home of origin or by the frequency of current contact. This tends to support the idea of a biological, rather than a sociocultural etiology.

This leads to the question as to why women should be so much more likely than men to inherit a predisposition (predisposition = tendency) to MDD, which is something that is not answered in the biological research. This gender imbalance in the incidence of MDD is something we will address when we look at sociocultural factors in etiology.

> **Focus on Research**
>
> Kendler et al. (2006) conducted an extensive Swedish twin study with 15,493 complete twin pairs listed in the national twin registry. You first read about this study in Chapter 4.
>
> The researchers used telephone interviews over 4 years to diagnose major depressive disorder (MDD) based on (a) the presence of most of the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) symptoms, or (b) having had a prescription for antidepressants.
>
> The researchers found an average concordance rate for MDD across all twins was 38%, in line with previous research. They also found no correlation between the number of years that the twins had lived together and lifetime major depression, suggesting this was a true heritability rate. The rate among female monozygotic twins was 44% and amongst males, 31%, compared with 16% and 11% for female and male dizygotic twins respectively.
>
> If the disorder was purely genetic, we might expect the monozygotic concordance rates to be much higher. But the difference between monozygotic and dizygotic concordance rates is enough to indicate a strong genetic component.
>
> The findings suggest that the heritability of MDD is higher in women than in men and that some genetic risk factors for MDD are sex-specific.
>
> Biopsychologists often use correlational studies (twin and family/kinship) like this to investigate the heritability of MDD.

In an effort to try to determine the genes that put people at risk of developing MDD, some researchers have turned to linkage analysis. This involves finding families in which MDD has appeared across several generations and then examining the DNA from affected and unaffected family members, looking for differences (Plomin and McGuffin, 2003).

The study by Risch et al. (2003) shows how far psychologists and biologists have to go in trying to identify a role for any particular gene in MDD.

Focus on Research

Risch et al. (2009) investigated the genetic background to MDD and found that a certain gene variation long thought to increase risk in conjunction with stressful life events actually may have no effect. This serotonin transporter gene (5HTTLPR) was argued in a 2003 study by Caspi et al. to increase the risk of major depression in people who had a number of stressful life events over a five-year period. However, attempts to replicate these findings have had inconsistent results.

To examine whether the 2003 study's finding could be confirmed, Risch et al. reviewed relevant replication studies. The researchers did a meta-analysis, re-analysing data on 14,250 participants in 14 studies published from 2003 to 2009. Of these, the researchers also re-analysed original data, including unpublished information, on 10,943 participants from ten studies published before 2008. The data was re-analysed to see whether there were associations between the serotonin transporter gene, stressful life events and depression.

By applying the same methods used in the 2003 study, the researchers found a strong association between the number of stressful life events and risk of depression across the studies. However, the serotonin transporter gene did not show a relationship to increased risk for major depression, either alone or in interaction with stressful life events, in the analysis of the 14 studies. Recent research is still focusing on the 5HTTLPR gene, but looking at the diversity of its functions, rather than just its role with regard to serotonin.

Neurotransmission and MDD

Although there is no real clear picture concerning how depression might develop biologically, many theories have centred on the hypothesis that the transmission and reuptake of neurotransmitters, especially serotonin, dopamine and noradrenaline, underlie depression. These neurotransmitters are known collectively as the catecholamine neurotransmitters, or sometimes as monoamine oxidase (MAO) transmitters. This theory was proposed in the mid-1950s, after researchers found that drugs that affected the release and breakdown of these transmitters had varying effects on mood (Gross, 2010, p. 708). This was a huge turning point as previous treatments for depression had often involved long periods in mental institutions, undergoing such treatments as insulin comas, ECT or ‘sleep cures’. (See López-Muñoz and Alamo, 2009, for a fascinating history of the treatment for depression.)

In 1965, Schildkraut put forth the hypothesis that depression was associated with low levels of noradrenaline, and later researchers theorised that serotonin was the neurotransmitter of interest (Coppen et al., 1967). The (rather reductionist) theory that depression was caused by a lack of certain neurotransmitters, led to the development of antidepressant drugs, hailed as a major breakthrough in the treatment of MDD. A large amount of research demonstrated the effectiveness of a new drug, fluoxetine (marketed initially as Prozac), that was developed in 1988 as a replacement for the older antidepressants (tricyclics and monoamine oxidase inhibitors [MAOIs]) that targeted the enzyme monoamine oxidase, preventing it from breaking down the neurotransmitters, and so allowing them to remain active in the synaptic gap for longer.

Fluoxetine and similar drugs are selective/specific serotonin reuptake inhibitors. Because they have been successful in treating MDD, a stronger link has been established between low levels of serotonin and depression (Davison and Neale, 2001).

However, although the ‘neurochemical’ theory of depression is the longest-standing of the biological theories and the main antidepressants have an effect on levels of serotonin and noradrenaline, by the time the drugs’ effects are felt (which can be about four weeks) the levels have returned to their previous level,

even though the patient is feeling better. So the lack of serotonin and noradrenaline cannot be as directly implicated in the mood disorder as claimed (Gross, 2010, p. 708).

Moreover, Lacasse and Leo argue that there is no baseline 'normal' level of serotonin against which to measure a depressed person's levels, and just because aspirin cures a headache, this does not mean that the headache was caused by a lack of aspirin (2005, p. 1212). Levinson (2006) notes that the short allele on the 5-HTT gene acts the same way as Prozac – it prevents the reuptake of serotonin, but people with the short allele on this gene are **more** likely to suffer from depression. This means that a possible cause of depression and a possible cure for depression actually act the same way.

Therefore, it would be correct to assume that a lot more investigation needs to be undertaken into this area.

Cognitive approach

According to the cognitive model of the etiology of MDD, it is our thoughts and beliefs that shape our behaviour and emotions. The role of cognitive processing in emotion and behaviour is the main factor in determining how we perceive, interpret and assign meaning to an event ('It is not what happens to you, it is how you feel about it.'). According to the cognitive approach, psychological distress is dependent on your personality as shaped by schemas, cognitive structure and your assumptions, acquired through your life experience and your interpretation of that experience.

The most prominent psychologist associated with this theory is Beck, who proposed that depression results when people's attributions for external events are based on maladaptive beliefs and attitudes. Beck (1967) argued that deviation from logical and realistic thinking was found at every level of depression. Some typical themes are found in the ideas of depressed patients that differ significantly from that of non-depressed individuals. Themes of low self-evaluation, ideas of deprivation, exaggeration of problems and difficulties, self-criticism, self-command and wishes to escape or die are commonly found among people with MDD. This cognitive vulnerability is a high-risk factor for depression.

The cognitive model of depression assumes three specific concepts that result in cognitive vulnerability:

- the cognitive triad—a negative view of oneself, the world and the future;
- schemas—patterns of maladaptive thoughts and beliefs;
- cognitive errors—faulty thinking accompanied by negative and unrealistic representations of reality (Beck, 1967 and 1979).

Cognitive Triad—a pattern of reportable depressive thoughts that consist of:

- A negative view of the self which is perceived as deficient, inadequate, or unworthy. Depressed people see themselves as inadequate, incapable of success and always as a victim of circumstances.
- A negative view of the world, as interactions with others and life, in general, are perceived as difficult or hopeless. Depressed people consider all past and present experiences through a lens of negativity, constantly emphasising defeats and failures, and showing a victim mentality.
- A negative view of the future in that current difficulties or suffering are seen as continuing indefinitely. When depressed people view the future, they see only despair and hopelessness.

Schemas—maladaptive beliefs and attitudes that become active when we are under stress, especially during bad circumstances. In other words, it is how we interpret the world around us and how we assign positive and negative meaning to whatever happens to us.

Cognitive Errors—these are also known as cognitive distortions. They are inaccurate thoughts that are usually used to reinforce negative thinking or emotions — telling ourselves things that sound rational and accurate, but really only serve to keep us feeling bad about ourselves. For instance, a person might tell themselves, 'I always fail when I try to do something new; I, therefore, fail at everything I try.' This is an example of 'black or white' (or polarised) thinking. The person is only seeing things in absolutes — that if they fail at one thing, they must fail at all things. If they added, 'I must be a complete loser and failure' to their thinking, that would also be an example of overgeneralisation — taking a failure at one specific task and generalising it to their very self and identity. Grohol (2009) lists 15 common cognitive distortions, of which polarised thinking and overgeneralisation are just two.

Focus on Research

A recent study by Haeffel and Hames (2013) investigated if changes in cognitive vulnerability would occur during major life transitions, such as starting college. They tested the hypothesis that cognitive vulnerability could change via a contagion effect. In other words, the negative cognitive thought patterns associated with vulnerability to depression could be 'caught' from one's roommate. They tested this hypothesis with a sample of randomly assigned college roommate pairs (103 pairs of students new at college) and found that participants who were randomly assigned to a roommate with high levels of cognitive vulnerability were likely to 'catch' their roommate's cognitive style and develop higher levels of cognitive vulnerability. Moreover, those who experienced an increase in cognitive vulnerability had significantly greater levels of depressive symptoms over the time of the study than those who did not.

Beshai et al. (2012) conducted a cross-cultural study of depressed individuals in Canada (186 participants) and Egypt (150 participants) to test Beck's (1979) cognitive triad theory, which states that depressed individuals hold negative, automatic thoughts about the self, the world and the future. Despite the central role in Beck's theory of the cognitive triad, it has rarely been tested cross-culturally.

This study examined the relationship between feeling unhappy over a long period and a number of inventories designed to assess negative cognitions. Unhappy and anxious individuals in both countries harboured significantly more negative thoughts towards self, world and future than a control group. Additionally, Egyptian participants showed significantly more negative thoughts toward self and the world than their Canadian counterparts even after controlling for feelings of unhappiness. This research supports the cross-cultural validity of the cognitive theory for MDD.

To summarise, cognitive theories assume that people's attributions for events, their perceptions of control and self-efficacy, and their beliefs about themselves and the world influence their behaviours and emotions when reacting to a situation. In general, an individual with various maladaptive beliefs and attitudes becomes more vulnerable to depression because of his or her generalised negative belief pattern.

Sociocultural factors

Psychologists taking a sociocultural approach focus on the role played by social and cultural factors in the development of MDD. According to the statistics, after the age of 15, girls and women are twice as likely as boys and men to be diagnosed with the major depressive disorder (see Nolen- Hoeksema and Girgus, 1994). While biologists have pointed at hormone differences related to the menstrual cycle as likely triggers for depression, sociocultural psychologists have argued that adolescence for girls is a time of restrictions on their choices and devaluation based on their gender. Coupled with the social pressure on females to

internalise feelings of anger and be unassertive in the face of challenges, depression seems a likely outcome (Nolen-Hoeksema and Girgus, 1994).

Poverty and isolation have also been argued to be factors in the development of MDD. Nicholson et al. (2008) found that men in the most economically and socially disadvantaged groups in Poland, Russia and the Czech Republic were five times more likely to report depressive symptoms than were richer citizens. Given that poor men and richer men share the same biology, sociocultural factors could be assumed to play a relevant role here.

Focus on Research

Nicholson et al. (2008) investigated the extent of social inequalities in depression in Eastern Europe, the relative importance of social position at different points in the life-course and whether social patterns differs between men and women.

The study was a cross-section survey of 12,053 men and 13,582 women in Russia, Poland and the Czech Republic. Participants were surveyed about three points in their lives: childhood (their access to household amenities like hot water, refrigeration etc. and the education level of their father), their education (primary, secondary, vocational and tertiary) and their current social-economic circumstances (ownership of household items, e.g. mobile phones and tv and lack of finances to buy goods and pay bills,).

Results included the following:

- The prevalence of depression was higher in women than all men in all countries.
- Men in the most disadvantaged groups were five times more likely to report high depressive symptoms.
- Men and women in all counties with few amenities and more financial difficulties were more likely to report depressive symptoms.
- Lower education was associated with depression in all counties and both sexes.

Conclusions

These results indicate that the determinants of depression may differ between stable, affluent countries in the western world and countries where economic and social conditions are more challenging.

Social circumstances are the primary influence on increased depressive symptoms of countries recently experiencing social changes.

Diathesis-stress model of etiology

A diathesis-stress model of the etiology of mental disorder sees an interaction of biological, cognitive and sociocultural factors as responsible for the disorder. For example, what we inherit from our parents is a genetic predisposition for MDD (biological). This would explain the high correlation for MDD seen in identical twins. However, it is not a perfect correlation. As the studies examined earlier showed, it is around 30% or 40%. Environmental triggers account for whether or not the inherited predisposition results in mental disorder (sociocultural).

As well as biological predispositions which are triggered environmentally, Haeffel and Hames' (2013) study of the new college students mentioned earlier shows that a stressful life event (sociocultural) and a

roommate who is cognitively vulnerable (sociocultural) can trigger cognitive vulnerability (cognitive) in those predisposed to it.

> Ask Yourself
>
> Which explanation of the causes of abnormal behaviour makes the most sense to you?

2.2 Prevalence Rates of Depression

It is very difficult to place a figure on the percentage of the world's population that are suffering at any one time from MDD. The Global Burden of Disease (2010) study tried to do this with many physical and mental disorders. Ferrari et al. (2013) explain how data was gathered to determine prevalence rates of MDD (See Focus on Research).

Gender

To summarise, the figures in the Global Burden of Disease (Spencer et al.,2017) study gave the prevalence of MDD worldwide in 2015 as 4.4%. Depression was more common among females (5.1%) than males (3.6%). Prevalence rates varied by age, peaking in older adulthood (above 7.5% among females aged 55-74 years, and above 5.5% among males).The total estimated number of people living with depression increased by 18.4% between 2005 and 2015.

- Biological factors include differences in hormones and genes.
- Cognitive factors account for why women may be more prone to lowered mood and guilt.
- Sociocultural factors include:
  - women are more likely to go to the doctor when they feel depressed;
  - male doctors, having stereotypical beliefs about women, are more likely to diagnose them as depressed;
  - women are more isolated than men, often being at home with children.

Culture

All of the cultural considerations that have already been discussed must be taken into account when evaluating prevalence data on MDD (culture blindness, reporting bias, cross-cultural variation in symptoms, etc.). The National Institute for Mental Health puts the prevalence of MDD in the United States at 6.7% and any internet search will come up with varying statistics for different regions of the world.

> Focus on Research
>
> Ferrari et al. (2013) conducted a study of the literature in order to present a global summary of the prevalence and incidence of MDD, accounting for sources of bias and dealing with heterogeneity.
>
> They undertook a systematic review of prevalence and incidence of MDD by searching electronic databases like Medline, PsycINFO and EMBASE.
>
> The results suggested that there were over 298 million cases of MDD globally at any point in time in 2010, with the highest proportion of cases occurring between 25 and 34 years of age. Prevalence was very similar across time (4.4% in 1990, 4.4% in 2005 and 2010), but higher in females (5.5%) compared to males (3.2%) in 2010.

Regions in conflict had a higher prevalence than those with no conflict. The annual incidence of an episode of MDD followed a similar age and regional pattern to prevalence but was about one and a half times higher, consistent with an average duration of 37.7 weeks.
There is a direct link between the beliefs regarding the etiology of disorders and the therapeutic approach taken to treat them.

2.3 Assessment Advice

QUESTION	STUDY
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the etiology of MDD	Any two studies listed below are suitable for these ERQs
Ethical considerations of research into the etiology of MDD (etiology of disorders)	Any two studies listed below are suitable for these ERQs
The etiology of MDD. You may be asked to discuss/evaluate/contrast two explanations of MDD.	Depends on your choice of explanations.
Biological explanations for MDD.	Kendler (2006) Risch et al. (2009)

Cognitive explanations for MDD.	Beck (1967) Haeffel & Hames (2013)
Sociocultural explanations for MDD.	Tapsell & Mellsop (2007) Nicholson et al. (2008)
Prevalence rates of MDD.	Ferrari et al. (2013) Global Burden of Disease (2017)

3. Treatment of Disorders

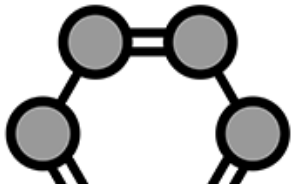
3.1 Biological Approach to Treatment

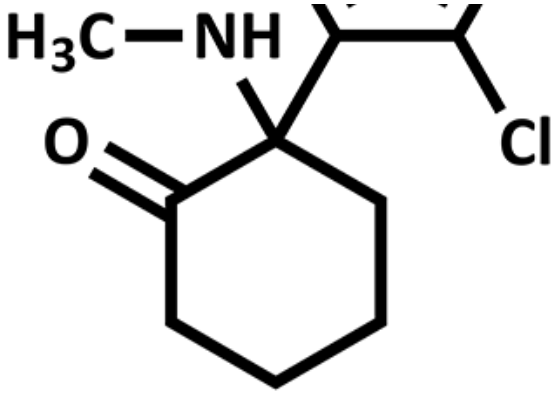
Biological (also referred to as biomedical) approaches to treatment assume that MDD is caused by malfunction of the brain, especially mechanisms involving neurotransmission. Therefore, drugs or therapy that aim to redress this insufficiency are the preferred biomedical approach.

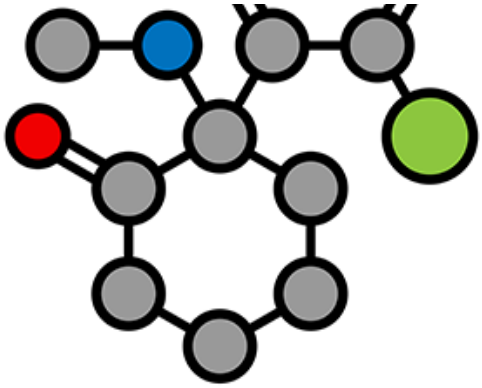
There are three main categories of drugs for MDD: two older groups—tricyclics and MAO-inhibitors are effective, but have troublesome side effects and can be lethal if misused. One of the most popular of the SSRIs is fluoxetine (Prozac). The main criticism of any drug therapy is that it treats the symptoms, but does not cure the disorder, and the medication needs to be continued for the effect to be maintained. Moreover, many drugs have significant side effects that can outweigh the benefits felt from them. On the other hand, patients do not attempt suicide as they did with earlier drugs.

It is difficult to assess the effectiveness of anti-depression medication, as we cannot know what the course of the MDD would have been if the patient had not taken the medication. One way to address this is by using trials comparing a group of patients who have taken medication for MDD and a control group who have taken a placebo. Kirsch et al. conducted a meta-analysis that suggested that there is only a small difference in efficacy between taking a placebo and taking medication (2008, cited in Law et al., 2010).

However, many new drugs are being investigated. One surprising candidate is ketamine, an anaesthetic that is also sold on the street illegally under names such as Special K. In a recent trial, it snapped people out of depression almost instantly, unlike available medications that often take weeks to work (Berman et al., 2000) and it has been used in a maintenance programme to produce long-term recovery (Messer and Haller, 2010). Ketamine acts on different neurotransmitter receptors (glutamate, rather than serotonin) than current antidepressants do. The problem is that it affects parts of the brain not related to depression, and the drug can also cause hallucinations, so may not be suitable for all patients.







Electroconvulsive therapy (ECT)

This is a kind of psychiatric therapy that involves giving a short electrical stimulus to the brain through tiny electrodes in the temples. The charge lasts from 1 to 4 seconds and it causes epileptic-like seizures to the patient. The patient is, however, anaesthetised and is given a muscle relaxant to depress breathing. Oxygen is given until the patient is able to breathe normally again. The majority of patients would receive six to twelve ECT sessions for a whole treatment, given one electrical charge per day, two or three times in a week.

Electroconvulsive therapy is sometimes used for people with MDD for whom drug treatment fails. Lapidus et al. (2013) note that a low-dose ECT treatment to the right side of the brain only has an immediate antidepressant effect, and higher repeat doses are not needed. Both drugs and ECT are often more effective when combined with psychotherapy.

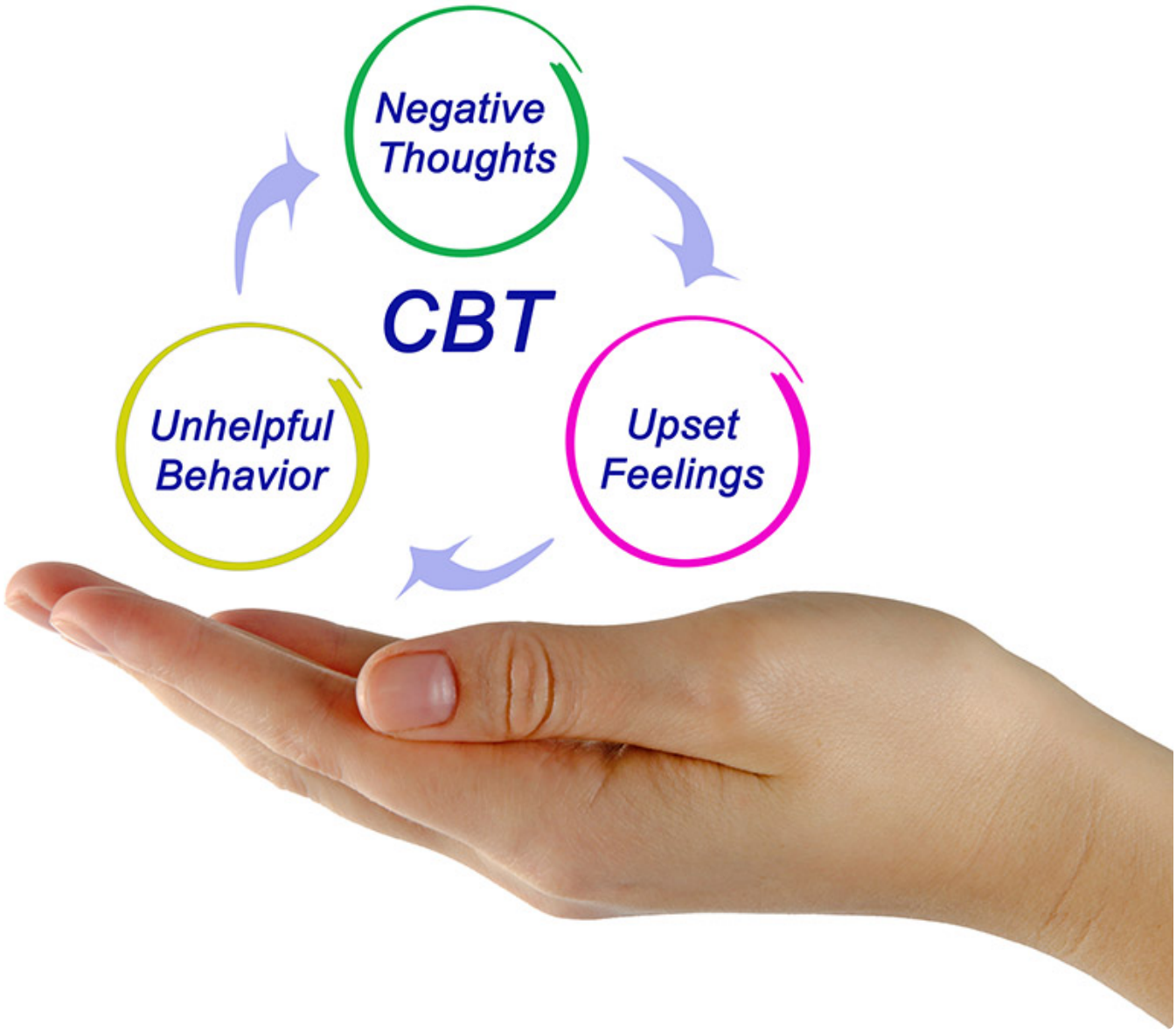
> Focus on Research
>
> Duman and Aghajanian (2012) conducted research into the changes in the neurons and in the synaptic gap during MDD. They conducted a meta-analysis of clinical studies that demonstrate that depression is associated with reduced size in brain regions that regulate mood and cognition, including the prefrontal cortex and the hippocampus, and decreased neuronal synapses in these areas. Antidepressants can block or reverse these neuronal deficits, but typical antidepressants have limited efficacy and delayed response times of weeks to months. They comment that a notable recent discovery shows that ketamine produces rapid (within hours) antidepressant responses in patients who are resistant to typical antidepressants. Basic studies show that ketamine rapidly induces synaptic gap action and reverses the synaptic deficits caused by chronic stress.

3.2 Psychological Treatments of Depression

Cognitive-behavioural therapy

Beck laid major emphasis on understanding and changing core psychological beliefs as an approach to treating depression. By restructuring negative thinking, he believed that positive changes could be made in

the depressed client. He considered the role of a therapist as crucial in the treatment. The therapist involves the client in setting realistic goals and taking responsibilities for action and thought. By changing thought and perception, a change can be brought in behaviour and emotional responses. A course is outlined to educate the client on the concept of faulty thinking. New ideas and ways of thinking are generated to develop a positive outlook on oneself, one's experiences and the environment around. Sometimes, home assignments are also given to help the depressed person review and understand the impact of faulty thinking on behaviour and emotional well-being.



Cognitive-behavioural therapy (CBT) emerged from Beck's theory as to the causes of depression. It is the most common psychological treatment for MDD. Cognitive-behavioural therapy (CBT) is a term that encompasses numerous specific treatment approaches. As the name suggests, cognitive-behavioural treatments incorporate both cognitive and behavioural strategies. With regard to depression, CBT refers to the use of both cognitive restructuring and the behavioural strategy of activity scheduling or behavioural activation. In other words, it addresses the underlying negative thoughts that lead to the depression and helps the person see that these thoughts are faulty and are responsible for their emotional state.

Beck and Weishaar (1989) believe that in order to treat MDD, clients need to treat their faulty interpretations and conclusions as testable hypotheses. The role of the therapist in a cognitive-behavioural intervention is to help the clients examine alternative interpretations and to produce contradictory evidence in order to

move to cognitive restructuring, whereby the client revises and replaces his/her faulty thoughts and beliefs. It is the thought that counts.

Cognitive-behaviour group therapy

Cognitive-behaviour group therapy (CBGT) may be defined as therapy that uses the dynamics of the group format, in addition to the common cognitive behavioural therapy techniques to change distorted, maladaptive and dysfunctional beliefs, interpretations, behaviours and attitudes (Bieling et al., 2006).

CBGT has been shown to be effective in residential settings, as well as in outpatient clinics. Hunter et al. (2012) found that CBGT was an effective treatment for major depression for clients in residential substance abuse treatment programmes, resulting in a decrease in symptoms of depression and a decrease in substance abuse after discharge. The theory behind group therapy for MDD is that people may feel more compelled to engage in group discussion than they are when alone with a therapist. They may also learn from hearing about the experiences of others in similar circumstances. If through the group they meet others who have recovered or improved, they may also feel more hopeful about their own chances of doing the same.

Eclectic approaches

An eclectic approach is an approach that combines two or more techniques for treatment. The treatment is adapted to suit the needs of the individual or group. Sometimes patients receive drug therapy in combination with psychological treatment, and half of all therapists describe themselves as taking an eclectic approach (Myers, 2010). Many combinations are possible, but the most common is drug therapy and CBT combined.

There are different types of eclectic approach. The most common is simultaneous use, which is using certain therapies at the same time. Sequential use is when one therapy follows another, and stage-oriented use is when one therapy is used at the critical stage and other(s) are introduced at the maintenance stage.

Stage-oriented therapy often involves drug use to stabilise behaviour and emotions so that the person may benefit from CBT at the maintenance stage.

Lebow (2002) gives a list of advantages of the eclectic approach:

- An eclectic approach has a broader theoretical base and therefore may be more sophisticated than an approach using only one theory.
- There is greater flexibility offered to the client, and individual therapy needs may be met.
- There is more chance of finding an effective treatment if two approaches are used in tandem.
- This approach is suitable for a wider range of clients than a single approach.
- A therapist using an eclectic approach is not biased towards one treatment theory and method, and therefore may be more objective.
- A therapist using an eclectic approach can revise and rebalance treatment according to which approach appears to be most effective.

However, he warns that the eclectic approach should not be the same as having any clear idea of what would work and nor should it be applied inconsistently. Sometimes the approach is too complex for one therapist to undertake, and finally, all treatment, eclectic or not, should only be used if backed up by evidence from previous studies that it works.

Petersen et al. (2007) write that drug/psychotherapy combinations are useful, so long as the two are combined in specific ways. Recent research (Fava et al., 2005) has suggested that sequential administration of antidepressant and psychotherapeutic treatments, with the therapy coming after the acute-phase drug response, may be more protective against relapse and recurrence than simultaneous treatment.

> **Focus on Research**
>
> A study by Elkin et al. (1989) is valuable as it compares different approaches to treatment. This was a double-blind design study with 250 randomized participants. This study aimed to investigate the efficacy of three different treatments [efficacy = the power to produce an effect]. The study compared CBT, SSRIs, and interpersonal therapy (a psychological therapy similar to CBT). There was also a placebo group in this study. The study found the quickest improvement from those on antidepressants but, with time (a few weeks), there was also an improvement from those in both types of therapy. Over 50% of the participants were considered recovered after months of treatment in each treatment group. 29% recovered in the placebo group, which was statistically significantly lower. There was no statistically significant difference across the treatment groups in terms of efficacy. The study had a large sample and was carefully controlled. It was also a double-blind study. It demonstrated strong reliability, validity, and low researcher bias. Nearly 50% of the participants in the treatment groups did not recover. That may be worth evaluating. What other factors may impact treatment and recovery? As well, medical researchers continue to improve on SSRIs. Therefore, the results could change over time.

3.3 The Role of Culture in Treating Depression

There are two aspects of the role of culture in treatment: the mental health professional should be competent in providing therapy to a person of various cultures, and the therapy itself should be sensitive to the culture

of the client. For example, Yeung and Kam (2006) argue that Chinese clients may present depression in a different way to Americans and Europeans. They reported that only a small proportion (14%) of Asian American patients spontaneously described symptoms such as depressed mood, irritability, rumination and poor memory but a much higher proportion (76%) of patients with depression presented with physical symptoms as their chief complaint. In this and other cross-cultural contexts, a therapist should show cultural competence by understanding how a patient's beliefs will affect the presentation of symptoms and acceptance of a diagnosis like depression. A culturally-sensitive psychological evaluation is essential.

Once a valid diagnosis has been determined, a mental health professional should understand that therapy may need to be modified. Gross (2010) gives a number of examples:

A therapist should understand that social roles within Asian families are often clearly defined and structured by age and sex, such that a father's authority is rarely challenged within the family. Growing up in such a culture may play an important part in shaping the values a patient brings to therapy.

Similarly, a therapy that emphasises individual autonomy over family loyalties might inadvertently violate the patient's cultural traditions and so be counterproductive.

A therapist who expects their patients to take responsibility for making changes in their lives may be ineffective with patients whose cultural worldview stipulates that important events are caused by factors such as fate, chance, or powerful others.

Practitioners who consider psychotherapy a secular (secular = non-religious) endeavour would do well to remember that in many cultures, any kind of healing must acknowledge the patient's spirituality.

Focus on Research

Qiu et al. (2013) designed a study to investigate the effectiveness of GCBT in treating major depression in Chinese women with breast cancer. Group Cognitive-Behaviour Therapy or (GCBT), is similar in approach to Cognitive-Behavioural Group Therapy, (CBGT) discussed above. Sixty-two breast cancer patients diagnosed with major depression were randomly assigned to the GCBT group (N = 31) or a waiting list control group provided with an educational booklet (N = 31). Data was gathered from self-reports of depression and it was found the GCBT group had a significant reduction in depression compared to the control group. The results of this trial suggest that GCBT is effective for treating major depression, as well as for improving quality of life and self-esteem in breast cancer patients.

The Asian American Mental Health Services organisation has developed an awareness of cultural issues in treatment since it was set up to serve Asian Americans in New York City. The staff are Asian, and they possess specialised knowledge and skills about delivering mental health services to Asians. They know, for instance, that when a client comes in complaining of an inability to move a part of the body, it's important to conduct a culturally-sensitive psychological evaluation, rather than automatically sending the client away for a physical check-up. The program operates a Chinese unit, which has a continuing treatment program for patients who are chronically mentally ill. There is also a Japanese unit, a Korean unit and a Southeast Asian unit, all with outpatient clinics. For Asian Americans, the key factors to consider are the educational background of clients who come to the clinic for help and the degree of acculturation that has taken place. Some clients interpret mental illness as punishment for some wrongdoing carried out by themselves, by their family members, or by their ancestors. In this interview in 2016, (Gluck, 2017) observed that many Chinese Americans feel ashamed to seek or participate in treatment. For most Asian Americans,

the individual is commonly viewed as a reflection of the entire family and Lee, a Chinese practitioner, recommends that the whole family should be included in treatment.

Lee provides a case study of how culture should be considered in treatment. She describes how the husband of a Cambodian woman suffering from depression was against her receiving treatment from the Asian American Mental Health Services clinic. He believed that she was being haunted by evil spirits. A treatment programme was designed that combined a standard treatment for depression with cultural practices designed to ward off bad spirits. Lee argues that by including and respecting the cultural practices, successful outcomes were more likely.

Focus on Research

Ward and Brown (2015) aimed to determine the efficacy of a culturally adapted treatment for African Americans experiencing MDD. This treatment, Oh Happy Day Class (OHDC), involved a 2.5-hr weekly, culturally specific CBGT for 12 weeks. The course involved learning skills to cope with depression. The course content included African-American cultural beliefs and humanistic principles originating in Africa. African American clinicians delivered the course, and topics included anger management, forgiveness and constructive thinking.

Two pilots using a one-group pretest-posttest design were conducted with a sample of male and female participants from a suburban city in the Midwest of the USA. Local clinics and other community groups recommended participants. Pilot I consisted of 18 women with a mean age of 75. Pilot II consisted of 18 women and 17 men with a mean age of 51years.

The participants completed several psychological tests and surveys to measure their level of depression, cognitive functioning, quality of life, physical health and attitudes towards seeking mental health services. The measures of depression were administered before the course and then after 6 and 12 weeks. They were tested again 12 weeks after the end of the course.

Pilot I showed a statistically significant decline in depression symptoms from pre- to post-intervention of the 73% of participants who completed the entire course. 66% of participants completed the full OHDC in Pilot II. Results showed that there was a significant decrease in depression symptoms for both men and women. Participants reported being satisfied with the OHDC. However, there was no change in attitudes toward seeking mental health services.

The investigators concluded that these were promising findings for a culturally adapted treatment for depression. They saw the need for further research on the efficacy of the OHDC in a large-scale, randomised, control trial.

Ask Yourself

Do you think this approach is effective or should traditional cultural beliefs like evil spirits be ignored or even challenged?

3.4 Assessing the Effectiveness of Treatments for Depression

Biological treatments

There is a long history of treating MDD with different types of drug. While some are undoubtedly effective in

reducing symptoms, there are also problems of addiction and side effects, and the criticism that they treat symptoms rather than the disorder itself are valid.

Strengths of biological treatments for mental disorders

If drug therapy or ECT succeeds in reducing the symptoms of psychologically crippling mental disorders, then this in itself has to be seen as a huge advantage. Research suggests that in many cases symptoms lessen in severity, especially when used in tandem with psychotherapy (Cuijpers et al., 2010). For some people, just having a label to attach to their feelings, and being told that medication might help, may be enough to make them feel somewhat better. In the case of MDD, if providing medication is continued for at least nine months after the symptoms have gone, then the chance of relapse is greatly reduced.

Limitations of biomedical treatment for MDD

The antidepressants prescribed can be physically and psychologically addictive. There are many documented side effects, and most antidepressant medication takes at least four weeks to start working. They treat the symptoms, but unless the cause of the disorder is addressed, it is likely that it will recur.

While ECT has been shown by many studies to reduce the symptoms of MDD there is still no clear picture of exactly how it works, which makes its use controversial. It also has, usually temporary, effects on a person's memory, which can be distressing. See Read and Bentall's research below:

> **Focus on Research**
>
> Read and Bentall (2010) conducted a meta-analysis of studies on the efficacy of electroconvulsive therapy (ECT) for the treatment of depression. Using databases of studies and previously conducted meta-analyses, they identified all studies that compared ECT with simulated-ECT (SECT). (Simulated ECT acted as a placebo.) They found that there was minimal support for the effectiveness of ECT compared to simulated ECT. They argued that the cost-benefit analysis for ECT is so poor that its use cannot be scientifically justified. They noted that there was strong evidence of persistent, and for some, permanent retrograde and anterograde amnesia.
>
> In general, the biomedical approach is reductionist and fails to take a holistic approach, instead focusing on particular neurotransmitters. MDD can be a symptom of something very wrong in a person's life that will not be immediately apparent and may take long sessions of therapy to uncover. According to Halligan (2007), it is crucial to take a biopsychosocial rather than a biomedical perspective and reject the belief that illness is the result of discrete biological processes. Instead, illnesses and mental disorders can be meaningfully explained in terms of cognitive and sociocultural factors, and consideration of these has to form part of the treatment.

Psychological treatments

Strengths of individual CBT for MDD

The CBT model has great appeal, because, unlike biomedical treatments, it puts control in the hands of the client, rather than the psychologist or psychiatrist. Cognitive theories lend themselves to testing as many people with psychological disorders, particularly depressive, anxiety, and sexual disorders, have been found to display maladaptive assumptions and thoughts. Cognitive therapy has therefore been found to be very effective for treating these types of mental disorder (Beck et al.,1989).

Studies confirming the efficacy of CBT have been criticised for a lack of rigour (Kramer, 2008). One of the

most enduring criticisms of CBT is that it does not put enough emphasis on a person's emotional life. CBT theory contends that what you feel is somehow not very important to why you do what you do and think what you think. It has been described by Rowe (2008) as a 'quick fix' that simplifies the assault to the sense of self that lies at the heart of mental distress.

Limitations of individual CBT for MDD

The maladaptive cognitions seen in psychologically-disturbed people could be a consequence of their mental disorder, rather than a cause. The cognitive model is narrow in scope—thinking is just one part of human functioning, and maybe broader (biological and/or sociocultural) issues need to be addressed. For people who have difficulty expressing themselves verbally, CBT may prove impossible.

Focus on Research

Clarke et al. (1999) examined the effectiveness of cognitive-behavioural therapy (CBT) for depressed adolescents. Adolescents with major depression (*N* = 123) were randomly assigned to one of three eight-week conditions: adolescent group CBT (16 two-hour sessions); adolescent group CBT with a separate parent group; or control on a waiting list. Subsequently, participants completing the CBT groups were randomly reassigned to one of three conditions for the 24-month follow-up period: assessments every four months with extra ('booster') CBT sessions; assessments only every four months; or assessments only every 12 months. The CBT groups yielded higher major depression recovery rates (66.7%) than the control (48.1%), and greater reduction in self-reported depression. Outcomes for the adolescent-only and adolescent + parent conditions were not significantly different. Rates of recurrence during the two-year follow-up were lower than those found with treated adult depression. The booster sessions did not reduce the rate of recurrence in the follow-up period but appeared to accelerate recovery among participants who were still depressed at the end of the acute phase.

QUESTION	STUDY
QUESTIONS (ERQs) **Discuss/evaluate/contrast/to what extent?**	
Research methods (approaches to research) used when investigating the treatment of MDD.	Any two studies listed below are suitable for these ERQs.
Ethical considerations of research into the treatment of MDD.	Any two studies listed below are suitable for these ERQs.
Biological treatments of MDD.	Duman & Aghajanian Read and Bentall (2010)
Psychological treatments of MDD.	Beck & Weishaar (1989) Lebow (2002)
The role of culture in the treatment of MDD.	Qiu et al. (2013) Ward & Brown (2015)

The effectiveness of treatment of MDD.	Read & Bentall (2010) Clarke et al. (1999) Elkins et al. (1989)

Further Reading

The Pamoja Teachers Articles Collection has a range of articles relevant to your study of the sociocultural approach to understanding behaviour.

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Chapter 8: Human Relationships

ⓘ Chapter Outline

1. **Personal Relationships**
   - 1.1 Formation of Personal Relationships
   - 1.2 Role of Communication
   - 1.3 Explanations for Why Relationships Change or End
   - 1.4 Assessment Advice
2. **Group Dynamics**
   - 2.1 Cooperation and Competition
   - 2.2 Prejudice and Discrimination
   - 2.3 Origins of Conflict and Conflict Resolution
   - 2.4 Assessment Advice
3. **Social Responsibility**
   - 3.1 Bystanderism
   -

3.2 Prosocial Behaviour
- 3.3 Promoting Prosocial Behaviour
- 3.4 Assessment Advice

Essential Questions

- What factors are involved in the formation of relationships?
- How does communication play a role in relationships?
- What factors are involved in relationship success and relationship failure?
- What factors influence group dynamics?
- How does conflict originate and how can it be resolved?
- How do we decide whether to intervene or not when we are a bystander?
- What factors influence and promote prosocial behaviour?

After studying this chapter, you should be able to:

- [ ] Describe, explain and evaluate studies that have investigated human relationships.
- [ ] Identify, explain and discuss ethical considerations in studies that have investigated human relationships.
- [ ] Describe, explain, evaluate and discuss research into the formation of personal relationships.
- [ ] Describe, explain, evaluate and discuss research into the role of communication in personal relationships.
- [ ] Describe, explain, evaluate and discuss explanations for why relationships change or end.
- [ ] Describe, explain, evaluate and discuss the role of competition and cooperation in group dynamics.
- [ ] Describe, explain, and discuss the role of prejudice and discrimination in group dynamics.
- [ ] Describe, explain, and discuss factors involved in the origins of conflict and conflict resolution.
- [ ] Describe, explain, evaluate and discuss factors involved in bystanderism.
- [ ] Describe, explain, evaluate and discuss factors involved in prosocial behaviour.
- [ ] Describe, explain, evaluate and discuss ways to promote prosocial behaviour.
- [ ] Discuss ethical considerations of studies that investigate human relationships.
- [ ] Discuss **one** strength and **one** limitation of the research method (or methods) used in the study (or studies).

Myths and Misconceptions

Opposites attract

Psychology researchers Julie and John Gottman have stated that as a result of their research, the evidence is more complex. They found that partners are more likely to get along if they are similar in regard to the core aspects of their relationship. For example, if both partners feel it is good to express negative emotion, they are more likely to have a successful relationship but if one partner feels it should be bottled up and the other does not, this is likely to cause conflict. However, Gottman and Gottman also found that relationships can tolerate some differences between partners but only for small things like having different hobbies.

Feelings are mutual in friendships

Research at Tel Aviv University in 2016 with 84 university students showed the surprising result that if you consider someone to be a good friend, that friend, in turn, may not feel the same way. The study showed that in only 53% of the paired ratings there was a mutual feeling of positivity. These results imply that we can be poor at judging the quality of our friendships.

Physical abuse in relationships is usually perpetrated by men

A common misconception is that domestic violence victims are usually women. However, survey data shown here by an organisation called Parity UK indicates that male victim prevalence reached around 40% in England and Wales in the late 2000s. In addition, the organisation SAFE in the USA states that 1 in 7 men is likely to be abused by their partner in their lifetime.

The study of human relationships has an incredibly long history and prior to the birth of modern psychology, as we know it today, many attempts have been made to analyse intellectually the factors that characterise our relationships. Philosophers in classical Greece debated the fundamentals of love for example but it was not until a more scientific approach to analysing nature was adopted that research into relationships started to accelerate. One fundamental milestone in relationships research was Charles Darwin's theory of evolution that was put forward in the mid-19th century. Darwin proposed that certain criteria are important in reproductive behaviour thus increasing the likelihood that genes would be passed on to the next generation if these criteria are fulfilled. A few decades after Darwin's theory came to another milestone in the study of relationships when Sigmund Freud theorised for example about the psychology of human sexuality and the role of the unconscious in our relationships with others. The revolutionary ideas of Darwin and Freud were instrumental in instigating new ways of thinking about relationships so much so that modern relationships research now uses an array of research methods. These include scientific experimental methods, qualitative methods such as self-report techniques as well as cross-cultural and anthropological research.

The Human Relationships option in IB psychology looks at the dynamic nature of human relationships and is broken down into three main topic areas. The first topic is *personal relationships*. Within this section you learn about the factors that are involved in the formation of relationships, how communication plays a role in personal relationships and also which factors are more likely to make a relationship succeed and which may cause it to break down. Following on from this topic area, you will then consider research into *group dynamics* and how cooperation and competition and prejudice and discrimination can influence such dynamics. In addition, in this topic you will analyse research into the origins of conflict and how conflict can be resolved. The final topic is *social responsibility* and in this section you will learn about what makes us more likely to intervene and help others when we are in their vicinity. Furthermore, helping behaviour will be explored further in this topic by assessing research into prosocial behaviour and also considering ways that we can promote prosocial acts.

At this stage of the course you have now completed your study of the core material in terms of the biological, cognitive and sociocultural approaches to explaining behaviour. However, these three approaches are also

fundamental in studying the Human Relationships option hence you will be expected to be able to describe and evaluate psychological research in this area from these three viewpoints.

Biological approach

Psychologists who investigate the biological foundations of relationships have focused predominantly on the role of genetics, particularly in the formation of relationships where Darwin's theory of evolution has been particularly influential. This type of research is part of a relatively new branch of psychology known as evolutionary psychology.

Cognitive approach

A major aspect of relationships research is the consideration of how thought processes can influence how we interact with others in our social environment. You have already come across schema theory in the unit on the cognitive approach and in this unit you will therefore revisit the role of this theory in how we conduct our relationships.

Sociocultural approach

Investigating social and cultural factors in relationships is another major research field in this area of psychology. Social factors include the influence of role models in how we interact with others and cultural factors include intercultural differences in relationship formation and maintenance for example.

> Ask Yourself
>
> Which of the approaches do you think is most influential in our relationships? Or do you think they all play an equal role?
>
> As well as considering the approaches in your study of human relationships, it is also required that you assess research in terms of its ethical considerations as well as its credibility and trustworthiness. Furthermore, an appreciation of the sensitivity of the issues raised by the research in this unit is necessary.

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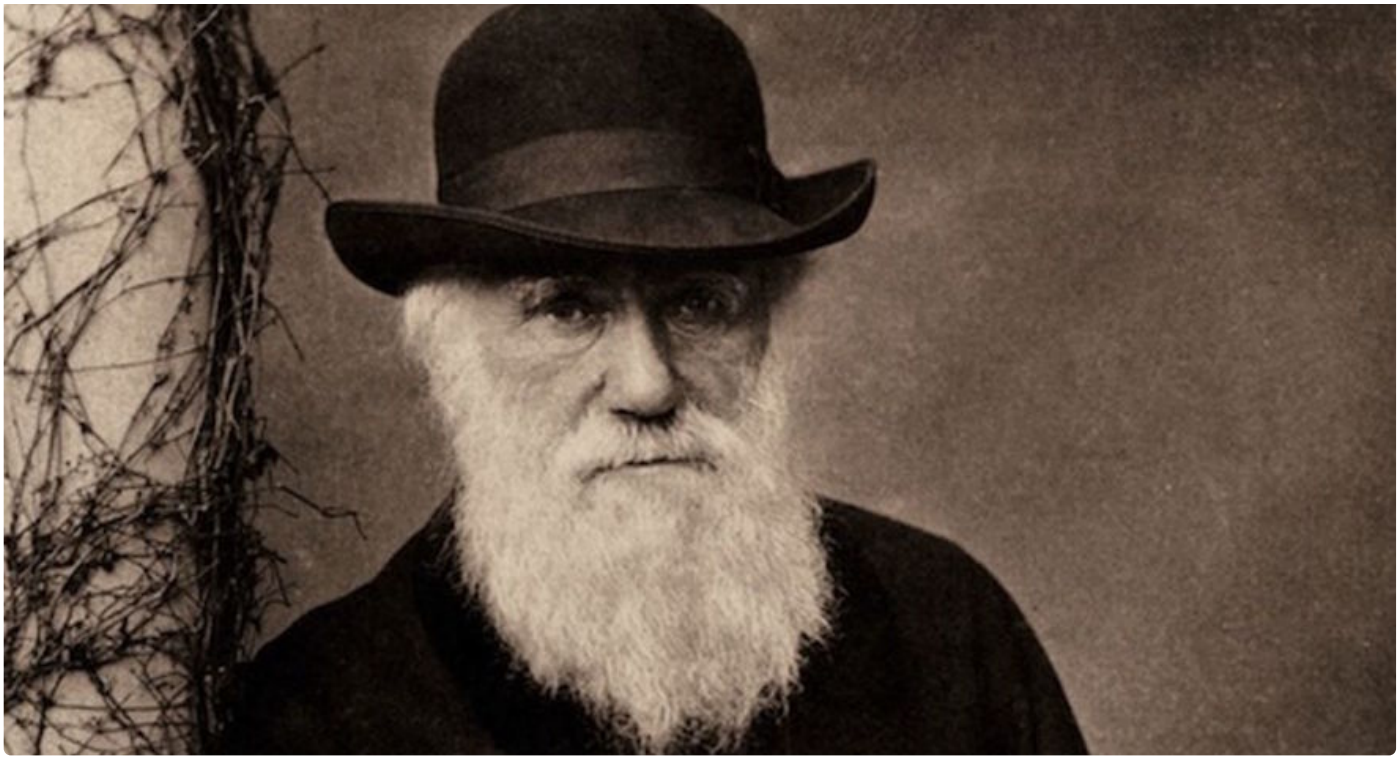
1. Personal Relationships

1.1 Formation of Personal Relationships

Biological factors in the formation of personal relationships

As mentioned in the introduction, Charles Darwin's theory of evolution was a significant step forward in relationships research as it influenced scientists to consider the role of evolutionary factors in how we form personal relationships. Both Darwin and his supporters at that time were convinced that characteristics that promoted survival were passed on from one generation to the next but they were not able to understand the mechanisms involved in this transmission because they did not have at their disposal the scientific techniques to investigate such mechanisms. However, as technology progressed, later research was able to show that genes were the key to the transmission of traits across generations hence the Darwinian viewpoint is now seen as a biological theory.



In forming a relationship, a fundamental initial stage in this process is the degree of attraction between potential mates. However, according to Darwin's theory, males and females have evolved so that they use different mechanisms to assess what is attractive in a potential partner. The reason for this difference is due to the separate challenges faced by males and females in the early ancestral environment, known as the EEA (the environment of evolutionary adaptation). **Parental investment** is one example of where this difference is demonstrated. In contrast to males, females have to undergo long pregnancies and provide care for each child they have hence their needs are centred around gaining resources to support them during these periods of not only need but also vulnerability. In assessing the attractiveness of a potential partner, therefore, a female will focus on whether the male will stay with her and provide resources and support. In contrast, the parental investment of males is lower as they do not have to endure a long pregnancy hence they have more freedom to reproduce with a wider range of females. Nevertheless, the male needs some indication that a female is 'fit' to carry his genetic legacy into the next generation and therefore assesses females on their fitness to reproduce. Males will, therefore, look for signs in potential partners that are related to age and healthiness, e.g., young age, good skin, toned body. Males would also seek signs that a female has not engaged in sex with other male partners in order that his sperm will not be supplanted by a previous male's sperm. Males and females, therefore, seem to show differences in terms of what main factors influence the initial stages of a relationship. The study shown to the right by Buss (1989) set out to address whether such differences constituted a **universal** in psychology. A universal is a characteristic in psychology that is impervious to social and cultural influences and is common to humans across the world. Buss (1989) therefore sought to explore the existence of a universal in relationship formation around the world.

Focus on Research

Buss (1989) made predictions about gender differences in mate choice based on Darwin's theory. The participants in the study were over 10,000 individuals from 37 different cultures across six continents and five islands. Due to the vast scale of the study, differences in sampling techniques often occurred as a result of local variation, for example, if the location was rural or urban and whether polygamy, monogamy or cohabiting was practised. The mean age of the participants was

23.5 years for males and 22.5 years for females. The data was collected by native citizens of each country sampled and each of the native collaborators in the research team was asked to gather as diverse a sample as possible. The questionnaires were then mailed to Buss in the USA for analysis.

The procedure required participants to complete a questionnaire that consisted of:

1. Biographical data (information about age, sex, religion, marital status).
2. Marriage information (age at which the participant preferred to marry, the age of spouse and children desired).
3. A four-point rating scale (3 = indispensable; 0 = irrelevant/unimportant) where participants had to rate 18 characteristics that might influence the formation of relationships (e.g. good financial prospects, good looks, chastity and ambition).
4. A 13-point ranking scale looking at characteristics (e.g. good earning potential, physically attractive) that indicated how desirable the characteristics are in someone that they might want to marry. The highest score (i.e. 13) was given to the most desirable characteristic.

The procedure was undertaken in many different languages and each of the translators was asked to use gender-neutral terminology. For example, 'physically attractive' was used instead of 'beautiful' and 'handsome'.

The results of the study indeed indicated that some aspects of relationships were universal across cultures. For example, there was evidence that males across all 37 cultures preferred a younger partner suggesting this is a good indicator of ability to reproduce successfully. In addition, again in all 37 samples, males valued 'good looks' more highly than females. This indicates that males will form relationships with women that they perceive as attractive. In terms of financial prospects and ambition in a partner, females in 36 out of the 37 cultures preferred these qualities in a prospective male partner. Spain was the exception but the results were in the direction shown for the other 36 cultures.

Buss et al. therefore concluded that there was an evolutionary explanation for forming relationships with potential intimate partners. Specifically, the different gender basis for mate selection reflects the differences in the reproductive capacity of males and females. So males prefer mates that are younger (i.e. more fertile) and attractive, while females prefer males with good earning potential and ambition (i.e. able to support pregnancy and offspring).

Further research by Buss et al. (1992) provides additional support for these differences in males and females in terms of mate choice. Buss et al. asked participants to imagine their partners being unfaithful to them. The type of scenario was manipulated by the researchers in that participants were asked to imagine their partners being sexually unfaithful and also were asked to imagine their partners being emotionally unfaithful. The level of distress was measured by both self-report and physiological measures (pulse rate, facial muscle movement and sweat response). The results showed that males tended to be more distressed about sexual infidelity, whereas females tended to be more distressed about emotional infidelity. These results can be interpreted in terms of evolutionary theory as they suggest that the males are more likely to be distressed about sexual infidelity because they are concerned that their sperm will be replaced by another man's thus reducing the chances that their genes will be passed on into the next generation. For females however, their distress about emotional infidelity stems from their fears that if a male partner forms an emotional attachment to another female, this increases the likelihood that her mate will re-distribute his resources. Therefore, this study provides some evidence for the fact that males and females in general have gender-specific differences in terms of attractiveness judgements.

> Ask Yourself
>
> Do you think that an evolutionary explanation of how personal relationships form is too simplistic? If so, why? If not, why not? Do you think that such research (that asks for a participant to imagine their partner being unfaithful) can be considered ethical? Justify your viewpoint.

Cultural factors in the formation of personal relationships

Buss's (1989) study remains one of the largest cross-cultural studies in evolutionary psychology and it was instrumental in establishing that forming a relationship does appear to have evolutionary influences. However, it is important to acknowledge that this study also revealed some cross-cultural differences in relationship formation. One example was in the importance of chastity. Buss found that the value placed on chastity varied substantially across cultures. Participants from China, India, Indonesia, Taiwan and Israel placed a high value on this trait when forming a relationship with a potential mate. Most Western European participants however viewed chastity as 'irrelevant or unimportant' in a potential partner, i.e., participants from Norway, Sweden, Finland, Netherlands, West Germany and France. Therefore, the role of chastity in women appeared to be more highly valued by males in some societies, particularly in societies that are more traditional with more clearly defined gender roles.

This finding appears to contradict the evolutionary proposition that males will seek females showing evidence of faithfulness in order that males do not mistakenly raise another man's child. Buss (1989) does propose however that as chastity is not directly observable, it is more difficult to establish how far it plays a role in faithfulness detection when males are seeking a female partner. Furthermore, sexual behaviour in females varies in terms of their sexual freedom across cultures. Hence, in cultures where this freedom is accepted and has become the norm, this may now override evolutionary tendencies for males to prefer faithfulness in females. Another possibility is that this evolutionary tendency still exists in men but with contraception being widely available in some cultures, it is possible to argue that use of contraception by females displaces the need for males to think about faithfulness and the dangers of raising another man's child as his own.

Social and cognitive factors in the formation of personal relationships

In contrast to an evolutionary explanation of relationship formation, some psychology researchers have argued that our childhood experiences are more likely to play a role. Specifically, research on attachment has shown that the type of attachment we form with our main caregiver has a significant part to play in our later adult relationships. One of the most influential figures in this was John Bowlby who after a number of years investigating children's attachment proposed a theory of attachment in 1951 and this has been revised and improved numerous times. The theory is based on the belief that babies and toddlers form emotional attachments to familiar caregivers from about 6–30 months of age. Events that interfere with attachment (e.g. abrupt separation or inability of carers to provide sensitive or consistent interactions) can have both short-term and long-term consequences for the child. Bowlby used a cognitive perspective by arguing that as a result of these early attachments the child develops 'attachment schemas' that guide early attachment but also later relationships. You have already studied schema theory in Chapter 5. According to Bowlby, if the caregiver is attentive and responsive, the child feels security, love and confidence and develops a positive relationship schema but a negative schema develops if the caregiver is distant and cold. Bowlby called the relationship schema the 'internal working model' and this acts as a model for expectations of behaviour and caregiving in all subsequent relationships. However, we can see that Bowlby's theory is not just a cognitive theory: there is an interaction between cognitive and social processes with regard to attachment because the social interactions with the primary caregiver are affecting the construction of attachment schemas in the child.

By the mid-1980s researchers had begun to investigate the influence of attachment processes in adulthood. Hazan and Shaver (1987) explored Bowlby's ideas in the context of romantic relationships. According to Hazan and Shaver, the attachment styles developed in infancy continue to influence the relationship style and social life of adults due to the important role of internal working models. Hazan and Shaver asked people to recall their childhood experiences. They found that adults who indicated that their childhood attachments had been secure described their romantic relationships as being affectionate and caring. In support of Hazan and Shaver's findings, Fraley and Shaver (2000) then found that adults who had experienced a secure, positive attachment as a child tended to be more satisfied in their relationships than adults with an early insecure, negative attachment. Secure adult relationships are characterised by trust and commitment and tend to be long-lasting relationships. Such research on adult relationships, therefore, suggests that early attachment experiences are a critical factor in relationship formation: if you have suffered a negative attachment, you may be wary and nervous about beginning a relationship.

Focus on Research

Simons et al. (2014) carried out further research into the correlation between experiences in childhood and the success of later adult romantic relationships. Using a longitudinal study, the researchers sought to assess how far parenting style in childhood was linked to hostile and aggressive interactions with romantic partners in adulthood.

The researchers recruited participants who were also taking part in an ongoing longitudinal study called the Family and Community Health Study (FACHS). This study was taking place in Georgia and Iowa and aimed to establish the long-term effects of family and neighbourhood relationships on health and development in African American families. The participants in the FACHS study had already been tested at ages 10.5, 12.5, 15, 18, 20 and 23 years and of the 897 individuals who started the study, 699 were still taking part. The study by Simons et al. involved the assessment of the FACHS data from unmarried participants in a romantic relationship in this sample of 699 participants. This produced a sample of 345 participants of whom 202 were female and 143 were male.

The sample's data from the FACHS study was subjected to further analysis by Simons et al. The results showed that parental behaviour with regard to parenting style and modelling of behaviour had some influence on the style of their children's behaviour in their adult romantic relationships. More specifically, a secure childhood attachment fostered by supportive parenting was correlated with warm and loving behaviour in adult relationships. Conversely, there was some evidence that poor attachment experiences in childhood were correlated with hostility and aggression towards adult partners. It is possible to argue therefore that a romantic relationship could be affected in the formation stage by such hostility and aggression and this could dissuade a potential partner from wanting to continue with the relationship.

As well as assessing childhood experiences, some researchers have explored how cognition influences relationship formation. One example of a study of relationship cognition was carried out by Adeagbo (2015) on a sample of gay men in South Africa. Using a longitudinal approach, Adeagbo assessed ten interracial gay male couples aged 23-58 years old over a period of eight months. During this period, the men underwent semi-structured interviews on an individual basis and questions were asked about a range of aspects related to their daily lives as part of a couple. Some questions were specifically aimed at assessing factors in relationship formation. The study revealed that resources (e.g., money) and personal characteristics (e.g., age, physique) were less important in relationship formation and showed instead that how a potential partner is perceived is

> most influential. For example, if a person thinks that a potential partner shows attributes such as kindness and generosity, they would be more likely to initiate a relationship.

1.2 Role of Communication

In this section, we look at the role of communication in relationships. Communication is seen as a fundamental factor in whether relationships are likely to be seen as successful. You know from your own experiences that some friendships, for example, are enduring and last a long time while others might start strongly and then fade away (or end somewhat dramatically). In this section, we will examine the role of communication in relationships, again with a focus on the biological, cognitive and sociocultural processes that could be involved.

Social factors in relationship communication

Relationships necessarily involve social activity as they are primarily seen as interactions between individuals in a social environment. Here is an example of such an interaction:

Imagine this interchange: Each day for years and years, a husband comes home from work and his wife asks: ‘How was your day?’. The response is typical: ‘Good, thank you’. During their time together, the couple has developed this script for interacting. Although the interchange is mundane, any change to this is quite noticeable. Imagine if one day the wife failed to ask the question or if the husband said ‘Why do you ask?’. This is not a standard part of the communication script and would indicate that there might be some disturbance in their relationship.

It can be seen therefore that social signals provide cues to the receiver about whether the relationship is progressing satisfactorily or not. Some social psychologists have attempted to clarify which types of strategy are most relevant to relationship success. For example, Canary and Stafford (1994) identified five social strategies that facilitate relationship success and therefore help to maintain the relationship. These are listed in the box below:

Positivity: being cheerful and engaging with your partner.

Openness: discussing joint history, making disclosures about yourself.

Assurances: offering comfort and support, affirming a commitment to the relationship, checking on the partner’s well-being.

Social Networking: engaging with friends and family of the partner.

Sharing tasks: engaging in mundane tasks together, such as washing the dishes and hanging the clothing out, facilitates communication opportunities.

In line with the strategies identified by Canary and Stafford (1994), Gottman et al. (2003) argued that positive communication is one of the most important factors to help maintain relationships. They provided a 5:1 ratio of positivity to negativity. This means that any negative statement cannot be counteracted with a single positive statement. Instead, any negative statement requires at least five positive statements.

Other researchers, however, have drawn attention to the fact that gender differences need to be taken into account when analysing social interactions in relationships. A leading researcher in this field is Deborah Tannen, a linguist who has authored several books on communication in relationships. Her work has

highlighted some of the differences in communication styles between men and women. An extract from some of her writing is presented in the box below.

"Can't We Talk?" by Deborah Tannen (condensed from You Just Don't Understand, 2007)

A married couple were driving in their car when the wife turned to her husband and asked: "Would you like to stop for a coffee?"

"No, thanks," he answered truthfully. So they didn't stop.

The result? The wife, who had indeed wanted to stop, became annoyed because she felt her preference had not been considered. The husband, seeing his wife was angry, became frustrated. Why didn't she just say what she wanted?

Unfortunately, he failed to see that his wife was asking the question not to get an instant decision, but to begin a negotiation. And the woman didn't realize that when her husband said no, he was just expressing his preference, not making a ruling. When a man and woman interpret the simple interchange in such conflicting ways, it's no wonder they can find themselves in conflict with each other.

Most of Tannen's work adopts an observational methodology when investigating such interactions as that outlined above. Using the data from a large number of observations, Tannen (2007) argues that communication styles do indeed differ between men and women. Without the understanding and knowledge of these communication differences, there can be problems in maintaining a relationship. Tannen identifies several key differences between men and women and these are listed in the box below:

1. **Status vs. Support:** Men are taught to use conversation as a way to achieve something or to prevent people from pushing them around, whereas women use language as a way to exchange confirmation and support.
2. **Independence vs. Intimacy:** Men use language to convey a sense of independence and strength, whereas women will often use language to convey a sense of intimacy and closeness.
3. **Advice vs. Understanding:** Men use communication to provide advice and to help solve a situation, whereas women often use language to convey understanding. This can lead to disagreements when a woman wants support and understanding in a situation and a male wants to resolve or 'fix' the issue.
4. **Information vs. Feelings:** Women often use language to express their feelings, whereas men often use language to express information. A woman may frequently express her thoughts to her partner and feel rejected when he doesn't share the same details. To avoid issues and conflict, it is important that men learn to understand a woman's desire to talk and for women not to feel rejected when a man is unable to express intimate thoughts.
5. **Orders vs. Proposals:** Women will often try to persuade people to do things with indirect requests. However, some men find this indirect approach confrontational and will avoid engaging in such a request.
6. **Conflict vs. Compromise:** Some people, typically women, try to avoid direct conflict by compromising on what they want. However, this approach can often lead to resentment and disappointment. It is important to be able to express one's own desires in a relationship.

Tannen concludes therefore that learning the nuances of a person's communication style in social interactions can be beneficial in maintaining a relationship.

Biological factors in relationship communication

As you saw in the previous section, observing interactions between people can be a useful means of

determining how social factors feature in successful relationships. However, research has also been conducted into the biological mechanisms that can influence our relationships. Such mechanisms can be chemical in nature and, indeed, in the biological approach to explaining behaviour, you learned about how pheromones seem to influence male/female communication at an unconscious level when you studied Wedekind et al.'s (1995) research. Wedekind et al.'s findings suggested that mating behaviour appears to be affected by pheromones in sweat because they give an indication of the similarity of immune systems in a potential partner. Wedekind et al., therefore, concluded that as females tended to prefer males with dissimilar immune systems, they may be more willing to mate with them thus showing how unconscious biological communication mechanisms may be influential at the start of a relationship. There may be an evolutionary foundation to this finding because mating with someone who is dissimilar in terms of their immune system implies that they are also likely to be genetically different, a factor that reduces the risk of birth defects in offspring.

Communication patterns within family relationships also seem to be influenced by evolutionary biological factors. One theory in this area of research is **family communication patterns theory**, which was proposed by McLeod and Chaffee (1972). The theory is based on the concept of shared social reality which exists in a family when the family's thinking patterns are in agreement. This helps to increase understanding and reduce conflict. Some researchers have put forward the idea that achieving a shared social reality has an evolutionary function. Rueter and Koerner's (2008) study, for example, provided some evidence of this in their analysis of family communication in biological and adopted children across a range of families. This study is outlined below.

Focus on Research

Rueter and Koerner (2008) aimed to investigate whether negative family communication patterns would have a more adverse effect on adopted children than biological children in terms of their social adjustment. This study recruited 592 families from the Minnesota area in the USA who were already taking part in a longitudinal study on how siblings influenced drug and alcohol use. The families consisted of two parents, a target adolescent (the child would be investigated in Rueter and Koerner's study) and a younger sibling. In 35% of the families, both children were biologically related to the parents, in 17% of the families the target adolescent was adopted and in 48% of the families, both children were adopted.

Each family underwent a range of tests in a laboratory-based setting including a 5-minute taped video of the family's interactions, surveys and interviews. In 69% of the families, a teacher at the target adolescent's school rated the adolescent's behaviour at school. Two of the main measures in the study were conversation orientation and conformity orientation. Conversation orientation is a measure of spontaneous interactions within a family and, according to Rueter and Koerner, helps to establish a shared social reality. Conformity orientation is a measure of how far attitudes are shared within a family. These attitudes are usually influenced by parental authority figures to create the social reality within a family.

The results of the study showed that target adolescents (biological and adopted) were more likely to be well-adjusted if their families regularly used conversation and conformity. However, adopted target adolescents were more vulnerable to being less well-adjusted compared to biological target adolescents if the families were high in conformity, i.e., very protective, or low in both of these measures, i.e., laissez-faire families. These results suggest that positive family communication helps both adopted and biological children but adopted children are more adversely affected by negative family communication than biological children. According to Koerner and Floyd (2010),

these results suggest that biologically-related family members are more likely to share similar inherited thinking patterns than non-biologically related members so conversation is less important in establishing a shared social reality. This is why biological children are more resilient to negative family communication. From an evolutionary perspective, this makes sense because inherited thinking patterns serve to cement the family group thus helping to ensure their survival.

Cognitive factors in relationship communication

An influential theory in cognitive psychology is attribution theory, which was initially proposed by Heider (1958). The fundamental assumption of the theory is that we try to make sense of our social world by using information we receive through our senses to explain what is happening around us. Heider suggested that one way in which we try to explain our experiences is through the process of internal attribution where the cause of behaviour is due to an internal factor such as personality. For example, if someone we know ignores us in the street, we may explain their behaviour using an internal attribution such as 'they are a very rude person'. However, we could also explain their behaviour with what Heider termed an external attribution where behaviour is due to an event outside a person's control. In the context of the above example, the person may have ignored us because they simply did not see us. As we can see, mistaken attributions could cause issues when we see that person another time as we may blame them for something they were not aware of. Consequently, this could cause future communication problems with that person.

A number of researchers have conducted investigations into the role of internal and external attribution in romantic relationships. More recently, Stephanou (2012) carried out research into attributional factors in adult romantic relationships in young adults and this study is summarised on the right.

A number of researchers have conducted investigations into the role of internal and external attribution in romantic relationships. More recently, Stephanou (2012) carried out research into attributional factors in adult romantic relationships in young adults and this study is summarised below.

Focus on Research

In order to assess attribution in romantic relationships, Stephanou (2012) recruited a sample of 386 undergraduate and postgraduate students (aged 18–25 years) from a range of six Greek universities (176 male, 210 female). The length of their current relationship ranged from six months to three and a half years. To measure the students' attributional behaviour, Stephanou used the Causal Dimension Scale II, a well-tested questionnaire designed by McAuley et al. (1992) for this purpose. Before completing the scale, the participants rated their satisfaction with their current relationship by completing four questions on a scale of 1–7 so that the researchers could categorise the students' relationships in terms of whether they were 'good' or 'bad'. The Causal Dimension Scale II scale was then completed by participants in their university departments.

With regard to the results for those students in good relationships, they tended to attribute the success of the relationship to internal factors both within themselves and within their partner. These internal factors included good communication, understanding, honesty and love. In contrast, the students who perceived themselves as being part of a bad relationship demonstrated external attributions such as lack of control of the situation and blaming their partner's behaviour. These findings have implications for communication within romantic relationships because partners in positive relationships who have an internal attributional style are likely to communicate more effectively with each other in general compared to those in negative relationships with external attributional styles.

Cultural factors in relationship communication

A considerable amount of research has been dedicated to the study of cultural factors in human communication in different types of relationships. The result of this endeavour has been that a number of communicative behaviours have been shown to differ across cultures. For example, Sanchez-Burks, Bartel and Blount (2009) carried out research into American workplace communication patterns in Latino and non-Latino employees. The communication measure used was behavioural mirroring, a non-verbal behaviour in which physical movements such as cupping your chin are mimicked by the receiver. Using confederates at the participants' workplace, it was found that US Latinos became more anxious compared to non-Latinos when there was a lack of behavioural mirroring in the receiver. This study therefore demonstrated differences in cultural sensitivity to such non-verbal communication cues and suggests that the role of different types of communication varies according to our cultural background.

> Ask Yourself
>
> Reflecting on your own experiences, are there any communication behaviours that you have come across that show cultural differences?

1.3 Explanations for Why Relationships Change or End

Relationship breakdown is a common aspect of our everyday lives and psychologists have put forward different explanations for why such breakdowns occur. The focus in this section is therefore on addressing why relationships might change or end. It is important to remember that we need to move beyond descriptive models that look at the nature of relationships and investigate *why* they might change. In other words, what are the reasons behind the changing nature of relationships?

Social factors in why relationships change or end

According to Kurdek (1991), social factors such as interpersonal issues between couples in romantic relationships can contribute to a relationship breakdown. Kurdek identified communication problems and incompatibility between the partners as some of the inter-personal reasons why relationships might end. There is a summary of this research below.

> Focus on Research
>
> Kurdek's aim was to investigate the reasons why homosexual relationships dissolve. The participants in the study were 13 couples. These couples had been involved in a longitudinal study of gay and lesbian relationships but had separated during the course of the study. The participants were asked to complete an open-ended survey that investigated the reasons behind their break-up. The responses were coded and analysed and then grouped into the following categories (in order of size):
>
> - communication problems;
> - partner problems (such as substance dependency);
> - sexual issues;
> - self-identity issues/fusion (becoming too close and losing individual identity);
> - incompatibility;

- control.

Kurdek, therefore, concluded that of all these issues, a breakdown in communication was the major issue in the dissolution of homosexual relationships. These results indicate therefore that interpersonal communication factors are important in relationship breakdown. It should also be noted that Kurdek argued that this conclusion is very similar to the findings of research into heterosexual relationship breakdowns.

Biological factors in why relationships change or end

One factor that can play a role in the breakdown of relationships could be the personalities of the partners. It has been argued that aspects of our personality have biological foundations. For example, Dina et al. (2004) linked a chromosome region called 8p to individual differences in anxiety. Furthermore, DeYoung et al. (2010) found evidence for individual differences in brain structure contributing to personal style. For example, they found that agreeableness was linked to increased volume of cortex in the posterior cingulate cortex and neuroticism with an increased volume in the right dorsomedial prefrontal cortex and parts of the left medial temporal lobe. Taken together, therefore, these two studies represent a small sample of evidence for biological substrates of personality and can be said to predispose individuals to act in their own unique way in terms of their personality. With regard to relationships, Duck (1985) argued that predisposing personality factors can present background instability and resentment. In terms of DeYoung et al.'s study as an example therefore, it is possible that this predisposes individuals with an increased volume in the right dorsomedial prefrontal cortex to higher levels of neuroticism, a term used in psychological research to describe people who are more prone to jealousy, anger issues, depression and anxiety, for example. This could then create background instability and contribute to relationship breakdown. Ultimately, such anatomical brain research is still in its infancy but it shows that individual differences in anatomy could affect personality type which in turn could affect the success of the relationship.

Nevertheless, the empirical evidence on the role of personality factors is not always clear-cut hence the conclusions about how far anatomical differences contribute to the role personality plays in relationship breakdown remain tentative. Lehnart and Neyer (2006), for example, studied personality factors involved in relationships. The sample of young adults in this investigation (N = 133 stayed with the same partner and N = 92 changed partners) were studied over a period of eight years. Lehnart and Neyer found that personality traits were not an important predictor of a relationship change. Instead, they found that dissatisfaction with the relationship was the most important predictor of change within the relationship. Interestingly, they did find that a partner perceived as being 'dependable' (rather than being dependent) was an important protective factor for the relationship continuation.

Cognitive factors in why relationships change or end

Some researchers in attempting to explain why relationships change or break up have focused instead on the type of thinking that partners use to assess whether it is worth staying in a relationship or not. One popular notion in this area is the idea that partners actively use cognitive analysis of their relationships on a daily basis to assess the benefits and costs of remaining with their partner. An early theory called **social exchange theory** was proposed by Thibaut and Kelley (1959) that suggested that partners use a profit and loss method of thinking to weigh up how they feel about a relationship. Profit indicators could be financial support from a partner and have regular physical contact, for example, whereas a loss indicator could include investing more time in the relationship than the other partner and thus feeling resentment. Evidence for partners thinking in such terms about their relationship can be seen in the study by Rusbult and Martz (1995) in which women in abusive relationships were interviewed when they entered a shelter for protection.

They found that when factors such as financial security and having children with their partner strongly outweighed factors like having little money and having nowhere to go, the women were more likely to return to an abusive partner.

Social exchange theory was criticised however because it did not take into account the concept of equity, i.e., fairness. Walster et al. (1978) therefore proposed **equity theory** as an alternative to social exchange theory. In their model, therefore, a relationship that is perceived as less equitable or unfair is more likely to break down. Equity theory also helps to explain why some relationships that from the outside look unequal in terms of profit and loss, may be perceived as fair by the partners themselves. For example, if one partner is doing a lot of housework compared to the other partner, this may be perceived as equitable if the partner doing the housework is satisfied with the situation. This satisfaction could arise from them feeling that their partner works long hours, for example, so they feel it is fair to do more housework. Therefore, what has considered fair in a relationship is attributable to what partners think about their relationship. Stafford and Canary (2006) provided support for this theory in their investigation of 200 married couples who were asked to complete measures related to satisfaction and equity. This study found that satisfaction was highest in couples who perceived their relationship to be equitable and suggests therefore that inequitable relationships could be more at risk of dissolution.

Cultural factors in why relationships change or end

Research into cultural aspects of relationships has been extensive over the last few decades and the aim has been to determine which factors are similar across different cultural groups and which differ. With regard to relationship change and breakdown, earlier research by Betzig (1989) on 186 different societies across the world showed that infidelity was the most common reason for relationship breakdown. In contrast, reasons for breakdown such as bad omens and disputes over dowries were more culturally specific. Betzig speculates that infidelity is a common factor cross-culturally in threatening a marriage because there is so much at risk in the partnership in terms of resources. This finding, therefore, highlights the value placed on marriage resources (reproductive, social, economic) across different cultures.

The cultural background of romantic partners can also play a role in relationship change and breakdown. In today's globalised world, marriages and partnerships between couples with different cultural heritages are becoming increasingly more common. Consequently, some researchers have sought to determine how far intercultural factors may be involved in relationship dissolution. One such study was conducted in Finland by Lainiala and Säävälä (2013), the details of which are examined in more depth below:

> Focus on Research
>
> Lainiala and Säävälä's (2013) study focused on how far men and women in Finland in intercultural marriages had considered divorce in comparison to men and women in monocultural marriages. The study took place in 2012 and the intercultural sample was drawn randomly from the Population Register of Finland. The sample size was 6000 participants and comprised native Finnish, Swedish or Sami (a Scandinavian indigenous language) speaking males and females married to a spouse who spoke a foreign language. In addition, the sample contained foreign language speaking males and females married to Finnish, Swedish or Sami speakers. Measures were put in place during the sampling to ensure the accuracy of origin by assessing registered native language as specified in the Population Register of Finland. The data of a group of participants in monocultural marriages from an earlier study in 2008 was used as a comparison group. The monocultural study was carried out by Miettinena and Rotkirch on a sample of 3058 married participants aged 25–44 years.

Lainiala and Säävälä used a postal survey to gather data from the participants in intercultural marriages. An internet option for responding was also given. Participants were questioned on a variety of issues including sources of conflict such as money, friends, religion and value orientation. This latter variable relates to how far a couple agree on certain values when thinking about bringing up children. Some examples from the study include good manners, tolerance and respect, and obedience. Participants were also asked to rate whether they had considered divorcing their partner in the last year.

Analysis of the results revealed that females (Finnish and born in a foreign country) in both intercultural and monocultural marriages were similar in their level of consideration of divorce in the previous 12 months. However, there were differences between males in intercultural and monocultural marriages—males in intercultural marriages were more likely to have considered a divorce. The authors speculated that this may be attributable to their observation that conflicts about different values were more likely to occur in marriages between a Finnish male and a foreign-born wife. However, the authors acknowledge that data about values was not available from the study on monocultural couples and thus a comparison in this respect could not be made. However, Lainiala and Säävälä speculate tentatively that value conflicts may be a factor in divorce consideration by Finnish men who are married to women with a different country of origin. This suggests therefore that cultural factors could contribute to a marital breakdown in this group.

1.4 Assessment Advice

The options will be assessed in Paper 2. SL students choose one essay, while HL students choose two essays, one from each of the options they have studied.

The essay titles for Paper 2 will only use command terms that correspond to assessment objective 3. These

Contrast	Give an account of the differences between two (o more) items or situations, referring to both (all) of them throughout.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.
Evaluate	Make an appraisal by weighing up the strengths and limitations.
To what extent?	Consider the merits or otherwise of an argument o concept. Opinions and conclusions should be presented clearly and supported with appropriate evidence and sound argument.

Each option is divided into three topics. For each option, there will be three essay titles to choose from, one for each topic in the option.

Source: IB Psychology Guide

Possible ERQ titles:

- Discuss research into personal relationships.
- Discuss the formation of personal relationships.
- To what extent do biological factors influence the formation of personal relationships?
- With reference to a study (or studies) investigating the formation of personal relationships, discuss **one** strength and **one** limitation of the research method (or methods) used in the study (or studies).
- Discuss the role of communication in personal relationships.
- Evaluate explanations for why relationships change or end.
- Contrast two explanations of why relationships change or end.

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2. Group Dynamics

2.1 Cooperation and competition

Biological factors in cooperation and competition

In Chapter 4 of the Pamoja IB Psychology Student Guide, you studied the endocrine system and you also focused on the role of testosterone on human behaviour. In the context of this section, we are again going to discuss the role of testosterone but with a focus on how far it is involved in behaviour related to cooperation and competition.

As you learned in Chapter 4, a number of research studies had implicated higher testosterone levels with aggression in males and females. However, Archer (1994) reviewed the research and pointed out that this was a simplistic view. In fact, Archer concluded that with regard to males, there was a low positive correlation between testosterone levels and aggression, but a much higher positive correlation between testosterone levels and measures of dominance. Carré et al.'s (2016) research measured male participants for dominance and impulsivity personality traits prior to giving them an injection of testosterone to increase their testosterone levels. After the injection, the participants took part in a computer game where they were led to believe they were in competition with another player (but it was actually the computer). It was found that the higher testosterone level alone was not enough to increase aggression. Instead, aggression was increased in those men who had been injected with the testosterone and also had high levels of dominance and impulsivity in their personality profile. The study demonstrates therefore that in competitive situations, aggression can ensue in the presence of higher testosterone levels and particular personality characteristics related to dominant and impulsive behaviour.

The research by Carré et al. (2016) demonstrates the variables that interact with high testosterone levels to cause antisocial behaviour in competitive situations. However, other research has demonstrated that testosterone is not always associated with antisocial behaviour, it can also be associated with prosocial behaviour. Boksem et al. (2013), for example, demonstrated that prosocial behaviour in the form of reciprocity, a form of cooperative behaviour, can occur in certain situations even if testosterone levels are raised. The study is summarised below.

Focus on Research

Boksem et al.'s (2013) study used 54 female participants in a double-blind procedure. Half the participants were given a placebo solution and half given a testosterone solution to drink prior to undertaking a game based on investment judgements involving money. This was called a 'trust' game and had been developed previously by Berg et al. (1995). Each participant played with an anonymous partner. In one condition, the partner was the 'trustee'. The participant (or 'investor') was given $30 and had the opportunity to invest a portion or all of the money with the trustee. Whatever the amount that was invested, this was tripled to $90 by the trustee and then the trustee decided how much to give back to the participant. Participants also played the role of the investor with the consequence therefore that they could keep the full $90 should they wish to. The results showed that when participants were investors, they were more likely to be antisocial if they were in the testosterone group because they saw the trustee as a threat to their financial resources. However, what was surprising was that when participants were trustees, they were more likely to be prosocial if they were in the testosterone group. The researchers suggested that when a person is in a high-status position (trustee), higher testosterone increases cooperation in situations where no threat is perceived, in this case to the trustee's financial position. We can see therefore that higher testosterone levels are not always associated with negative outcomes and can, in fact, promote cooperative prosocial behaviour.

Cognitive factors in cooperation and competition

In an early attempt to investigate cognitive factors in cooperation, Pincus and Bixenstine (1979) used the Prisoner's Dilemma game. This game is designed to test the dimensions of cooperation in the face of a dilemma about a prison sentence. The scenario of the game involves two suspects from a gang (fictional) being given ultimatums: if the two suspects betray each other, they get a two-year sentence (the cooperation condition). However, if one remains silent but is betrayed by the other suspect, they will get a three-year sentence while the betrayer goes free. Finally, if both are silent, they will both get a one-year sentence. Using 48 pairs of university students, Pincus and Bixenstine found that cognitive abilities were linked to cooperative behaviour in the game. For example, students who were higher in verbal ability and abstract information-processing ability were much more likely to be cooperative. The study therefore suggests that individuals with more advanced skills in certain cognitive domains can negotiate more positive interpersonal outcomes in social situations.

Social factors in cooperation and competition

Realistic conflict theory (RCT), initially proposed by the social scientist Donald Campbell in the early 20th century, is one theory in social psychology that has been proposed to explain why groups either decide to go into competition with each other or whether they decide to cooperate. RCT predicts that competition is more likely to ensue between groups if resources such as social status, food, or money are scarce. This scarcity can be real or perceived. According to Sherif (1966), the result of such a situation will be the development of discriminatory behaviour towards the other group in the form of negative stereotypes. In addition, cooperation within each group will increase in order to enhance the likelihood that the desired resources will be obtained. In Chapter 6 (Sociocultural Approach) of the Pamoja IB Psychology Student Guide, you were introduced to the ingroup/outgroup concept. This concept is also relevant here because the greater the competition for resources, the more likely it is that ingroups and outgroups will form and discriminatory intergroup behaviour will occur. However, RCT also states that if a situation occurs where groups have no choice but to work together to achieve an outcome, competition can be reduced and

cooperation enhanced. The principles of RCT can be seen in the 1961 study by Sherif et al. in which groups of young boys were manipulated to encourage intergroup cooperation or competition.

> Focus on Research
>
> Sherif et al.'s (1961) study was set in an American summer camp over a period of three weeks in a park in Oklahoma called the Robber's Cave State Park. Twenty 12-year-old boys took part in the study which was in the form of a field experiment. Prior to the study, they were randomly assigned to one of two groups (the Rattlers and the Eagles) but at this stage, they were taken to the camp with their assigned group members but they were not aware that there was another group until a week later. When they were finally introduced to the other group, feelings of hostility arose as each felt the other was invading their territory.
>
> Over the next four–six days, competition between the groups was encouraged through a range of competitive activities and situations. For example, Sherif et al. arranged team games such as baseball and tug-of-war with prizes for the winners but none for the losers. Social situations were also manipulated such as the arrangement of a meal where the groups were left alone. Eventually, conflict arose between the groups and food was thrown around the mess hall. Ultimately, as the end of the six days approached, the situation escalated with acts becoming increasingly more aggressive. At one stage the boys even had to be physically separated.
>
> The social situation was then manipulated by the researchers once more to investigate whether cooperation between the groups could be instigated at this stage. To do this, Sherif et al. introduced tasks in which the groups had to work together to achieve a common goal (a superordinate goal in Sherif et al.'s terminology). One of these tasks was to fix a broken water supply system. Although this was set up by the researchers to appear faulty, the boys did not know this and therefore they became concerned that they would have to go without water, a situation that would be detrimental to both groups. Consequently, the friction between the groups reduced as they worked to repair the water supply.
>
> The elements of RCT with regard to competition and cooperation were therefore demonstrated in Sherif et al.'s study: firstly through the initial conflict stages where competition for social status was sought by the two groups and secondly in the later part of the study where cooperation was needed to achieve a mutually-beneficial goal.

Cultural factors in cooperation and competition

In Chapter 6 of the Pamoja IB Psychology Student Guide, you studied the sociocultural approach in psychology and you became acquainted with the concept of acculturation. To recap, this term relates to the process of socialisation and psychological adjustment that takes place when two cultures come into contact. Early research by Miller (1973) showed that cooperative behaviour was more likely to occur than competitive behaviour in acculturated school systems. This study was conducted in Canada and involved testing groups of Blackfoot Indian and non-Indian Canadian children who attended an integrated school. The children played a game known as The Madsen Cooperation Board and were divided into a team of Blackfoot students, a team of non-Indian Canadian students and an integrated team with students from both backgrounds. The game encouraged both competitive and cooperative behaviour but only cooperative behaviour received any rewards. It was found that the teams from this school showed more cooperative behaviour. This was in contrast to earlier research on Blackfoot children and non-Indian Canadian children who were attending non-integrated schools. In other words, despite rewards being given for cooperative

behaviour in the game, this did not encourage cooperative behaviour in these students. Miller speculated that acculturation at the integrated school had enhanced the students' socialisation skills hence they were more likely to be cooperative with each other.
More recent research into cooperative/competitive behaviour between individuals has demonstrated that economic factors can be important. For example, Shin and Dovidio (2016) investigated how far economic competitiveness was instrumental in prejudicial attitudes to foreign workers and immigrants. These researchers studied prejudice towards these groups in North European-heritage locations (Norway and USA) and in East Asian locations (South Korea and China). The results indicated that economic competitiveness within North European-heritage cultures was a correlational factor in prejudice towards foreign workers and immigrants. As a result, this study demonstrates that completion for economic resources can encourage prejudicial attitudes and behaviours in interpersonal work relationships.

2.2 Prejudice and Discrimination

The term 'prejudice' literally means 'prejudgement', and can be defined as an attitude that is typically associated with negative affect. Psychologists accept that attitudes are comprised of a cognitive component. In the case of prejudice, the cognitive component is a stereotype which was discussed in the sociocultural approach. Like other attitudes, prejudice may be expressed as a behaviour, in psychology, we refer to the behaviour as discrimination.

The irony here is that prejudice does not discriminate! Throughout history, and continuing today, countless social groups have demonstrated prejudice towards outgroups. Certain groups are more likely to be enduring victims of prejudice and discrimination, with the defining features of these groups being based on social categories that are vivid, omnipresent and have a social purpose. They often include people who occupy low power positions in society, such as ethnic minorities and women. The pervasive nature of prejudice is often referred to as the 'generality of prejudice'. Below we will explore biological, cognitive and sociocultural factors that contribute to prejudice and discrimination.

Biological-based factors in prejudice and discrimination: the amygdala and threat

As we will see in the sections below, for many years researchers have tried to understand prejudice and discrimination from cognitive and socio-cultural viewpoints, however, more recent research spurred on by the development of non-invasive brain scanning techniques has investigated the role of brain structures involved in prejudice and discrimination. The first study providing a link between the amygdala and different ingroups and outgroups was conducted in 2000 by Hart, Whalen, Shin, McInerney, Fischer and Rauch. They presented unknown black and white faces to participants in an fMRI. At first, there was no difference in neural activity but after a few minutes break and a second presentation of the faces, there was an increase in amygdala activity for outgroup faces. This suggests that there is a neurological basis for ingroup and outgroup categorisation. Phelps et al. (2000) presented research that indicated the amygdala could be linked to racial bias against outgroup members. Chekroud, Everett, Bridge and Hewstone (2014) provide a fabulous review of the research into biological explanations for prejudice and discrimination. I encourage you to read it here, a summary is presented in Focus on Research.

> Focus on Research
>
> Chekroud, Everett, Bridge and Hewstone (2014) provide a narrative review of the literature investigating the link between the amygdala and prejudice and discrimination (a narrative review summarises key findings and conclusions from a selection of topic-relevant papers. However, it can be biased in the selected papers). Since 2000 researchers have consistently found greater

> activity in the amygdala, which is a neurological structure involved in emotional responses when presented with outgroup faces compared to ingroup faces. Typically, this has been used as evidence of a biological basis for categorisation. However, Checkroud et al. extend this understanding and argue that the amygdala provides a threat response to culturally-learned associations. In other words, the amygdala becomes activated in an effort to protect the individual from threat-based responses. They argue that culturally-based stereotypes linking black males with more negative behaviours (e.g., violence and criminality) may also explain the observed pattern of amygdala activity. Thus, our amygdala (which is involved in the flight or fight response), may become activated when presented with outgroup members because of fear or threat to the individual.

Cognitive based factors in prejudice and discrimination: schema theory

As prejudice is an attitude, it is worthwhile to note that there are cognitive elements that comprise attitudes. The cognitive component of prejudiced attitudes can be defined as stereotypes (see, McIntyre, Paolini and Hewstone, 2016). Stereotypes are widely held generalisations about groups, although these are typically negative they can also be positive. According to Augostinos et al. (2006) a stereotype is the same thing as a schema with all the same properties of schemas. So, the cognitive approach suggests that the process of categorisation and schema development is a contributing factor to prejudice. It is important to note, however, that the explanation of prejudice and discrimination through the existence of schemas is overly simplistic. There are many times that people may hold a negative stereotype about an outgroup and never display a prejudiced attitude and do not perform discriminatory behaviours. It is important, therefore, to look at other factors that lead to prejudice and discrimination.

As you might remember from learning about the cognitive approach to understanding behaviour, humans develop biases in thinking (if this is unfamiliar, go ahead and review section 4.2). One bias that we covered was the Illusory Correlation which is a belief that two things are associated when there is, at best, only a minor association. For example, we may believe that after seeing an elderly person fail to stop their car at a crossing we conclude that all elderly are bad drivers. You will remember that Risen et al., (2007) found that members of minority (rare) groups are more likely to have an illusory correlation associated with them when the behaviour is something unusual. These authors suggested that members of minority groups are more likely to be associated with unusual or ‘weird’ behaviours. Cognitive psychologists then believe that our cognitions impact on our feelings and behaviours (e.g., Beck, 1975; 1999). Thus, the establishment of a negative illusory correlation can result in prejudiced attitudes and discriminatory behaviour.

Sociocultural based factors in prejudice and discrimination: social categorisation

Since prejudice finds its targets in outgroups its origins need to lie, at least to some extent, in ingroups. In this sense discrimination is a form of intergroup behavior. It seems that the mere provision of people into groups is sufficient to generate ingroup favoritism. You will remember learning about Tajfel et al.’s (1971) famous Klee vs. Kandinsky experiment that formed part of their development of the social identity theory in the sociocultural approach to learning. Recall that groups of British male students were placed into arbitrary groups ostensibly based on their painting preferences and then asked to allocate money to different members of their ingroup and outgroup using pre-established decision matrices. You might want to take a moment and revise this section. The results revealed that there was a significant tendency for participants to give more money to ingroup members than to outgroup members (i.e., ingroup favouritism). Ingroup favouritism occurred even when it meant giving ingroup members *less* than the maximum amount of money that was available in each matrix (i.e., ingroup bias).

Tajfel et al. (1971) controlled for many competing explanations of ingroup favoritism. As there was no contact between the groups, we cannot say that discrimination occurs only because of a history of violence, there were no pre-established schemas of the group, instead it seems that the mere establishment of groups is sufficient to promote ingroup favoritism and outgroup derogation. Of course, Tajfel et al.'s minimal group paradigm was a highly artificial situation, with no face-to-face interaction between participants. Which does question the validity of this as a single explanation for *intergroup* behaviours.

Another social-cognitive approach to understanding and improving negative outgroup attitudes is the process of member-to-group generalisation. McIntyre, Paolini and Hewstone (2016) provide a meta-analytic review of the research that investigates the role of member-to-group generalisation. Member-to-group generalisation occurs when individuals change their outgroup attitudes following exposure to a disconfirming group member. For example, imagine that you were to meet an elderly person who was engaged and positive. This may change your prejudiced view of the elderly to being less 'negative and grumpy'. The review provided evidence that prejudicial attitudes are best reduced following exposure to several disconfirming exemplars. The review also concluded that outgroup members need to be perceived as 'typical' members that disconfirm the stereotype only slightly, otherwise the outgroup member might be considered extreme and excluded from any reduction in prejudiced attitudes.

2.3 Origins of Conflict and Conflict Resolution

We only need to turn on the news to see that conflict between groups is real and occurs daily. Psychologists are heavily involved in understanding intergroup conflict and proposing solutions for conflict resolution. We will look at two explanations of intergroup conflict: (1) conflict over resources as explained by Sherif et al.'s (1961) Realistic Conflict Theory, and (2) conflict over status as explained by Tajfel and Turner's Social Identity Theory.

Conflict over resources: realistic conflict theory (RCT)

When groups are forced to compete over scarce resources, then intergroup relations can become marked by conflict. In section 2.1 of this chapter, you were introduced to the work of Sherif et al. (1961). According to Sherif, conflict between groups occurs when groups compete to obtain a mutually exclusive goal (i.e., a goal that sees one group required to 'beat' the other group to 'win'). He argued that the introduction of a superordinate group goal (i.e., a goal that requires cooperation between the groups to be achieved) is one way to reduce conflict. You will remember that Sherif et al. (1961) supported the Realistic Conflict Theory with a series of longitudinal field experiments that each lasted about three weeks using young boys at American summer camps. Sherif **concluded** that '*mutually exclusive goals* can **cause *intergroup conflict*** to *develop*, and the use of *superordinate goals* is one way to ***resolve an intergroup conflict***.' Thus, you can use this study to provide support for conflict and conflict resolution.

Certainly, the world has changed a lot since Sherif et al. (1961) conducted their pivotal research into RCT back in 1961. Social psychologists have researched modern applications of the theory using different online activities. One example of modern research investigating RCT is from Adachi, Hodson, Willoughby and Zanette (2014) who used video games as a way of reducing prejudiced attitudes. Read the Focus on Research for a more detailed understanding of some of this modern approach to testing and understanding prejudice.

> Focus on Research
>
> Adachi et al., (2014) asked Canadian university students to cooperate with a partner playing a

violent video game for 12 minutes. The participants were 154 Canadian undergraduate students at Brock University of which 56% were female with a mean age of 18 years and 9 months (16 suspicious participants were excluded, leaving 138). The 'partner' was either a member from their ingroup (same Canadian university) or was an outgroup member (from the University of Buffalo in the USA). The game required participants to work together to shoot and kill attacking zombie-like enemies. They found that intergroup cooperation with an American participant led to a reduction in prejudice towards students from the University of Buffalo and towards Americans in general (there was no change in attitudes towards ingroup members). Thus, the post-game level of prejudice was significantly reduced compared to the pre-game level after they had worked towards a shared superordinate goal. In addition, Adachi et al. were also able to demonstrate that discrimination was positively affected after playing cooperatively with the outgroup member in that participants would typically decline the opportunity to discriminate against their partner when they were offered the opportunity to administer a negative outcome.

Conflict over status: social identity theory

Tajfel and Turner (1979) accepted Sherif's realistic conflict theory, but noted that there are often times when groups are in conflict with no material resources involved. Tajfel and Turner proposed the social identity theory to explain conflict that occurs between groups when there is no material resource at stake but instead a conflict that occurs over status. To do this, they proposed the social identity theory. You might want to use this lesson to review your understanding of social identity theory from the sociocultural approach. For this section, you need to focus on the element of the theory that looked at social comparison.

Our social identity is part of our self-concept and is built from our membership with different groups. This is different to our personal identity which is built from the way we perceive our self and the personal relationships we have with others. Our social identity is therefore tied to intergroup behaviours while our personal identity is tied to interpersonal behaviours. According to social identity theory (SIT) we strive for a positive self-concept and therefore seek out groups that enhance our self-esteem. To establish a positive social identity, we compare our in-group with different outgroups – this is known as social-comparison. Through social comparison we engage in positive distinctiveness whereby we evaluate our ingroup as ore positive than our outgroup. This positive distinctiveness contributes to enhanced self-esteem.

Social identity theory has been used to explain competition between groups that does not involve a conflict for physical/material resources.

Tajfel et al.'s (1971) minimal group paradigm that you learned previously was used as evidence to support SIT. The idea that the boys in the study would award more points to members of their ingroup – even when it meant awarding less points that were available – indicated that there was something about being the group with the higher status. A case whereby we want to enhance our social identity to be 'better' than the outgroup.

> Ask Yourself
>
> Are there other ways to explain the results from Sherif? Do you think that the results may be due to nothing more than the cooperative or competitive nature of the interaction?
>
> Is it possible, that Tajfel et al.'s (1971) results can be used to explain the RCT (i.e., is it the mere process of splitting the boys into the two groups that contributed to the conflict and not the nature of the group goals)?

Conflict resolution: intergroup contact

Historically, groups have often (and still are) been separated by educational, occupational, cultural and material differences. Bringing groups together under the right conditions, however, can reduce conflict. That is, intergroup contact can serve to reduce conflict.

Gordon Allport's (1954) contact hypothesis starts from the assumption that negative attitudes about the outgroup are maintained by a lack of access to disconfirming information. Therefore, promoting contact between members of different groups should disconfirm negative stereotypes and thus reduce stereotypes, prejudice and intergroup conflict.

Allport (1954) first proposed the contact hypothesis in the same year that the United States Supreme Courts passed the law of racial desegregation in the education system. This meant that black and white children would now go to the same schools, rather than being segregated into different schools as they had been in the past. This provided a real-world test of the contact hypothesis. Interestingly, initially there was an increase in conflict between the students.

Allport defended his theory arguing that you need to have three conditions for successful contact. Following are Allport's conditions for contact:

1. Contact needs to be prolonged and involve cooperative activity. In other words, the contact experience must be a positive experience that changes your ideas about the outgroup. It was precisely this sort of contact that improved relations in Sherif's (1961) summer camp studies.
2. Contact should be supported by officials and authorities. While legislation against discrimination will not in itself abolish intergroup conflict, it provides a social climate that is conducive to more tolerant social practices.
3. Contact should occur between people or groups of equal status. Unequal status contact is likely to confirm stereotypes and thus further entrench prejudice and discrimination.

Hundreds of studies have been published supporting the contact hypothesis. Pettigrew and Tropp (2005; 2006) carried out a meta-analysis of over 500 contact studies and provided convincing evidence that contact reduces prejudice and conflict. They sought studies that had exposed individuals to contact with people from different outgroup members. The studies, although predominately from America were accessed from all over the world and had been conducted over a 60-year period. Within the meta-analysis they found that Allport's three optimal conditions – prolonged cooperative contact between equal status groups that is supported by officials – enhanced the beneficial effects of contact.

An effect of intergroup contact on bias reduction also has been examined in a non-violent video game. Vang and Fox (2014) asked White participants to play a non-violent anagram game (unscrambling a series of letters to create words) in the virtual environment *Second Life*, either competitively or cooperatively, and with either a White (ingroup) or Black (outgroup) avatar. After playing the game, White participants indicated their attitude toward the avatar (either Black or White) with whom they played either cooperatively or competitively. The researchers found a strong effect of intergroup contact on bias reduction in the non-violent game, such that evaluations of Black avatars in both the intergroup cooperation and competition conditions were more favorable than evaluations of White avatars in the intragroup cooperation and competition conditions. Hence, intergroup cooperation and competition in the non-violent video game led to favorable attitudes toward an outgroup (Black) avatar, which were even more positive than attitudes toward an ingroup (White) avatar among participants who engaged in intragroup cooperation and competition. However, the researchers did not assess real world attitudes toward Blacks and Whites generally.

2.4 Assessment Advice

In this section, you have been introduced to many new terms and concepts. Remember, when you first introduce a key psychological term you should provide a clear and concise definition. For example, you might want to define an 'ingroup' as a group to which an individual belongs and an 'outgroup' as a group to which an individual does not belong.

A very common error that occurs in both the sociocultural approach and this topic is confusion between Tajfel and Turner's (1979) social identity theory and Bandura's (1977) social cognitive theory. These are two completely different theories – for this section you need to be familiar with SIT and not SCT.

The theories and studies that have been included in this section have intentionally been ones that you covered in your sociocultural approach. You might want to go back and review each in more detail. This will help you with this section and with your revision for Paper 1.

Remember that for Paper 2 you will be asked to answer one extended response question from a selection of three on the psychology of Human Relationships (of course, you will also need to answer an ERQ for Abnormal Psychology too). The command terms that will be used in Paper 2 are: (1) contrast, (2) discussion, (3) evaluate and (4) to what extent. For example, you may be presented with a question such as: 'Evaluate theories or studies that explain prejudice and discrimination', or 'Contrast research or theories that investigate the origins of conflict'.

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3. Social Responsibility

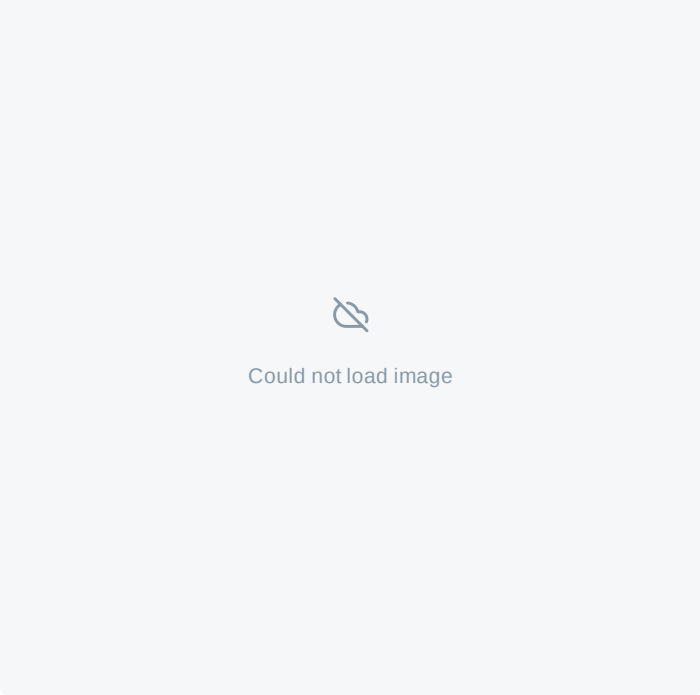
3.1 Bystanderism

Kitty Genovese was returning home from her job as manager of a New York city bar in the early morning hours of March 13, 1964. As she crossed the street from her car to her apartment building, a man armed with a knife approached her. Kitty ran away, however the man chased and caught her. As he stabbed her, she screamed for help and lights went on in many of the apartments overlooking the street as people looked out to see what was going on. The attacker started to leave, but when he saw that no one was coming to help his victim, he returned to kill her. She screamed again, but he stabbed her repeatedly until she was dead. It was later determined that this horrifying 45-minute attack was seen and heard by 38 witnesses, but no one took any direct action or bothered to call the police.

This event triggered the research into 'bystanderism', which endeavoured to understand what factors might influence people to *not* help an individual in need. Two of the early researchers in this area were John Darley and Bibb Latané, who were motivated to gain greater understanding and insight to the behaviours of the people who witnessed the murder of Kitty Genovese.

Social Psychologists have come up with three key factors that contribute to bystanderism:

1. Diffusion of responsibility
2. Interpretation ambiguity, and
3. Evaluation apprehension



We will look at each of these three factors in turn.

Diffusion of responsibility

With the case of Kitty Genovese many of the bystanders were aware of the other witnesses as they were able to see that other people had also turned on their lights. Many assumed that other witnesses had already called the police. Darley and Latané suggested that the presence of many people may have contributed to a lack of helping as the r*esponsibility* was *diffused* across the group.

To test the idea of diffusion of responsibility, Darley and Latané designed a series of experiments. See the following Focus on Research.

Focus on Research

Darley and Latané (1968).

The **aim** of the research was to test the diffusion of responsibility hypothesis by creating an emergency. To do this the participants (who were first-year university students) were told the **cover story** that the researchers were interested in finding out about their adjustment to university life. They were asked to discuss their personal experiences and problems in starting university. The participants were also told that to maintain their privacy they would be asked to talk openly about their experiences in a private booth using a microphone. They were told that each person in the discussion group could talk for two minutes and then next participant would have an opportunity to talk for two minutes and so on.

The cover story allowed the researchers to implement their **independent variable** (number of people believed to be in the discussion). In condition 1, the participants were told that they were in a group with only one other person; those in condition 2 believed there would be two other people in adjoining booths; while those in condition 3 were told that there were five other people participating in the discussion. In reality, the participant was alone and all the other voices they heard through the intercom were recorded.

The researchers then decided to stage an epileptic seizure as a ‘real life emergency’. As the discussion with the participant and other ‘students’ began, they all heard a male student introduce

himself and share his difficulties adjusting to university. At the end of his two minutes, he added that he would sometimes suffer severe seizures. Then the conversation switched to the next person in the discussion. In Condition 1, this was the real participant. In the other conditions, it was switched to another recorded 'student'. With the real participant always going last. After the real participant talked for two minutes the microphone was returned to the first speaker, who then began to have a seizure. He would ask for help many times. The experiment was stopped after four minutes of the seizure beginning. The **dependent variables** were the number and speed of the participants who left their cubicle to get help.

The **results** revealed that all of the participants in Group 1 went for help within four minutes while only 85% of Group 2 and 60% of Group 3 did so within the four-minute period.

Darley and Latané **concluded** that they had demonstrated support for their diffusion of responsibility hypothesis: as the number of other 'bystanders' increased, the percentage who reported the seizure quickly decreased.

Interpretation ambiguity

A second explanation for the bystander effect concerns ambiguity in the interpretation of the situation. Potential helpers are sometimes uncertain if a situation is actually an emergency. The behaviours of other bystanders can influence how we define a situation and react to it. If others ignore a situation or act as if nothing is happening, we, too, may assume that no emergency exists.

According to the interpretative ambiguity hypothesis, the reasoning in the bystander's mind should be something like: 'If my neighbours do not react, then apparently, they have decided that there is no emergency, and if there is no emergency, then there is no reason for me to react'. The problem, of course, is that the identical reasoning was going on in each of their neighbours' thoughts. As a result, everybody misinterpreted the others' inactivity as reflecting informed decision, when in fact the inactivity derived from the same uncertainty they were experiencing.

Interpretative issues are not limited to the definition of emergency vs. non-emergency. Potential helpers also make inferences about the *causes of the person's needs*. Research suggests that the attributions people make about the victim's responsibility also influence helping behaviour, with evidence showing that we are less motivated to help when we believe that people are personally responsible for their misfortune. Especially if the bystander believes that the misfortune was controllable. For example, data shows that visible cues like alcohol or a dirty outfit are strong deterrents against helping others.

Evaluation apprehension

A third factor in the bystander effect is evaluation apprehension. Darley and Latané (1968) contended that part of the reason we fail to help when others are present is that we are afraid of being embarrassed or ridiculed.

If we know that other people are watching our behaviour, we may get 'stage fright'. We may worry that we will do something wrong or that others will evaluate our reaction negatively. This means that the bystanders of the Genovese case may have remained inactive partly because they were worried that they would look foolish by showing concern when others were apparently calm.

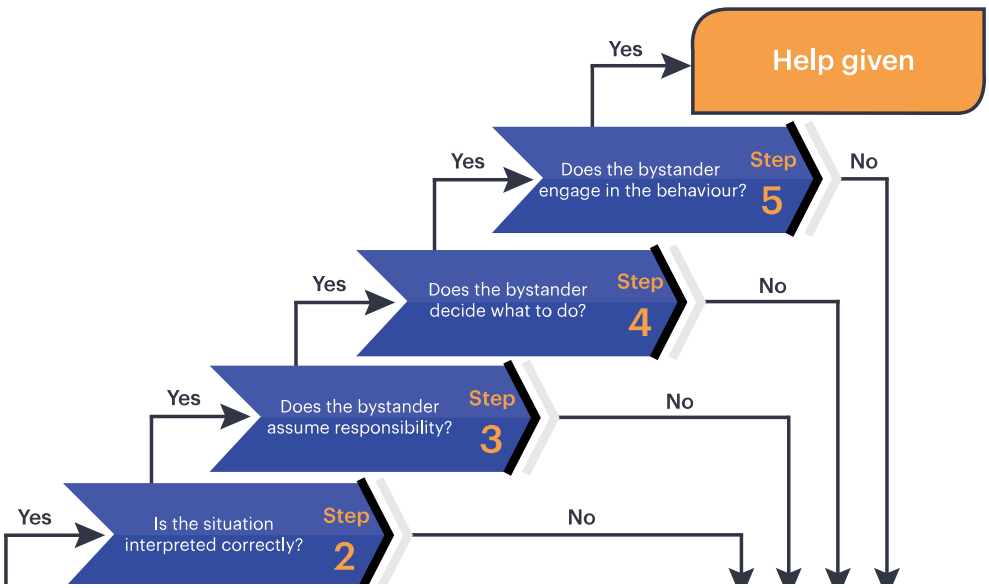
So, according to this hypothesis, the desire to avoid the cost of social disapproval can inhibit action. Of course, the same worry of disapproval can even trigger helping behaviour: if helping others is seen as the

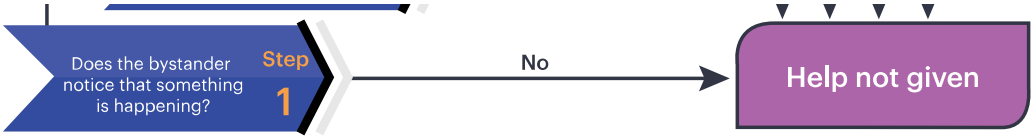
socially desirable thing to do in a specific situation, then we will help. This means that the direction of our behaviour really depends on how we construct a specific situation.

You can read all of Darley and Latané's (1968) original report here.

> Ask Yourself
>
> Think of a time when you have acted as a bystander. Which of Darley and Latané's three key factors contributed to your own bystanderism?

> **Essential Question: Why do people help vs. not help?**
>
> From their original research, Darley and Latané became the leading researchers in this field and they developed a five-step model, known as the Model of Helping Behaviour, outlining why people chose to engage in helping others:
>
> - The **first step** is perceiving a need. When a bystander is confronted by an emergency situation, in order for prosocial behaviour to occur, the first thing that must happen is that the bystander must notice the emergency situation. Darley and Batson (1973) conducted research that supports the need to notice the situation. This is reported in Focus on Research.
> - The **second step** of the process then requires the bystander to interpret the situation as an emergency. We know that 'interpretation of ambiguity' plays a role in this step of the model. Several of the bystanders in the Kitty Genovese case reported that they thought it was just a lover's quarrel and failed to interpret the situation as an emergency.
> - The **third step** refers to the personal responsibility of the bystander. We have seen that diffusion of responsibility influences this step. If the bystander assumes that it is someone else's responsibility they will not engage in prosocial behaviour.
> - The **fourth step** requires the bystander to weigh the costs and benefits of providing help. Here we know that evaluation apprehension will affect the decisions at this point. If the fear of being perceived as foolish is greater than the desire to help, then the bystander will not act.
> - The **final step** of the model requires the bystander to deliberate on how to provide help. Does the person have the perceived knowledge, skills or training to be able to provide help? If the answer is yes then help will be provided.





Focus on Research

Darley and Batson (1973) aimed to identify the effects of cognitive busy-ness on helping behaviour. Cognitive busy-ness refers to those situations in which our mind is already occupied with other activities so it is difficult to process any other information. Cognitive busy-ness can arise from being worried or occupied with another task.

The participants in this experiment were asked to present a talk to a group of people in another building. The independent variable was the degree of cognitive busy-ness. This was manipulated by telling one-third of the participants that they had adequate time to reach the other building. Another third were told that they were right on schedule and had just enough time to get to the building. The other third were told that they were late for the speaking engagement.

As they walked to the other building where the participant was supposed to give a talk, a stranger (actually a research assistant) was slumped in a doorway, coughing and groaning. The dependent variable was the number of participants that helped within each group.

The results revealed that the degree of prosocial behaviour decreased with increases in cognitive busy-ness (or time pressure), whereby those who thought they were late helped the least.

Darley and Batson concluded that a factor influencing bystander behaviour was when the individual failed to notice an emergency because they were preoccupied with other concerns, they are relatively less likely to attend to events in their surroundings and so are less likely to help a person in need.

An interesting twist on the research was that half of the participants were asked to talk about a topic related to helpfulness (comment on the parable of the Good Samaritan) and the other half were asked to talk about how to find a job (clearly not related to helpfulness). However, there was no effect of this variable. So, even when the issue of helpfulness was made mentally available, the participants failed to attend to the needy person if they were running late.

Many of you will be familiar with the term of ‘bystander’ and understand this term in relation to school-based bullying. This term is also applied to cyberbullying and recent research has been involved in trying to understand what makes people remain a bystander when witnessing online bullying. Schacter, Greenberg and Juvonen (2016) aimed to understand what factors would be influenced if bystanders would intervene in an online context. The 118 participants were provided with a Facebook profile and asked to read the profile and indicate their level of empathy and blame towards the person’s profile. Participants were randomly allocated to one of four conditions: participants either received a profile that was high or low in personal disclosure and was presented either positively or negatively. The results indicated that the high personal disclosure profile (i.e. the one that has more personal information from the victim), caused the participants to allocate more blame to the victim and felt less empathy for the victim regardless of if the post was positively or negatively worded. These effects than predicted the lower likelihood of bystander intervention with the bullying incident.

In summary, there are many factors that contribute to being a bystander. Some of the research suggests that these factors may vary according to context such as an online environment being

somewhat different to a face-to-face environment.

3.2 Prosocial Behaviour

Prosocial behaviour is behaviour that is of benefit to another person (or persons). Wispe (1972) defined prosocial behaviour as a behaviour that has positive social consequences and contributes to the well-being of another person. It includes helping behaviours (i.e., acts that intentionally benefit some else) and altruistic behaviours (i.e., a helping behaviour that is performed without expectation of personal gain and may be costly to the individual performing the act).

We will look at different factors that influence prosocial behaviour through the lens of each of the approaches to understanding behaviour. We will focus on the kin selection theory from the biological approach, the empathy-altruism theory from the social-cognitive approach, and we will re-visit Bandura's social cognitive theory from the sociocultural approach and finish by looking at cross-cultural research on altruism.

Biological factors: Kin selection theory

Evolutionary psychologists argue that there is a survival advantage in displaying selfless helping behaviour. However, how would helping a stranger be of benefit to your evolutionary success when it may put your own life at risk? Kin selection offers a simple explanation suggesting that helping others in your family group, particularly direct descendants, will increase the chances of the genes that caused the helping behaviour being passed on. While your helping may directly reduce your chance of survival, it may enhance the direct descendent's and therefore increase the chances of your shared genes being passed on. Thus, according to kin selection theory, one of the factors that influence prosocial behaviour is the presence of shared genes. Research that supports this theory comes from a study conducted by Sime (1983) who analysed accounts of how people fled from a burning holiday complex and found that when individuals were at the complex with non-biological relatives, they were more likely to have become separated and left the building on their own, whereas those that were at the complex with their family members were more likely to stay together and more likely to re-enter the building and this could favour group survival. Thus, according to an evolutionary perspective, factors that increase the likelihood of prosocial behaviour are shared genetics.

While biological factors such as kin are a fascinating notion to explaining prosocial behaviour, the explanation on its own is quite limited. These theories often fail to consider other elements of human capacity such as the ability to communicate (Buck and Ginsburg, 1991) and the impact of social learning.

Socio-cognitive factors: Empathy-altruism hypothesis

Empathy is an emotional response to someone else's distress, a reaction to witnessing a disturbing event. Daniel Batson (1991) put forward the empathy-altruism hypothesis that suggests when an observer notices another individual is experiencing a mismatch between their current situation and their ideal/potential state this mismatch generates a feeling of empathy. For example, when we see someone injured we notice their current situation (being injured) is mismatched from their ideal situation (being healthy). The strength of the observer's empathic response is influenced by many factors, for instance, if the injured person is a family member or a friend then the response will be higher than if it is a stranger. Also, empathy can be influenced by how much we consider the person to be in need. For example, if the injured person is a small child we might perceive a greater need than if they were a young adult and consequently have a higher empathic response. Batson has conducted numerous studies to support the empathy-altruism hypothesis. One is reviewed in the following Focus on Research.

Focus on Research

Toi and Batson (1982) conducted an experiment that aimed to understand how empathy and ease of escape might influence prosocial behaviour. Female psychology students were asked to listen to an interview with a fellow student (Carol) who had recently broken both her legs in a motor vehicle accident. In the experiment, they manipulated two independent variables. Firstly, empathy was manipulated by asking participants to focus either on the information that was presented (low empathy condition) or on Carol's feelings about what had happened (high empathy condition). Secondly, ease of escape was manipulated by telling some participants that Carol was stuck at home (high escape condition) or that she would be returning to university next week and would be in the same tutorial group as the participant (low escape condition). The dependent variable was measured by asking participants if they would help Carol by going through class notes with her. The results indicated that participants were more likely to help if they had been listening with a focus on how Carol felt. There was a weaker effect of escape, with participants expecting to meet Carol next week increasing the likelihood that they would help.

Social factors: Social cognitive theory

You may recall from the sociocultural approach that Bandura presented the social cognitive theory. Bandura's famous bobo doll study revealed that children learn to be aggressive and model adults who act out violent sequences. You might want to take a minute now and revise that section of the course. Principles derived from social cognitive theory have been extended to explain prosocial behaviour. Children exposed to adults *modelling* prosocial behaviour and experiencing positive *reinforcement* from others following prosocial behaviour will result in increased positive behaviours. Rushton and Teachman (1978) used young boys (8–11 years) as participants and had them watch an adult play a game using tokens. The boys watched the adult generously donate some tokens to 'poor little Bobby, who had no Mommy or Daddy to look after him'. The boys then played the game. In the experimental conditions, an adult would either positively *or* negatively reinforce for behaving generously (e.g.: 'good for you' or 'that's silly now you have less tokens'). The boys in the positive reinforcement condition donated significantly more tokens than the boys in the negative reinforcement condition. This effect remained even when the boys were re-tested two weeks later. Thus, exposure to models acting positively can have an increased impact on prosocial behaviour, much the same as exposure to models acting negatively can impact on aggressive behaviours. The effect of positive modelling is significantly enhanced when an individual is positively reinforced for engaging in prosocial behaviour.

Cultural factors: Levine et al.'s (2001) cross-cultural research

Considering the strong argument behind genetic influences in prosocial behaviour, it might make sense that altruistic behaviour occurs universally. However, given the many social differences found around the world it is also possible that some cultures are more likely to engage in helping behaviours than others. Robert Levine and colleagues (2001) explored cross-cultural differences and similarities in 23 different countries. The details of this research are reported below.

Focus on Research

Levine, Norenzayan and Philnrick (2001) aimed to understand differences in altruism in different cities around the world. The researchers measured many variables (such as population in the cities, religious influence, the degree of individualism and collectivism) to assess how different

cultural influences affect prosocial behaviour. This field of research used three different situations to measure the spontaneous assistance offered by strangers. The three situations were:

1. A pedestrian drops a pen on the street without noticing
2. A pedestrian wearing a leg brace drops some magazines
3. A blind pedestrian with a cane waits at traffic lights for assistance to cross the street.

An overall 'helping' index was created, and the results revealed that the top three cities for prosocial behaviours were Rio de Janeiro (Brazil), San Jose (Costa Rica) and Lilongwe (Mali). The bottom three cities were Singapore (Singapore), New York (USA) and Kuala Lumpur (Malaysia). While there were differences in the helping scales across the cities, collectivism and individualism did not have any relationship to prosocial behaviour. Interestingly, there was a relationship between purchasing power and helping behaviour. As the purchasing power increased the helping behaviour reduced. Levine et al. suggested this may be because there are more established traditional value systems in less developed countries.

Levine et al.'s research indicates that the cultural dimensions of collectivism and individualism may not easily explain differences in helping behaviours. However, it is important to consider other factors that may be at play. For example, we are more likely to help members of in-groups than outgroups and it may be that collectivist cultures have more clearly defined group borders than individualist cultures.

In closing, helping behaviour can be influenced by our genetics (kin selection theory), emotions (empathy-altruism theory) and our social environment (social cognitive theory and cross-cultural differences).

3.3 Promoting Prosocial Behaviour

By now, you are aware of many theories and relevant research into the nature and origins of prosocial behaviour. We will now explore how we might promote the tendency of people to help.

Some of the research you can use to understand why people help can be used to suggest ways that we can promote helping behaviour. We will start out looking at the idea of gratitude and how an expression of gratitude can promote prosocial behaviour. We will then revisit our old friend the social cognitive theory and finish off by looking at the role of skill development and education as different ways to promote prosocial behaviour.

When we are thanked for helping others, even just incidentally perhaps for picking up something they dropped, we are more likely to help in the future (for a review, see McCullough, Kilpatrick, Emmons and Larson, 2001). Grant and Gino (2010) sought to further understand if gratitude expressions motivate prosocial behaviour and started to explore reasons for this effect. So, you can use this research to support 'why' people help and also as a way to promote prosocial behaviour. You can read about Grant and Gino's research below.

Focus on Research

Grant and Gino (2010) A Little Thanks Goes a Long Way: Explaining Why Gratitude Expressions Motivate Prosocial Behaviour.

Grant and Gino aimed to understand the role of gratitude as a motivator in prosocial behaviour. As

> part of the method, they asked 69 university students to edit a student's cover letter for a job application. Participants in the neutral condition than received email feedback (allegedly) from the student after this task that stated: 'Dear [name], I just wanted to let you know that I received your feedback on my cover letter. I was wondering if you could help with a second cover letter I prepared and give me feedback on it. The cover letter is attached. Can you send me some comments in the next three days? (p. 948)'. In the gratitude condition the participants received a very similar letter with the addition of gratitude, this email read: 'Dear [name], I just wanted to let you know that I received your feedback on my cover letter. Thank you so much! I am really grateful. I was wondering if you could help with a second cover letter I prepared and give me feedback on it. The cover letter is attached. Can you send me some comments in the next three days? (p. 948)'.
>
> After receiving the email participants were sent a second email from the experimenter asking them to complete a series of measures including social worth (which was defined as a sense of being valued by others). The effect of the IV (the neutral or grateful email) was tracked by assessing whether participants engaged in prosocial behaviour by helping the student with the second letter. They found that the percentage of participants helping to edit the second letter was significantly larger in the gratitude condition (23/35, 66%) than in the neutral condition (11/34, 32%). In other words, having received an expression of gratitude is one factor that influences prosocial behaviour. In addition to this, they discovered that the reason 'why' people respond positively to expressions of gratitude is because it affects their social worth. The subsequent studies found that people are more likely to help other people beyond the individual who expressed the gratitude. So, if we want to further promote prosocial behaviour, an expression of gratitude is one way to do that.

Social cognitive theory

Previously we reviewed Bandura's social cognitive theory and focused on positive behaviours. Specifically, Rushton and Teachman (1978) found boys were more likely to help another when exposed to positive reinforcement (verbal praise) and positive role modelling. They argued that we can promote prosocial behaviour through positive reinforcement and positive role modelling. There can be a problem with the use of reinforcement as a *single strategy* for promoting prosocial behaviour, as this has been found to reduce long-term helping behaviour. It seems that when an individual is rewarded for producing prosocial behaviour then the main reasons for the behaviour is that they have accessed a reward. Thus, their motivation is for the behaviour to be reinforced rather than being motivated by the desire to help others. As a result, the removal of the rewards/reinforcements can cause the helpful behaviour to stop.

While exposure to positive reinforcement and models might be a supporting factor in promoting prosocial behaviour there are other factors that also need to be considered. If you quickly revisit the helping model that we looked at from Latané and Darley (section 3.1), you will notice that there are many steps along the way that seem to inhibit helping behaviours. The person needs to notice the need for help (Step 1), then assess if help is required (step 2), next they must take the responsibility to help (Step 3), following that they need to identify if they have the skills/ability to help (Step 4) and finally assess if they should help (Step 5).

If we can encourage people to take responsibility (Step 3) and ensure they have the necessary skills (Step 4) this will promote the likelihood of an individual engaging in the prosocial behaviour. We will now look at research that indicates we can promote helping behaviours through increased responsibility and education/skill training.

Taking responsibility

One way we can increase people to engage in helping behaviour at Step 3 (i.e., assess if they are responsible) is through accessing a prior commitment. In a field experiment carried out at a beach in New York, Moriarty (1975) sat next to people who were already seated alone at a beach. Shortly afterwards he asked the person next to him either for a match (smoking was more common in the 70s!) or to watch his things while he went for a walk. In both conditions, the researcher then went for a walk. While on the walk a 'thief' (confederate) came along and picked up Moriarty's radio and walked away. Of those who were asked for a match only 20% intervened compared with 95% who were specially asked to be responsible. Most of those even ran after the 'thief', some grabbing his arm and demanding an explanation.
In other research on responsibility, Baumester et al. (1988) found that being a leader provides the cues for people to engage in prosocial behaviour more so than it does for followers (or non-leaders). Read how they found that just being randomly appointed a leader with no additional skills increased prosocial behaviour in the study below.

Skill development and education

Another way to promote prosocial behaviour is through skill development. It has been found that people with first-aid training are more likely to intervene in helping someone who is injured than those without first-aid training. This would fit with Step 4 of Latané and Darley's helping model. Supporting evidence for this comes from Pantin and Carver (1982) who showed students a series of films on first-aid and emergencies. Three weeks later they had the chance to help a confederate who was (apparently) choking. The bystander effect was reduced amongst the students who had seen the film. This area of skill development is part of the purpose behind various first-aid courses that are carried out in many countries.

There is evidence to demonstrate that prosocial behaviours can be promoted through education. Beaman, Barnes, Klentz and McQuirk, (1978) presented a film reviewing the research literature on bystander intervention effects to one psychology class (experimental condition) but did not present this literature to a very similar psychology class (control condition). Two weeks later, the students encountered a person in need of help. This student was a confederate in the experiment and was slumped over a park bench. The students witnessed this confederate either alone or with another person (who was also a confederate) who ignored the person in need of help. Of the students who had received the information on bystander intervention 43% offered help, compared to 25% of students who had not received the information on bystander intervention. This study worked because it imparted new knowledge about bystander intervention and perhaps also because it makes people more aware of the importance of helping.

> Focus on Research
>
> Baumeister, Chesner, Senders and Tice (1988) hypothesised that leaders experience more prosocial behaviours than ordinary group members. They provided male and female participants (N = 32) with the cover story that they were allocated to a four-person group and one group member was randomly assigned to act as the leader. The task of the group was to decide which survivors of a nuclear war should be allowed to join the group in its bomb shelter. While the assistants/followers could make recommendations, the leader had to make the final decision.
>
> Participants were tested individually, and the group discussion was simulated over an intercom system. The independent variable was whether the individual participant was told that they were a leader or a follower. During the discussion, each participant was exposed to a simulated emergency, when the voice of a male group member faltered and said, 'somebody come help me, I'm choking!'. He then had a coughing fit and went silent. The dependent variable was the response to the request for help from the male. The results revealed that the designated leaders were much more likely to help. In fact, 80 % of the leaders helped and only 35 % of the followers

did so. Baumeister et al. concluded that acting as a leader can bring a generalised responsibility that goes beyond the immediate requirements of the task and can increase the likelihood of engaging in the prosocial behaviour.

> **Ask Yourself**
>
> What effect has learning about prosocial behaviour had on you? Will knowledge increase your willingness to help people in distress?
>
> In summary, it seems that we can increase prosocial behaviour through reinforcement, skill development, commitment and education.

3.4 Assessment Advice

Some possible ERQ questions you might see for this section could include:

- Discuss theories or studies on bystanderism.
- To what extent can prosocial behaviour be promoted?

As you know, you will be assessed in Paper 2 through two essay questions. The essays are marked out of 22 using the A–E Criterion. Most students recognise that they need to provide empirical (both experimental and theoretical) evidence to support their grades for Criterion B and C. As an IB examiner, I often see students struggle to demonstrate critical thinking (Criterion D).

Critical thinking is not about criticising some else's point of view or taking a negative approach. It involves making a logical and rational evaluation of research evidence, assessing both its strengths and its weaknesses.

Critical thinking is not 'magic' – it is a skill that anyone can learn and apply. The IB Psychology guide outlines five areas of critical thinking that can be demonstrated in your responses as:

1. Research design and methodologies
2. Triangulation
3. Assumptions and biases
4. Contradictory evidence or alternative theories or explanations
5. Areas of uncertainty.

I would encourage you to use these terms to highlight to the marker you are 'doing' critical thinking. For example, you may want to start a sentence with 'An area of uncertainty is …'.

You can see throughout this section on social responsibility that there is not one answer to any behaviour. You should be able to flag contradictory evidence or alternative theories with some level of sophistication. In addition, there are many areas of uncertainty. For example, what role does the cultural dimension of collectivism and individualism play in prosocial behaviour?

Criterion E is on clarity and organisation and is marked out of two. Many students seem to think this is an 'easy' mark area. However, it is critical to plan your response and ensure that your work is controlled and

logical so that the reader can easily follow your reasoning. The easiest way to achieve this is by using a structure that takes the reader down a clear and logical path. Do not try to cram too many ideas into each paragraph, or jump from one part of your argument to another. Build your argument step by step. Each point you make should build on the previous point and flow logically from it.

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