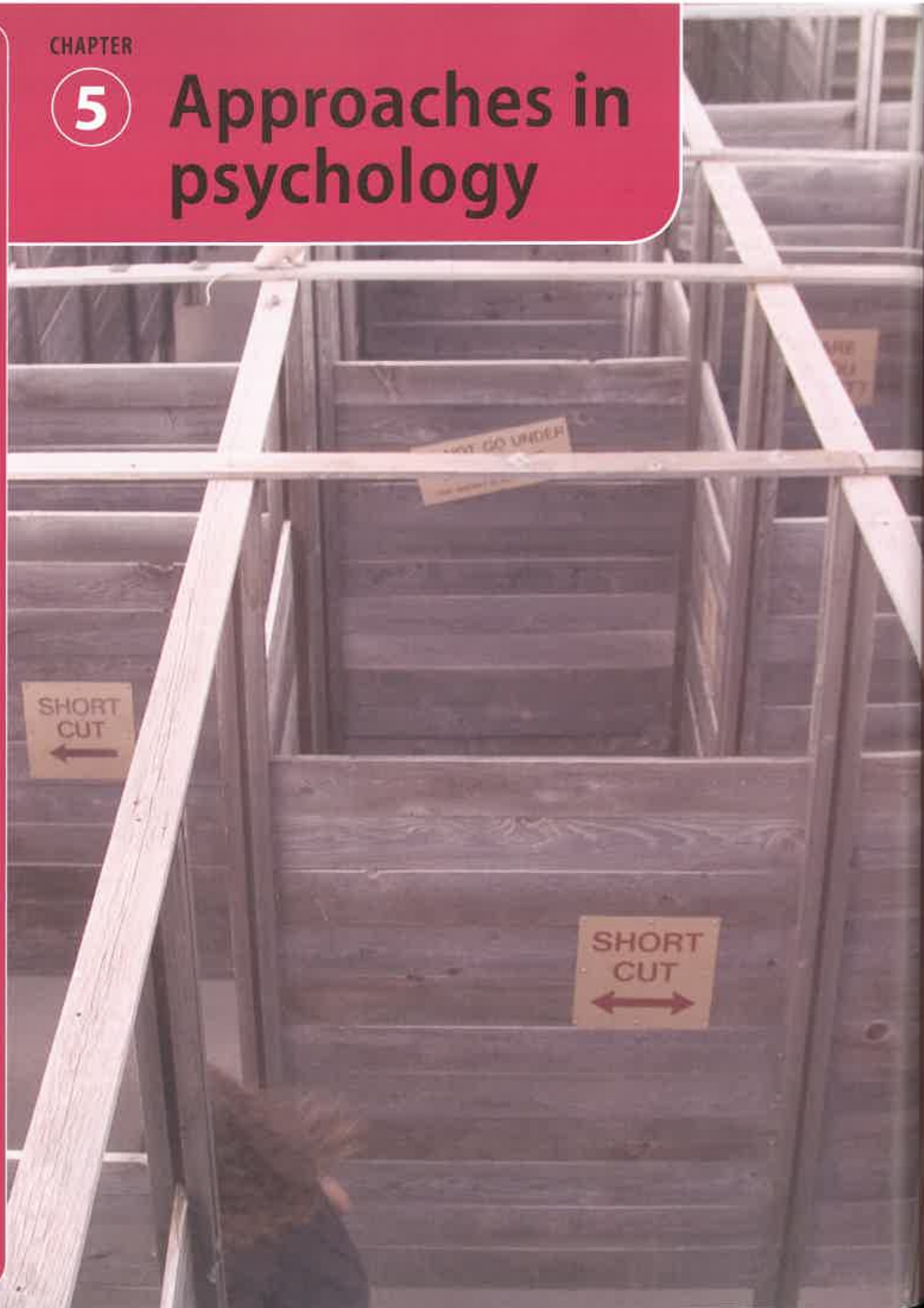


Approaches in psychology



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SPECIFICATION CHECKLIST

- Origins of psychology: Wundt, introspection and the emergence of psychology as a science.

The basic assumptions of the following approaches:

- Learning approaches: the behaviourist approach, including classical conditioning and Pavlov's research, operant conditioning, types of reinforcement and Skinner's research; social learning theory including imitation, identification, modelling, vicarious reinforcement, the role of mediational processes and Bandura's research.
- The cognitive approach: the study of internal mental processes, the role of schemas, the use of theoretical and computer models to explain and make inferences about mental processes. The emergence of cognitive neuroscience.
- The biological approach: the influence of genes, biological structures and neurochemistry on behaviour. Genotype and phenotype, genetic basis of behaviour, evolution and behaviour.

- The psychodynamic approach: the role of the unconscious, the structure of personality, id, ego and superego, defence mechanisms including repression, denial and displacement, psychosexual stages.
- Humanistic psychology: free will, self-actualisation and Maslow's hierarchy of needs, focus on the self, congruence, the role of conditions of worth. The influence on counselling psychology.
- Comparison of approaches.



Approaches to amusement parks

This summer I (Mike) paid a visit to Tivoli Gardens, the famous amusement park in Copenhagen, Denmark. The park opened in 1843 and is the second oldest amusement park in the world. It features the world's second tallest carousel at 80 metres high (The Star Flyer – pictured above) and Vertigo, a looping plane ride where the rider is able to control the plane him or herself. This one seemed to draw the loudest screams, so must have been the scariest. I watched while a seemingly never-ending line of people threaded their way onto all sorts of horrifying contraptions that swung them around ancient towers, dropped them from great heights, turned them upside down at frighteningly high speeds and generally did the sorts of things that logically we should avoid at all costs.

So, why do some people (like me...) stare upwards at these monstrosities with a sense of absolute dread, whereas others can't wait to be twirled, dropped, rotated and generally scared witless? Perhaps psychology has the answer, so try doing this activity in two parts.

TRY THIS

Part 1 (Before reading this chapter.) Why do *you* think some people love these rides and other people hate them?

Part 2 (After reading this chapter.) Now you are more psychologically informed, how would the different approaches explain this difference?

The origins of psychology

The success of the natural sciences had a significant influence on the emergence of psychology, particularly because the scientific methods used by sciences such as biology and chemistry were regarded as the only reliable methods for discovering reliable knowledge about the world. Therefore, in order to be accepted and to flourish as a subject in its own right, psychology had to adopt the methods of the natural sciences. This was not a straightforward process, as there was a long-standing belief that the human psyche was not amenable to scientific investigation. Despite this, the scene was set for a dramatic evolution in our understanding of the human condition, and, towards the end of the nineteenth century, scientific psychology was finally born.



Research methods

Introspection was used in a study of gambling behaviour (Griffiths, 1994). The study investigated the thought processes of people who gambled regularly versus non-regular gamblers, proposing that the thought processes of regular gamblers would be more irrational. To assess irrational thinking the participants were asked to 'think aloud' while playing a fruit machine. In order to do this the participants were given a list of instructions, such as:

- Say everything that goes through your mind. Do not censor any thoughts even if they seem irrelevant to you
- Keep talking as continuously as possible, even if your ideas are not clearly structured
- Do not hesitate to use fragmented sentences if necessary
- Do not try to justify your thoughts

The study found that gamblers used more irrational verbalisations

1. Explain how the dependent variable in this study has been operationalised. (1 mark)
2. Write a suitable hypothesis for this study. (2 marks)
3. State whether your hypothesis is directional or non-directional and explain why you chose this kind of hypothesis. (2 marks)
4. Explain why this study would be considered to be a quasi-experiment using self-report. (3 marks)
5. Explain in what way the procedures of this study were standardised. (2 marks)

LINK TO RESEARCH METHODS

Hypotheses on page 129, 162
Experiments on page 148
Standardisation on page 178

WILHELM WUNDT (1832–1920)

Wundt was the first person to call himself a psychologist, believing that all aspects of nature, including the human mind, could be studied scientifically. His approach paved the way for the acceptance of psychology as a distinct science in its own right, and experimental psychology as the preferred method of studying human behaviour. In his laboratory in Leipzig, Germany, he studied only those aspects of behaviour that could be strictly controlled under experimental conditions. These included the study of reaction time (how long it takes people to respond to various stimuli) and various aspects of sensation and perception.

Wundt's aim was to study the *structure* of the human mind, and he believed that the best way to do this was to break down behaviours such as sensation and perception into their basic elements. Because of this, his approach was referred to as structuralism and the technique he used as **introspection**. Although Wundt originally believed that *all* aspects of human experience could be investigated experimentally, he eventually came to realise that higher mental processes, such as learning, language and emotions, could not be studied in this strict controlled manner. These topics could instead be described in terms of general trends in behaviour among groups of people. He referred to this latter field as *Volkerpsychologie* (cultural psychology).

Introspection

Introspection, from the Latin meaning 'looking into', is the process by which a person gains knowledge about his or her own mental and emotional states. Just as our perceptual ability enables us to observe and make sense of the outer world, our introspective ability enables us to observe our inner world.

Wundt claimed that, with sufficient training, mental processes such as memory and perception could be observed systematically as they occurred using introspection. For example, observers might be shown an object and asked to reflect upon *how* they were perceiving it. This information could then be used to gain insight into the nature of the mental processes involved in perception, reaction time, etc. For example, in Wundt's studies of perception, participants would be presented with carefully controlled stimuli (e.g. visual images or auditory tones). They would then be asked to provide a description of the inner processes they were experiencing as they looked at the image or listened to the tone. This made it possible to compare different participants' reports in response to the same stimuli, and so establish general theories about perception and other mental processes.

THE EMERGENCE OF PSYCHOLOGY AS A SCIENCE

We might ask 'What is the glue that holds psychology together as a discipline?' This is most probably its reliance on a philosophical view known as **empiricism**. Empiricists believe that knowledge comes from observation and experience alone (rather than being innate). When empirical methods were first applied to the study of human beings by Wundt and his followers, psychology began to emerge as a distinct entity. This new 'scientific' approach to psychology was based on two major assumptions. First, all behaviour is seen as being *caused* (the assumption of determinism). Second, if behaviour is determined, then it should be possible to *predict* how human beings would behave in different conditions (the assumption of predictability). The technique used to explore these assumptions became known as the scientific method.

The scientific method in psychology

The **scientific method** refers to the use of investigative methods that are objective, systematic and replicable. It is objective in that researchers do not let preconceived ideas or biases influence the collection of their data, and systematic in that observations or experiments are carried out in an orderly way. Measurement and recording of empirical data are carried out accurately and with due consideration for the possible influence of other factors on the results obtained. It is replicable in that observations can be repeated by other researchers to determine whether the same results are obtained. If results are not replicable, then they are not reliable and cannot be accepted as being universally true. The research process is not restricted to empirical observation alone, but also necessitates the use of reason to explain the results of these observations. The development of scientific theories and the constant testing and refining of these theories through further observation completes the scientific cycle (see the diagram on the facing page).

EVALUATION

Wundt's methods were unreliable

A criticism of Wundt's structuralist approach, mainly from behaviourists, was that this approach relied primarily on 'nonobservable' responses. Although participants could report on their conscious experiences, the processes themselves (e.g. memory, perception) were considered to be unobservable constructions. Wundt's approach ultimately failed because of the lack of reliability of his methods. Introspective 'experimental' results were not reliably reproducible by other researchers in other laboratories. In contrast, the early behaviourists such as Pavlov and Thorndike were already achieving reliably reproducible results and discovering explanatory principles that could be easily generalised to all human beings.

Introspection is not particularly accurate

Most psychologists tend to accept Nisbett and Wilson's (1977) claim that we have very little knowledge of the causes of, and processes underlying, our behaviour and attitudes, a claim which would challenge the value of introspective reports. Nisbett and Wilson found, for example, that participants were remarkably unaware of factors that had been influential in their choice of a consumer item. This problem is particularly acute in the study of implicit attitudes, i.e. attitudes or stereotypes that are unknown to us. For example, a person may be implicitly racist, which influences the way they react to members of a different ethnic group, yet because such attitudes exist outside of conscious awareness, self-reports through introspection would not uncover them.

Strengths of a scientific approach to psychology

- Because of its reliance on objective and systematic methods of observation, knowledge acquired using the scientific method is more than just the passive acceptance of facts.
- Because scientific methods rely on a belief in determinism, they are able to establish the causes of behaviour through the use of methods that are both empirical and replicable.
- If scientific theories no longer fit the facts, they can be refined or abandoned, meaning that scientific knowledge is self-corrective. Because psychologists are always repeating each other's experiments, it is hard for a theory that does not explain the facts to hang on for very long.

Limitations of a scientific approach to psychology

- By concentrating on objectivity and control in observations, scientific psychologists create contrived situations that tell us little about how people act in more natural environments.
- Much of the subject matter of psychology is unobservable, therefore cannot be measured with any degree of accuracy. It is probably true to say that of all the sciences, psychology is the most inferential, i.e. there is a far bigger gap between the actual data obtained in research investigations and the theories put forward to explain this data.
- Not all psychologists share the view that all human behaviour can be explored by the use of scientific methods. If human behaviour is not subject to the laws and regularities implied by scientific methods, then predictions become impossible and these methods inappropriate.

MEET THE RESEARCHER



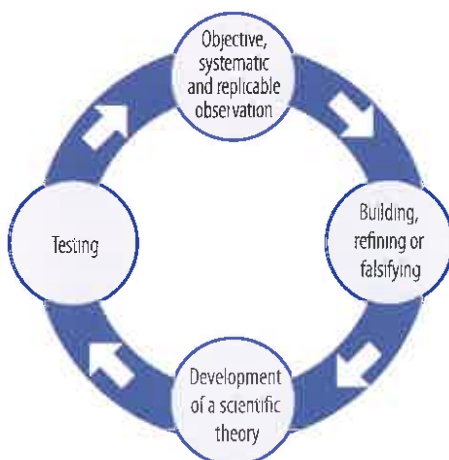
Wilhelm Wundt

In 1873 Wundt published the first book on psychology – *Principles of Physiological Psychology*. This book established psychology as a unique branch of science with its own subject matter and its own methods. He was the first person in history to be called a 'psychologist'. Wundt was certainly prolific as a writer. If you were to read his works at the rate of 60 pages a day, it would take you two and a half years to finish them!

FURTHER EVALUATION

Introspection is still useful in scientific psychology

Despite the fact that introspection rapidly fell out of favour as a research tool, it has not been *entirely* abandoned by psychologists, and in recent years it has made something of a comeback. Csikszentmihalyi and Hunter (2003) used introspective methods as a way of making 'happiness' a measurable phenomenon. They gave a group of teenagers beepers that went off during random times throughout the day, surprising participants and requiring them to write down their thoughts and feelings in the moment before the beep. Most of the entries indicated that the teens were unhappy rather than happy, but Csikszentmihalyi and Hunter also found that when their energies were focused on a challenging task, they tended to be more upbeat.



▲ The scientific cycle.

KEY TERMS

Empiricism The belief that all knowledge is derived from sensory experience. It is generally characterised by the use of the scientific method in psychology.

Introspection The process by which a person gains knowledge about his or her own mental and emotional states as a result of the examination or observation of their conscious thoughts and feelings.

Scientific method Refers to the use of investigative methods that are objective, systematic and replicable, and the formulation, testing and modification of hypotheses based on these methods.

CAN YOU?

No. 5.1

1. Explain Wundt's contribution to the development of psychology. (4 marks)
2. Outline **one** criticism of Wundt's contribution to psychology. (3 marks)
3. Explain what is meant by *introspection*. (4 marks)
4. Outline **two** criticisms of introspection as a method of investigation. (2 marks each)
5. Explain the emergence of psychology as a science. (6 marks)
6. Outline **one** strength and **one** limitation of the scientific approach in psychology. (3 marks each)

The behaviourist approach

The **behaviourist** approach rejected the vagueness of introspection, focusing instead on *observable* events, i.e. stimuli and responses, and the conditions under which learning would be most likely to occur. Because of the focus on learning, this approach is sometimes referred to as 'learning theory'. Behaviourists believed that much of human behaviour could be explained in terms of a basic form of learning known as *conditioning*, which involves the formation of learned associations between stimuli in the environment and an organism's responses. On this spread we look at two influential forms of conditioning – Pavlov's research on **classical conditioning** and Skinner's research on **operant conditioning**

Don't be confused by the words 'positive' and 'negative' in this context. 'Positive' means adding something, and 'negative' means taking something away. Both positive and negative reinforcement increase the frequency of a behaviour.

CLASSICAL CONDITIONING

All animals (including humans) are born with a number of natural reflexes such as the reflex action of salivation when food is placed in the mouth. These reflexes are made up of a *stimulus* (such as food) and its naturally associated response (in this case, salivation). When other stimuli are consistently associated with this stimulus, and predict its arrival, then eventually they too trigger the same response and the animal is described as having been 'classically conditioned'.

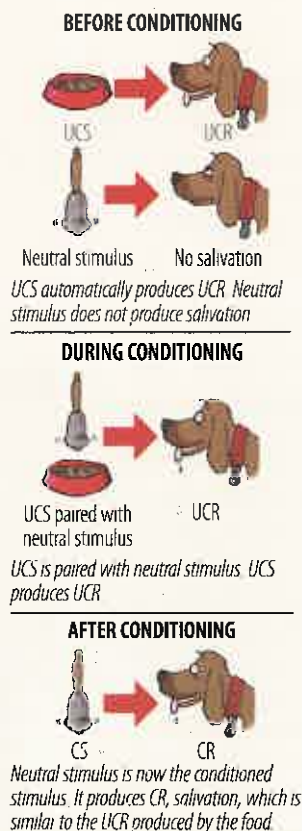
Pavlov's research

Russian physiologist Ivan Pavlov is normally credited with discovering the process of classical conditioning (Pavlov, 1927). He was investigating the salivary reflex in dogs when he noticed that the animals not only salivated when food was placed in their mouths, but also reacted to stimuli that coincided with the presentation of food, such as the presence of a food bowl or the person who fed them. This led him to explore the conditions under which this type of learning was most likely to occur.

The natural stimulus in any reflex is referred to as the unconditioned stimulus (UCS) and the natural response to this stimulus is the unconditioned response (UCR). During the acquisition phase, a neutral stimulus (NS), which does not elicit the UCR, is presented shortly before the UCS. After many pairings of NS + UCS, this changes and the NS is now able to produce the same response in the *absence of the UCS*. The NS is now referred to as a conditioned stimulus (CS) and the response it produces is called a conditioned response (CR). Ringing a bell shortly before presenting food to a hungry animal will eventually (after many pairings of NS and UCS) mean that the bell on its own will be sufficient to produce the response of salivation (CR).

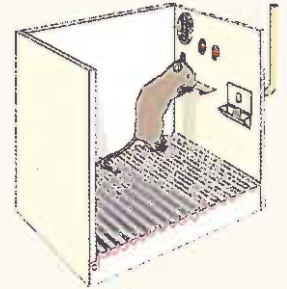
Other important features

- **Timing** – if the NS cannot be used to predict the UCS (e.g. if it occurs after the UCS or the time interval between the two is too great), then conditioning does not take place.
- **Extinction** – Pavlov discovered that, unlike the UCR, the CR does not become permanently established as a response. After a few presentations of the CS in the absence of the UCS, it loses its ability to produce the CR.
- **Spontaneous recovery** – following extinction, if the CS and UCS are then paired together once again, the link between them is made much more quickly.
- **Stimulus generalisation** – Pavlov discovered that once an animal has been conditioned, they will also respond to other stimuli that are similar to the CS.



OPERANT CONDITIONING

The basic idea behind Skinner's theory of operant conditioning (Skinner, 1938) is that organisms spontaneously produce different behaviours, and these behaviours produce *consequences* for that organism, some of which may be positive (i.e. desirable) and some negative (i.e. undesirable). Whether or not an organism repeats a particular behaviour depends on the nature of these consequences, i.e. it is *reinforced*.



▲ Skinner developed a special cage (called a 'Skinner box') in order to investigate operant conditioning in rats. The rat moves around the cage, and when it accidentally presses the lever, a food pellet (the reinforcer) falls into the cage. In no time at all the hungry rat begins pressing the lever in order to obtain food. If the food pellets stop, the rat presses the lever a few more times and then abandons it (*extinction*).

Types of reinforcement

Reinforcement means just what the word implies, i.e. something in the environment that strengthens (or reinforces) a particular behaviour and so makes it more likely to recur. There are two main types of reinforcer, positive and negative reinforcers. Although they both make it more likely that a behaviour will recur, they do this in different ways.

Positive reinforcement occurs when behaviour produces a consequence that is satisfying or pleasant for the organism, for example, food to a hungry animal or praise given to a child after they do something particularly well are both effective positive reinforcers.

Negative reinforcers work because they remove something aversive (unpleasant) and so restore the organism to its 'pre-aversive' state. For example, the act of hitting the 'off' button on an alarm clock allows a person to escape from the unpleasant ringing and restores the restful pre-alarm state.

Other important features

- **Schedules of reinforcement** – although a *continuous* reinforcement schedule (e.g. reinforcing a rat every time it presses a lever) is most effective in establishing a particular response, a *partial reinforcement* schedule (e.g. reinforcing every third lever press or every 10 minutes) is more effective in maintaining that response and avoiding extinction.
- **Punishment** – refers to the circumstance whereby a behaviour is followed by a consequence that is undesirable or unpleasant for the organism. Reinforcement increases the likelihood of a behaviour recurring, whereas punishment decreases it. As with reinforcement, punishment can also be positive (i.e. adding something unpleasant as a consequence, such as slapping a naughty child) or negative (i.e. taking away something pleasant such as 'grounding' a naughty teenager).

EVALUATION

Strengths of classical conditioning explanations

Classical conditioning has led to the development of treatments for the reduction of anxiety associated with various phobias. Systematic desensitisation is a therapy based on classical conditioning (see page 106). This form of therapy works by eliminating the learned anxious response (the CR) that is associated with a feared object or situation (the CS). The therapist tries to eliminate one learned response (anxiety) and replace it with another (relaxation) so that the patient is no longer anxious in the presence of the feared object or when in the feared situation. This approach has been found to be effective for a range of phobias such as fear of spiders (arachnophobia) and fear of flying (aerophobia).

Limitations of classical conditioning explanations

Different species face different challenges to survive, so have different capabilities to learn through the process of classical conditioning. As a result, relationships between the CS and UCS tend to be more difficult to establish for some species than for others. Seligman (1970) proposed the concept of preparedness to explain this. Animals are *prepared* to learn associations that are significant in terms of their survival needs (e.g. a dog will quickly learn to associate the smell of meat with the presence of food), yet *unprepared* to learn associations that are not significant in this respect (e.g. a dog will find it harder to associate the sound of a bell with food).

Strengths of operant conditioning explanations

A particular strength of Skinner's research was his reliance on the experimental method, which uses controlled conditions in an attempt to discover a possible causal relationship between two or more variables. Skinner's reliance on the Skinner box was a good example of this approach in practice. By manipulating the consequences of behaviour (the independent variable), he was able to accurately measure the effects on the rat's behaviour (the dependent variable). This allowed him to establish a cause and effect relationship between the consequences of a behaviour (i.e. positive or negative) and the future frequency of its occurrence.

Limitations of operant conditioning explanations

Skinner's research has received some criticism because his experiments involved the study of non-human animals rather than humans. Critics claim that his reliance on rats and pigeons means that Skinner's studies can tell us little about human behaviour. They claim that, unlike non-human animals, human beings have free will rather than having their behaviour determined by positive and negative reinforcement. Skinner argued that free will was merely an illusion and what we believe are behaviours chosen through free will are actually the product of external influences that 'guide' our behaviour on a daily basis.

FURTHER EVALUATION

A limited perspective on behaviour?

Behaviourists have been accused of ignoring other levels of explanation such as those that emphasise the importance of cognitive factors or emotional states. By treating human beings as a product of their conditioning alone means that we ignore the evidence for the role of these other factors in shaping behaviour. However, Skinner rejected this claim, arguing that these internal states are scientifically untestable. He argued that even complex behaviours such as our interactions with the opposite sex or pathological behaviour can be better understood by studying the reinforcement history of the individual.

MEET THE RESEARCHER

Burrhus Skinner

While the US military were working on their first missile guidance systems, psychologist Burrhus Skinner (1904–1990) had an unusual idea – pigeons could be trained to guide anti-aircraft missiles to their targets. The project, known as 'Project Pelican', involved three pigeons in separate compartments in the nose cone of a 'Pelican' missile. Each compartment had a lens, and using operant conditioning, the pigeons were trained to peck at the target projected on it in order to keep the missiles on target. This idea was taken seriously enough for the military to adapt some missiles to accommodate the pigeons before they eventually decided that electronics was a better bet for the future.



UPGRADE

AO3 questions with slightly more marks available are looking for more elaboration. For example, consider the question below: 'Outline **one** strength of the behaviourist approach. (6 marks)' This question requires you to go a bit deeper in your evaluation. You might start by *identifying* one strength of the behaviourist approach (e.g. that operant conditioning is based on the experimental method). You could then move on to some *elaboration* of this point (e.g. explaining how Skinner's use of the Skinner box allowed him to manipulate the independent variable, i.e. the consequences of behaviour, in order to study the effect on the dependent variable, i.e. the rat's behaviour). You could finish by explaining *why* this is a strength of the behaviourist approach (i.e. by establishing a clear causal relationship between these two variables, Skinner was able to predict the probability of a behaviour occurring again in the future, something that is only possible with the experimental method).

To expand on a critical point in this way requires you to first think through all of the strengths that you know, then choose the one you understand well enough to elaborate on. Try this elaboration process yourself for a limitation of the behaviourist approach.

KEY TERMS

Behaviourist People who believe that human behaviour can be explained in terms of conditioning, without the need to consider thoughts or feelings.

Classical conditioning When a neutral stimulus is consistently paired with an unconditioned stimulus so that it eventually takes on the properties of this stimulus and is able to produce a conditioned response.

Operant conditioning Learning through reinforcement or punishment. If a behaviour is followed by a desirable consequence then that behaviour is more likely to occur again in the future.

Punishment Involves the application of an unpleasant consequence following a behaviour, with the result that the behaviour is less likely to occur again in the future.

Reinforcement A term used in psychology to refer to anything that strengthens a response and increases the likelihood that it will occur again in the future.

CAN YOU?

No. 5.2

1. Explain what is meant by *classical* and *operant conditioning*. (2 marks each)
2. Outline the main findings of Pavlov's research. (4 marks)
3. Explain what is meant by *positive* and *negative reinforcement* in operant conditioning. (2 marks each)
4. Outline the main findings of Skinner's research. (4 marks)
5. Outline **one** strength and **one** limitation of the behaviourist approach. (6 marks)
6. Outline and evaluate the behaviourist approach in psychology. (12 marks AS, 16 marks A)

Social learning theory

Albert Bandura believed that new patterns of behaviour could be acquired not only through direct experience, but also by observing one's own behaviour and the behaviour of others. Unlike operant conditioning, where the role of reinforcement is simply to strengthen a response by providing immediate consequences, Bandura believed that reinforcement could also serve an informative function for the individual. During the course of learning, people not only perform responses; they also observe the different consequences of their own and others' behaviour. On the basis of this feedback, they develop hypotheses about the types of behaviour most likely to succeed in a given situation. These hypotheses then serve as guides for their future behaviour. Bandura referred to this approach as **social learning theory**.

Insider tip...

A common pitfall when answering questions in this area is that students provide descriptions of a study when a question has actually asked about the theory. Make sure you use appropriate material to answer the specific question set.



◀ The Bobo doll.

Social learning theory is nowadays known as 'social cognitive theory' to acknowledge the importance of meditational processes in social learning.

The term 'identification' is used in a slightly different way here than it was on page 18. However, both uses of the term stress either a desire to be part of, or a recognition of similarity between, the individual and others.

SOCIAL LEARNING THEORY (BANDURA, 1986)

Modelling

In order for social learning to take place, someone must carry out (or 'model') the attitude or behaviour to be learned. Individuals that perform this role are referred to as **models**. There are different types of model. A *live* model might be a parent, a teacher at school or a member of a peer group. A *symbolic* model would be someone portrayed in the media, for example a character on TV. These models provide examples of behaviour that can be observed by the individual and later reproduced by them in a process known as **imitation**.

Imitation

Although a certain amount of learning takes place through direct reinforcement, much of what a child learns is acquired through imitation of attitudes and behaviour that are modelled by parents and significant others. Research on imitation has shown that, unlike the relatively slow learning that takes place with conditioning, when a model is provided, whole patterns of behaviour can be rapidly acquired. The key determinants of whether a behaviour is imitated are (i) the characteristics of the model, (ii) the observer's perceived ability to perform that behaviour and (iii) the observed consequences of the behaviour.

Identification

Identification refers to the extent to which an individual relates to a model and feels that he or she is similar to that person. In order to identify with a model, observers must feel that he or she is similar enough to them that they would be likely to experience the same outcomes in that situation. Research (e.g. Shuttles *et al.*, 2010) suggests that children are more likely to identify with, and preferentially learn from, models who are similar to them, particularly same-sex models. Identification with a model means that the individual is more likely to imitate their behaviour, meaning that social learning is more likely to be effective.

Vicarious reinforcement

Bandura and Walters (1963) noted that children who observed a model rewarded for aggressive behaviour were much more likely to imitate that behaviour than children who had observed a model punished for the same behaviour. Bandura called this **vicarious reinforcement** – i.e. individuals learn about the likely consequences of an action, and then adjust their subsequent behaviour accordingly. The concept of vicarious reinforcement suggests that individuals do not need to experience rewards or punishments directly in order to learn. Instead they can observe the consequences experienced by a model and then make judgements as to the likelihood of experiencing these outcomes themselves.

The role of meditational processes

Social learning differs from other learning approaches in that it places special importance on internal **meditational processes**. Bandura (1986) claimed that, in order for social learning to take place, the observer must form mental representations of the behaviour displayed by the model and the probable consequences of that behaviour in terms of expectancies of future outcomes. When appropriate opportunities arise in the future, the individual might display the learned behaviour *provided* that the expectation of positive consequences is greater than the expectation of negative consequences.

KEY STUDY: BANDURA ET AL. (1961)

Procedures

Bandura *et al.* (1961) carried out an experiment involving children who observed aggressive or non-aggressive adult models and were then tested for imitative learning in the absence of the model. Half the children were exposed to adult models interacting aggressively with a life-sized Bobo doll and half exposed to non-aggressive models.

The aggressive model displayed distinctive physically aggressive acts towards the doll, e.g. striking it with a mallet, accompanied by verbal aggression such as saying 'POW'. Following exposure to the model, children were frustrated by being shown attractive toys which they were not allowed to play with. They were then taken to a room where, among other toys, there was a Bobo doll.

Findings

Children who observed the aggressive model reproduced a good deal of physically and verbally aggressive behaviour resembling that of the model. Children who observed the non-aggressive model exhibited virtually no aggression toward the Bobo doll.

About one-third of the children who observed the aggressive model repeated the model's verbal responses while none of the children who had observed the non-aggressive model made verbally aggressive remarks.

In a follow-up to this study, Bandura and Walters found that children who saw the model being rewarded for aggressive acts were more likely to show a high level of aggression in their own play.

EVALUATION

Strengths

Social learning theory has useful applications

The principles of social learning have been usefully applied to increase our understanding of many areas of human behaviour, including criminal behaviour. For example, Akers (1998) suggests that the probability of someone engaging in criminal behaviour increases when they are exposed to models who commit criminal behaviour, identify with these models and develop the expectation of positive consequences for their own criminal behaviour. Ulrich (2003) supports this claim in a review of the literature, finding that the strongest cause of violent behaviour in adolescence was association with delinquent peer groups, where violence was both modelled and rewarded.

Research support for identification

According to social learning theory, observing a model similar to the self should lead to more learning than observing a dissimilar model. Greater identification with a model leads to more learning because it is easier to visualise the self in the place of the model, so the observer feels as if he or she is having the same experience. Fox and Bailenson (2009) found evidence for this using computer generated 'virtual' humans engaging in exercise or merely loitering. The models looked either similar or dissimilar to the individual participants. Participants who viewed their virtual model exercising engaged in more exercise in the 24 hours following the experiment than participants who viewed their virtual model merely loitering or a dissimilar model exercising.

Limitations

A problem of causality

A major criticism of social learning theory explanations of deviant behaviour relates to its principal concept that increased associations with deviant peers increases the likelihood that an individual will adopt the same values and behaviours. The problem with this is essentially a problem in determining causality. The cause of delinquency, argue critics, may not be social learning as a result of exposure to deviant role models, but the possession of deviant attitudes *prior* to contact with deviant peers. Siegel and McCormick (2006) suggest that young people who possess deviant attitudes and values (e.g. low self-control) would seek out peers with similar attitudes and behaviours, as they are more fun to be with than their less reckless counterparts.

A problem of complexity

In focusing exclusively on the processes of social learning, advocates of this approach disregard other potential influences on behaviour. For example, in explaining the development of gender role behaviour, social learning theorists would emphasise the importance of gender-specific modelling. In real life, however, a child is exposed to many different influences, all of them interacting in complex ways. These include genetic predispositions, media portrayals, locus of control and so on. This presents a serious problem for social learning researchers: if virtually anything can have an influence on a specific behaviour, it becomes very difficult to show that *one* particular thing (social learning) is the main causal influence.

MEET THE RESEARCHER

Albert Bandura was born in 1925, in Northern Canada. He was educated in a small local school before enrolling as a biological sciences major at the University of British Columbia. While working nights to make ends meet, he found himself arriving at university much earlier than his classes started. To pass the time, he began taking 'filler classes' during these early morning hours, which led him to stumble upon psychology. 'One morning, I was wasting time in the library. I thumbed through a course catalogue attempting to find a filler course to occupy the early time slot. I noticed a course in psychology. It sparked my interest and I found my career.' He still continues to research and teach at Stanford University, at 90 years of age!



FURTHER EVALUATION

The importance of identification in social learning of health behaviours

Media attempts to change health-related behaviours have shown that models similar to the target audience are more likely to bring about identification and greater social learning. For example, health campaigns have tried to match characters that model the desired behaviour with the target audience in terms of physical characteristics, attitudes and behaviours in order to achieve the highest levels of identification. Greater identification is then expected to influence modelling behaviour. Andsager *et al.* (2006) found that perceived similarity to a model in an anti-alcohol advertisement was positively related to the message's effectiveness. Based on this finding, the researchers suggest that some of a message's potency may be lost if the individual finds it difficult to identify with a given model.

KEY TERMS

Identification is a form of influence where an individual adopts an attitude or behaviour because they want to be associated with a particular person or group.

Imitation The action of using someone or something as a model and copying their behaviour.

Meditational processes refer to the internal mental processes that exist between environmental stimuli and the response made by an individual to those stimuli.

Modelling A form of learning where individuals learn a particular behaviour by observing another individual performing that behaviour.

Social learning theory Learning through observing others and imitating behaviours that are rewarded.

Vicarious reinforcement Learning that is not a result of direct reinforcement of behaviour, but through observing someone else being reinforced for that behaviour.



APPLY YOUR KNOWLEDGE

Jack and Jess are two 10-year-old children. Their mother has noticed that Jack has a tendency to be disruptive and badly behaved after watching television programmes with a violent theme. She is shocked when she discovers that he has been caught fighting at school and the teacher asks whether he has been watching a lot of violent TV. Jack's mum is puzzled because Jess watches the same programmes but doesn't appear to be as affected by them.

Social learning theory has been used as a possible explanation of how and why children learn aggressive behaviour as a result of their exposure to violence on TV.

Using what you have learned from this spread, explain Jack's behaviour and suggest why Jess does not behave in the same way after watching violent programmes on TV.



CAN YOU?

No. 5.3

1. Explain what is meant by *imitation*, *identification*, *modelling*, *vicarious reinforcement* and the role of *meditational processes*. (2 marks each)
2. Outline the main findings of Bandura's research into social learning. (4 marks)
3. Outline and evaluate the social learning approach in psychology. (12 marks AS, 16 marks A)

The cognitive approach

Cognitive psychology focuses on how people perceive, store, manipulate and interpret information; studying processes like perception, memory, thinking and problem solving. Unlike behaviourists, cognitive psychologists believe it is necessary to look at internal mental processes in order to understand behaviour. Much of cognitive psychology uses an information processing model, whereby information received through the senses is processed by various systems in the brain. Because the information processing approach was first used to describe the way in which computers processed information, what goes on in the human brain is often explained using computing metaphors such as 'encoding', 'processing' and 'retrieval'.

THE STUDY OF INTERNAL MENTAL PROCESSES

The cognitive approach studies information processing, i.e. ways in which we extract, store and retrieve information that helps to guide our behaviour. Many different kinds of mental processes contribute to information processing. These include selecting important information (attention), using it to solve problems (thinking), storing it in memory and retrieving it as and when it is needed. The cognitive approach recognises that these mental processes cannot be studied directly but must be studied indirectly by **inferring** what goes on as a result of measuring behaviour. This enables cognitive psychologists to develop theories about the mental processes that led to the observed behaviour.

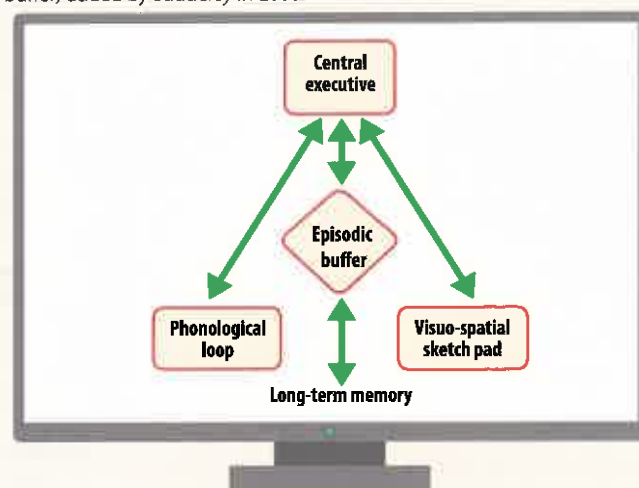
The role of schemas

A **schema** (plural *schemas* or *schemata*) is a cognitive framework that helps organise and interpret information in the brain. For example, schemas for specific events are based on expectations of how to behave in different situations (such as in a restaurant or a classroom) or in different roles (e.g. as a guard in a mock prison – see page 22). Schemas are useful to us because they allow us to take shortcuts when interpreting the huge amount of information we have to deal with on a daily basis. However, schemas also cause us to exclude anything that does not conform to our established ideas about the world, focusing instead on things that confirm our pre-existing beliefs and ideas. Schemas help us fill in the gaps in the absence of full information about a person, event or thing. For example, if we classify food as 'foreign' or someone we sit next to on the bus as 'old', our schemas will tell us what to expect and we act accordingly, regardless of how tasty the food or stimulating our companion might really be. A consequence of this is that we may develop stereotypes that are difficult to disconfirm, even when faced with new and conflicting information.

The role of theoretical and computer models

Theoretical models In cognitive psychology, models such as the multi-store model of memory or the working memory model are simplified representations based on current research evidence. Models are often

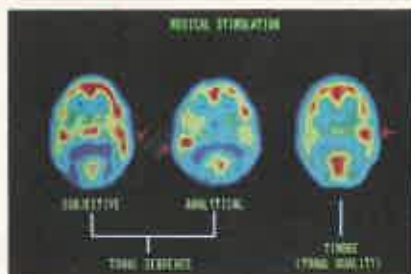
pictorial in nature, represented by boxes and arrows that indicate cause and effect or the stages of a particular mental process. Models such as the working memory model are often incomplete and informal and are frequently changed, updated and refined. For example, the working memory model was first proposed by Baddeley and Hitch in 1974. Their initial model consisted of three main sections with a fourth (the episodic buffer) added by Baddeley in 2000.



Computer models The development of computers and computer programming led to a focus on the way in which sensory information is 'coded' as it passes through the system. Using a computer analogy, information is inputted through the senses, encoded into memory and then combined with previously stored information to complete a task. A computer model of memory is a good example. Information stored on the hard disk is like long-term memory and RAM (random access memory) corresponds to working memory (see page 48). The idea of working memory as a temporary workspace fits the computer model nicely as, like working memory, RAM is cleared and reset when the task being carried out is finished.

THE EMERGENCE OF COGNITIVE NEUROSCIENCE

The rapid advances in ways of studying the brain in the latter part of the twentieth century has meant that neuroscientists are now able to study the living brain, giving them detailed information about the brain structures involved in different kinds of mental processing (**cognitive neuroscience**). The use of non-invasive neuroimaging techniques such as positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) helps psychologists to understand how the brain supports different cognitive activities and emotions by showing what parts of the brain become active in specific circumstances. For example, Burnett *et al.* (2009) found that when people feel guilty, several brain regions are active, including the medial prefrontal cortex, an area associated with social emotions.



▲ Neuroimaging techniques such as PET scans help psychologists by showing what parts of the brain become active in specific circumstances.

Cognitive neuroscientists study many different aspects of human cognition, including the neural processes underlying memory, attention, perception and awareness. They are also interested in social cognition, the brain regions involved when we interact with others, and how impairments in these regions may characterise different psychological conditions.

EVALUATION

Strengths

The cognitive approach has applications

A strength of the cognitive approach is that it has been applied in many other areas of psychology. In social psychology, research in *social cognition* has helped psychologists better understand how we form impressions of other people, as well as the errors and biases that influence our interpretation of the causes of their behaviour. The cognitive approach to psychopathology has been used to explain how much of the dysfunctional behaviour shown by people can be traced back to faulty thinking processes. This has led to the successful treatment of people suffering from illnesses such as depression and OCD using cognitive-based therapy.

The cognitive approach is scientific

Cognitive psychologists' emphasis on scientific methods is a particular strength of this approach. The use of the experimental method provides researchers with a rigorous method for collecting and evaluating evidence in order to reach accurate conclusions about how the mind works. This means that conclusions about how the mind works are based on far more than common sense and introspection, as these can give a misleading picture of mental processes, many of which are not consciously accessible.

Limitations

Limitations of computer models

The cognitive approach uses computer models to explain human coding. For example, terms such as 'encoding', 'storage' and 'retrieval' are borrowed directly from the field of computing. However, there is an important difference between the sort of information processing that takes place within a computer program and the information processing that takes place within the human mind. Computers do not make mistakes, nor do they ignore available information or forget anything that has been stored on their hard drives. Humans, on the other hand, do all of these things.

Ignores emotion and motivation

A problem for the cognitive approach is that, although it can tell us *how* different cognitive processes take place, it fails to tell us *why* they do. In other words, the role of emotion and motivation has largely been ignored by this approach. This is not surprising given that approaches that focus on the motivational processes in behaviour (e.g. Freud, see page 134) largely ignore the cognitive processes involved in behaviour. The lack of focus on motivational states may be explained by the over-dependence on information-processing analogies, as motivation is clearly irrelevant to a computer, but not to a human being.

FURTHER EVALUATION

Studies may lack ecological validity

Many studies of cognitive psychology tend to use tasks that have little in common with participants' natural everyday experiences. For example, experiments in memory use artificial test materials that are relatively meaningless in everyday life (e.g. random word lists or digits) rather than try to understand the way in which memory is used in everyday life (e.g. why people forget appointments or repress early childhood memories). As a result, it is unlikely that we would be able to generalise their findings to real-life situations. Therefore, much of the research in cognitive psychology might be criticised as lacking ecological validity, i.e. it fails to reflect the behaviours that occur in real-life settings.



▲ Cognitive psychology research may not always reflect real-life situations.



UPGRADE

Students often lose marks or waste valuable time in the exam because they do not consider the marks available when constructing their answers to questions. Sometimes students write more than is needed for the marks available or, conversely, do not write enough. For example, a question that asks you to ...

Explain what is meant by the terms *internal mental processes* and *schema*. (4 marks)

... should make you realise that the explanation of each term is worth just 2 marks. Having these 2 marks assigned to each term means that you might *define* each term (for the first mark) and then elaborate it (perhaps through an example) for the second mark. Putting in extra and unnecessary detail would be completely inappropriate as it would not get you any more than the 2 marks available. Likewise, a question that asks for *two* strengths (or *two* limitations) for 6 marks warrants a *little more* elaboration because there are more marks available (some suggestions on how to achieve this can be seen on page 127).

So, as well as interpreting the specific requirements of each question, pay special attention to the number of marks on offer and respond accordingly!

KEY TERMS

Cognitive Relates to mental processes such as perception, memory and reasoning.

Cognitive neuroscience An area of psychology dedicated to the underlying neural bases of cognitive functions.

Computer model Refers to the process of using computer analogies as a representation of human cognition.

Inference/infering means reaching a logical conclusion on the basis of evidence and reasoning.

Schema A cognitive framework that helps to organise and interpret information in the brain. Schemas help an individual to make sense of new information.

Theoretical models In cognitive psychology, models are simplified, usually pictorial, representations of a particular mental process based on current research evidence.

CAN YOU?

No. 5.4

1. Explain what is meant by *internal mental processes*, *schema*, *theoretical* and *computer models*, and *cognitive neuroscience*. (2 marks each)
2. Outline the use of theoretical and computer models as an explanation of mental processes. (3 marks each)
3. Using examples from research, explain the emergence of cognitive neuroscience. (4 marks)
4. Outline **two** strengths of the cognitive approach in psychology. (6 marks)
5. Outline **two** limitations of the cognitive approach in psychology. (6 marks)
6. Outline and evaluate the cognitive approach in psychology. (12 marks AS, 16 marks A)

The biological approach

The **biological approach** views human beings as biological organisms and so provides biological explanations of all aspects of psychological functioning. Biological psychologists are particularly interested in the genetic basis of behaviour, showing how some characteristics can be passed from generation to generation through the genes. Biological researchers have also studied the important role that chemical changes in the nervous system (**neurochemistry**) and hormonal changes play. More recently, psychologists have become interested in how Charles Darwin's ideas about biological **evolution** might apply to human behaviour, allowing us to understand the original adaptive significance of behaviours such as mate selection or aggression.

BIOLOGICAL INFLUENCES ON BEHAVIOUR

The influence of genes on behaviour

Genes: the mechanisms of heredity

Heredity is the passing of characteristics from one generation to the next through the **genes**, and is the reason why offspring 'take after' their parents in terms of psychological characteristics. Genes carry the instructions for a particular characteristic (such as intelligence or temperament), but how this characteristic develops depends partly on the interaction of the gene with other genes, and partly on the influence of the environment. The extent to which a psychological characteristic is determined by genes or environment is called the nature–nurture debate.

Genotype and phenotype

There is an important difference between the **genotype** – the genetic code that is 'written' in the DNA of an individual's cells – and the **phenotype**, which is the physical appearance that results from this inherited information. Whilst we might expect a direct relationship between the two, this is not always the case. For example, in the case of eye colour, someone may inherit a recessive gene for blue eyes, but this will not be expressed if they have also inherited a dominant gene for brown eyes from the other parent. In this case, we cannot determine the **genotype** (one blue eyes gene, one brown eyes gene) from just observing the **phenotype** (i.e. brown eyes).

The genetic basis of behaviour

Each individual possesses a unique combination of genetic instructions, therefore we differ from each other in terms of personality, intelligence, abilities and so on. The term heritability refers to the amount of variability in a trait within a population that can be attributed to genetic differences between individuals within that population. The more that a trait is influenced by genetic factors, the greater its heritability. For example, studies of identical twins have suggested that the variation in individual intelligence – what makes one person more intelligent than another – could be 60–80% due to genes.

The influence of biological structures on behaviour

Neurons and the nervous system

The nervous system is comprised of several connected systems.

- The central nervous system (CNS) comprises the brain and spinal cord
- The peripheral nervous system (PNS) comprises the somatic and autonomic nervous systems

The nervous system carries messages from one part of the body to another using individual nerve cells known as neurons. Neurons transmit nerve impulses in the form of electrical signals. Many aspects of behaviour are under neuronal control, including breathing, eating and sexual behaviour.

The brain

The largest part of the brain is the cerebrum, making up about 85% of the total mass of the brain. The outer surface of the cerebrum is called the cerebral cortex, which is responsible for many of the 'higher-order' functions such as thought and language. The cerebrum is divided into two halves (known as hemispheres), with each hemisphere further divided into four different parts (known as lobes):

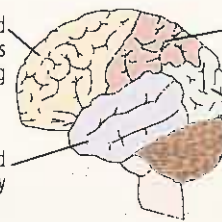
The influence of neurochemistry on behaviour

Neurotransmitters

When a nerve impulse reaches the end of one neuron, a chemical called a neurotransmitter is released. It travels from one neuron to the next across a junction called the synapse. There are many different types of neurotransmitter, some of which trigger the receiving neuron to send an impulse and some stop it from doing so. Those neurotransmitters that trigger nerve impulses in the receiving neuron and stimulate the brain into action are called **excitatory** neurotransmitters. Those that inhibit nerve impulses in order to calm the brain and balance mood are called **inhibitory** neurotransmitters (see page 151). Dopamine is an excitatory neurotransmitter that is associated with our 'drive' or motivation. Serotonin is an inhibitory transmitter, adequate amounts of which are necessary to maintain a stable mood. For example, Crockett *et al.* (2008) found that when serotonin levels are low people tend to display increased aggression.

Frontal lobes are involved with functions such as speech, thought and learning

Temporal lobes are involved with hearing and memory



Parietal lobes process sensory information such as touch, temperature and pain

Occipital lobes process visual information

Hormones

Hormones are chemicals that are produced by endocrine glands such as the pituitary gland, which together make up the endocrine system. In response to a signal from the brain, hormones are secreted directly into the bloodstream by the endocrine glands, where they travel to their 'target cells' and exert their influence by stimulating receptors on the surface of or inside cells. The presence of a hormone causes a physiological reaction in the cell, altering its activity (see page 152). For example, Carré *et al.* (2006) studied a Canadian ice hockey team over the course of a season. They found evidence of a surge in levels of the hormone testosterone whenever the team played in their home stadium, suggesting the hormone energised the players to defend their home territory.

Evolution and behaviour

Charles Darwin argued that, over time, organisms become adapted to their environment through biological evolution. This refers to the changes that take place in the characteristics of a population over time. The mechanism behind biological evolution is **natural selection**. Individuals within a species differ from each other in terms of their physical characteristics and in their behaviour, and at least some of this variation is inherited. Because individuals must compete with each other for access to resources (mates, food, etc.), those who survive this competition and go on to reproduce will tend to have behaviours that are more likely to lead to survival and reproductive success than those who do not.

These behaviours will be passed on to offspring and will become more widespread in the population; through the process of natural selection, successive generations will develop behaviours that are even more likely to lead to survival and reproductive success. Buss (1989) studied 37 different cultures found universal similarities in human mate preferences. Women desired mates with resources (to provide for offspring) whilst men desired young, physically attractive women (an indication of their fertility and reproductive value).

EVALUATION

Strengths

The importance of the scientific method

The biological approach uses the scientific method, particularly the use of the experiment method, as its main method of investigation. Experimental studies take place in highly controlled environments so that other researchers are able to replicate research studies under the same experimental conditions, thus adding to the validity of the original findings if they can be reproduced. In early studies of brain functioning, clinical case studies were the primary method of study, but they were fraught with difficulties such as researcher bias and lack of control. However, the use of sophisticated imaging and recording techniques has increased the precision and objectivity of experimental research in this area.

Applications of the biological approach

A strength of the biological approach is that it provides clear predictions, e.g. about the effects of neurotransmitters or the behaviour of people who are genetically related. This has led to significant applications of biological research in the real world. For example, research into the role of neurochemical imbalance in depression has led to the development of drug treatments which correct this imbalance and minimise depressive symptoms. Likewise, research into circadian rhythms and their effect on psychological well-being (see page 164) has led to significant improvements in the working conditions of those people who must work on shifts.

Limitations

The biological approach is reductionist

Reductionism is the belief that complex human behaviour can be explained by breaking it down into its smallest component parts, such as the action of genes, neurochemicals and hormones. For example, many explanations of mental disorders are reductionist because genes or neurochemical imbalances are believed to be the main cause of these disorders. However, whilst a reductionist approach lends itself to scientific investigation, critics argue that we cannot fully understand a behaviour without also taking account of the other factors that influence it. These include cognitive, emotional and cultural factors, all of which have a significant influence on behaviour.

Problems for evolutionary explanations of behaviour

Because most human behaviours can be transmitted by both genetic and cultural routes, an evolutionary explanation of behaviour is complicated by this additional possibility. Critics of evolutionary explanations claim that many established patterns of human behaviour have purely cultural origins with no survival or reproductive value. An example would be the incest taboos that exist in most societies. An evolutionary explanation would emphasise the problems of genetic mutations that would arise from inbreeding, therefore natural selection would favour those individuals that avoided such practices. However, most cultures also have strict, culturally determined moral codes of conduct and incest taboos would undoubtedly form a part of such codes.

KEY TERMS

Biological approach Views humans as biological organisms and so provides biological explanations for all aspects of psychological functioning.

Evolution Refers to the change over successive generations of the genetic make-up of a particular population. The central proposition of an evolutionary perspective is that the genotype of a population is changeable rather than fixed, and that this change is likely to be caused by the process of natural selection.

Gene A part of the chromosome of an organism that carries information in the form of DNA.

Genotype The genetic make-up of an individual. The genotype is a collection of inherited genetic material that is passed from generation to generation.

Natural selection The process by which inherited characteristics that enhance an individual's reproductive success (or 'fitness') are passed on to the next generation, and so become more widespread in the population over time.

Neurochemistry The study of chemical and neural processes associated with the nervous system.

Phenotype The observable characteristics of an individual. This is a consequence of the interaction of the genotype with the environment.

CAN YOU?

No. 5.5

1. Explain what is meant by the terms *genotype* and *phenotype*. (2 marks + 2 marks)
2. Outline the influence of genes on behaviour. (4 marks)
3. Outline the influence of biological structures and neurochemistry on behaviour. (4 marks + 4 marks)
4. Explain the difference between genotype and phenotype. (3 marks)
5. Outline the relationship between evolution and behaviour. (4 marks)
6. Outline **two** strengths and **two** limitations of the biological approach in psychology. (3 marks for each)
7. Outline and evaluate the biological approach in psychology. (12 marks AS, 16 marks A)

FURTHER EVALUATION

The dangers of genetic explanations

Recent research suggesting a genetic basis for criminal behaviour has led to concerns about how this information might be used. Critics claim this may lead to genetic screening of the population to identify this genetic susceptibility and subsequent discrimination against those with a predisposition for criminality. This also creates the danger that genes might then be used as convenient explanations for complicated human behaviour, despite the fact that the connection between genes and complex behaviour such as criminality is far from straightforward. However, other psychologists suggest that if individuals discover that they have a genetic predisposition for criminality or a mental disorder such as schizophrenia, this gives them the opportunity to avoid environmental situations likely to trigger this predisposition or to develop coping skills that would protect them from its influence.



APPLY YOUR KNOWLEDGE

Criminal behaviour may be all in the genes

Turning to crime may be a consequence of our genes according to a recent study. Researchers in the US found that men and women who had been adopted as children were over four times more likely to get into trouble with the police if one of their biological parents had a criminal record. The fact that biological parents had an influence on their children's behaviour despite having no input in their upbringing appears to show a significant genetic influence.

- 1 With reference to the report above, explain the relationship between genetics and criminal behaviour.
- 2 What limitations can you think of for genetic explanations of criminal behaviour?