

THE LEARNING APPROACH: BEHAVIOURISM

THE SPECIFICATION SAYS...

The behaviourist approach including classical conditioning and Pavlov's research, operant conditioning, types of reinforcement and Skinner's research.

The behaviourist approach emerged at the beginning of the 20th century and became the dominant approach in psychology for half of that century.

It is also credited as being the driving force in the development of psychology as a scientific discipline.

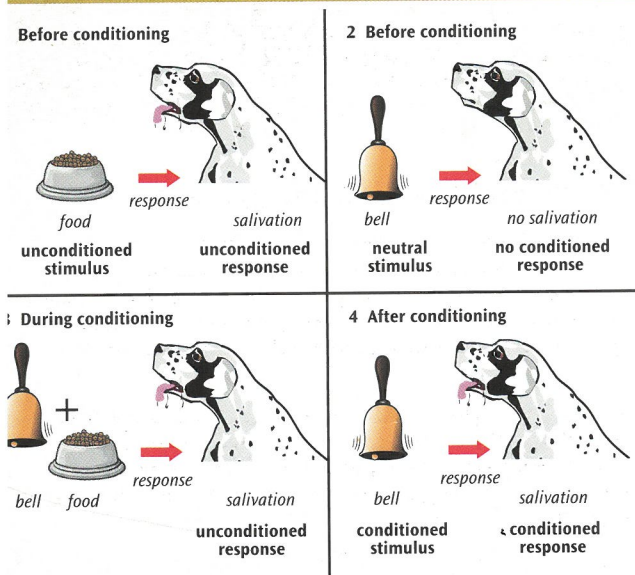
KEY TERMS

Behaviourist approach – A way of explaining behaviour in terms of what is observable and in terms of learning.

Classical conditioning – Learning by association. Occurs when two stimuli are repeatedly paired together – an unconditioned (unlearned) stimulus (UCS) and a new 'neutral' stimulus. The neutral stimulus eventually produces the same response that was first produced by the unlearned stimulus alone.

Operant conditioning – A form of learning in which behaviour is shaped and maintained by its consequences. Possible consequences of behaviour include positive reinforcement, negative reinforcement or punishment.

Reinforcement – A consequence of behaviour that increases the likelihood of that behaviour being repeated. Can be positive or negative.



• Often, students have difficulty explaining the distinction between negative reinforcement and punishment. Remember that negative reinforcement increases the likelihood of a behaviour being repeated (because it avoids an unpleasant consequence). In contrast, punishment decreases the likelihood of a behaviour being repeated (because of its unpleasant consequence).

STUDY TIPS

The behaviourist approach

Assumptions

The **behaviourist approach** is only interested in studying behaviour that can be observed and measured. It is not concerned with investigating mental processes of the mind. Early behaviourists such as John B. Watson (1913) rejected **introspection** as it involved too many concepts that were vague and difficult to measure. As a result, behaviourists tried to maintain more control and objectivity within their research and relied on **lab experiments** as the best way to achieve this.

Following Darwin, behaviourists suggested that the basic processes that govern learning are the same in all species. This meant that in behaviourist research, animals could replace humans as experimental subjects. Behaviourists identified two important forms of learning: **classical conditioning** and **operant conditioning**.

Classical conditioning – Pavlov's research

Classical conditioning is learning through *association* and was first demonstrated by Ivan Pavlov. Pavlov revealed that dogs could be conditioned to salivate to the sound of a bell if that sound was repeatedly presented at the same time as they were given food. Gradually, Pavlov's dogs learned to associate the sound of the bell (a stimulus) with the food (another stimulus) and would produce the salivation response every time they heard the sound.

Thus, Pavlov was able to show how a **neutral stimulus**, in this case a bell, can come to elicit a new learned response (**conditioned response**) through association (see diagram below left).

Operant conditioning – Skinner's research

BF Skinner (1953) suggested that learning is an active process whereby humans and animals operate on their environment. In operant conditioning there are three types of consequences of behaviour:

- **Positive reinforcement** is receiving a reward when a certain behaviour is performed; for example, praise from a teacher for answering a question correctly in class.
- **Negative reinforcement** occurs when an animal (or human) avoids something unpleasant. When a student hands in an essay so as not to be told off, the avoidance of something unpleasant is the negative reinforcement. Similarly, a rat may learn through negative reinforcement that pressing a lever leads to avoidance of an electric shock (below).
- **Punishment** is an unpleasant consequence of behaviour, for example being shouted at by the teacher for talking during a lesson. (Finding a way to avoid that would be negative reinforcement.)

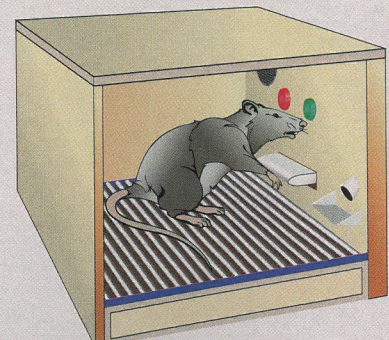
Positive and negative reinforcement increase the likelihood that behaviour will be repeated. Punishment decreases the likelihood that behaviour will be repeated.

Apply it

Concepts: The Skinner Box

(A) Skinner conducted experiments with rats, and sometimes pigeons, in specially designed cages called **Skinner Boxes**. Every time the rat activated a lever (or pecked a disc in the case of the pigeon) within the box it was rewarded with a food pellet. From then on the animal would continue to perform the behaviour.

(B) Skinner also showed how rats and pigeons could be conditioned to perform the same behaviour to avoid an unpleasant stimulus, for example an electric shock.



Questions

1. Which aspect of operant conditioning does paragraph A illustrate?
2. Which aspect of operant conditioning does paragraph B illustrate?

Evaluation

Scientific credibility

Behaviourists was able to bring the language and methods of the natural sciences into psychology by focusing on the measurement of observable behaviour within highly controlled lab settings. By emphasising the importance of scientific processes such as objectivity and replication, behaviourism was influential in the development of psychology as a scientific discipline, giving it greater credibility and status.

Real-life application

The principles of conditioning have been applied to a broad range of real-world behaviours and problems. For instance, operant conditioning is the basis of **token economy systems** that have been used successfully in institutions, such as prisons and psychiatric wards. These work by rewarding appropriate behaviour with tokens that can then be exchanged for privileges. For an example of how classical conditioning has been applied to the treatment of **phobias**, see page 144.

Treatments such as these have the advantage of requiring less effort from a patient because the patient doesn't have to think about their problem (as they do in 'talking therapies').

Mechanistic view of behaviour

From a behaviourist perspective, animals (including humans) are seen as *passive* and machine-like responders to the environment, with little or no conscious insight into their behaviour. Other approaches in psychology, such as the **social learning theory** and the **cognitive approach**, have emphasised the importance of mental events during learning. These processes, which mediate between stimulus and response, suggest that people may play a much more active role in their own learning. This means that learning theory may apply less to human than to animal behaviour.

Evaluation extra

Environmental determinism

The behaviourist approach sees all behaviour as determined by past experiences that have been conditioned. Skinner suggested that everything we do is the sum total of our reinforced history. This ignores any possible influence that **free will** may have on behaviour. Skinner suggested that any sense of free will is simply an illusion. When something happens we impose a sense of having made the decision but, according to Skinner, our past conditioning history determined the outcome.

Consider: How much of our behaviour do you think is determined by the environment and how much is the result of our own free will?

Ethical and practical issues in animal experiments

Although experimental procedures such as the *Skinner Box* enabled behaviourists to maintain a high degree of control over their experimental subjects, many critics have questioned the ethics of conducting such investigations. The animals involved were exposed to stressful and aversive conditions, which may also have affected how they reacted to the experimental situation.

Consider: Does what we learn from experimental studies such as the *Skinner Box* justify the way in which the animals were treated?

Apply it

Concepts: Behaviourism and gambling

Skinner discovered that if an animal was rewarded every time it activated the lever or pecked the disc, the conditioned behaviour would quickly die out (become **extinct**) as the animal was *satiated* (full of food pellets!). It was revealed that a **variable ratio** schedule would prolong the behaviour and was most resistant to extinction. Here, reinforcement is given after an unpredictable (variable) number of responses are produced, for example, every 10, 15, 12, etc., times the lever is pressed.

This has been applied to a number of forms of human behaviour, including gambling addiction.

Question

Explain how addiction to gambling could be explained by the principles above.



How could the urge to shoot zombies in a video game be explained by operant conditioning?

Apply it

Concepts: Behaviourism and gaming

David Wong (2008) has used Skinnerian principles to explain addiction to video games in his article *5 creepy ways video games are trying to get you addicted*. His argument is that the video game environment is a form of *Skinner Box* providing reinforcement contingencies and rewards that are dependent upon certain behaviours (killing zombies, shooting aliens, successful completion of the level, etc.).

The use of the lever or joystick in many video games, it is argued, is analogous to the behaviour exhibited by the rat in the *Skinner Box*, and the success and addictive nature of many early video games, such as *Pac-Man*, is explained by the fact that the central character navigates its way around the screen literally munching on food pellets!

Question

How could video game addiction be explained using behaviourist principles?

CHECK IT

1. Explain **one** assumption of the behaviourist approach. [3 marks]
2. Outline **two** types of reinforcement as suggested by the behaviourist approach. [4 marks]
3. Outline and evaluate the behaviourist approach in psychology. [12 marks AS, 16 marks A2]

THE LEARNING APPROACH: SOCIAL LEARNING THEORY

THE SPECIFICATION SAYS...

Social learning theory including imitation, identification, modelling, vicarious reinforcement, the role of mediational processes and Bandura's research.

Albert Bandura proposed social learning theory as a development of the behaviourist approach. He argued that classical and operant conditioning could not account for all human learning – there are important mental processes that mediate between stimulus and response.

KEY TERMS

Social learning theory – A way of explaining behaviour that includes both direct and indirect reinforcement, combining learning theory with the role of cognitive factors.

Imitation – Copying the behaviour of others.

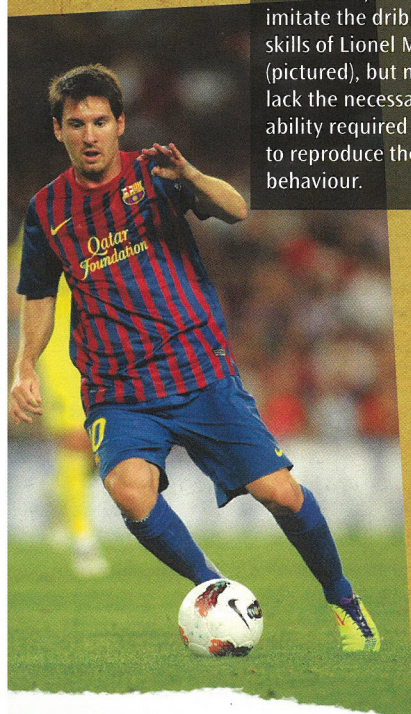
Identification – When an observer associates themselves with a role model and wants to be like the role model.

Modelling – From the observer's perspective, modelling is imitating the behaviour of a role model. From the role model's perspective, modelling is the precise demonstration of a specific behaviour that may be imitated by an observer.

Vicarious reinforcement – Reinforcement which is not directly experienced but occurs through observing someone else being reinforced for a behaviour. This is a key factor in imitation.

Mediational processes – Cognitive factors (i.e. thinking) that influence learning and come between stimulus and response.

A child may want to imitate the dribbling skills of Lionel Messi (pictured), but may lack the necessary ability required to reproduce the behaviour.



Social learning theory

Assumptions

Albert Bandura agreed with the **behaviourists** that much of our behaviour is learned from experience. However, his **social learning theory (SLT)** proposed a different way in which people learn: through observation and **imitation** of others within a social context, thus *social learning*. SLT suggested that learning occurs directly, through classical and operant conditioning, but also *indirectly*.

Vicarious reinforcement

For indirect learning to take place an individual observes the behaviour of others. The learner may imitate this behaviour but, in general, imitation only occurs if the behaviour is seen to be rewarded (reinforced) rather than punished, i.e. **vicarious reinforcement** occurs (see box below). Thus, the learner observes a behaviour but most importantly observes the consequences of a behaviour.

The role of mediational processes

SLT is often described as the 'bridge' between traditional **learning theory** (previous spread) and the **cognitive approach** (next spread) because it focuses on how mental (cognitive) factors are involved in learning. These mental factors mediate (i.e. intervene) in the learning process to determine whether a new response is acquired. Four mental or **mediational processes** in learning were identified by Bandura:

1. *Attention* – the extent to which we notice certain behaviours.
2. *Retention* – how well the behaviour is remembered.
3. *Motor reproduction* – the ability of the observer to perform the behaviour.
4. *Motivation* – the will to perform the behaviour, which is often determined by whether the behaviour was rewarded or punished.

The first two of these relate to the *learning* of behaviour and the last two to the *performance* of behaviour. Unlike traditional behaviourism, the learning and performance of behaviour need not occur together. Observed behaviours may be stored by the observer and reproduced at a later time.

Identification

People (especially children) are much more likely to imitate the behaviour of people with whom they *identify*, called **role models**. This process is called **modelling**. A person becomes a role model if they are seen to possess similar characteristics to the observer and/or are attractive and have high status. Role models may not necessarily be physically present in the environment, and this has important implications for the influence of the media on behaviour (see facing page).

Apply it Concepts: Do children imitate what they see?

(A) Bandura *et al.* (1961) recorded the behaviour of young children who watched an adult behave in an aggressive way towards a Bobo doll (see right). The adult hit the doll with a hammer and shouted abuse at it.

When these children were later observed playing with various toys, including a Bobo doll, they behaved much more aggressively towards the doll and the other toys than those who had observed a non-aggressive adult.

Question: Which aspect of SLT does study A illustrate?

(B) Bandura and Walters (1963) showed videos to children where an adult behaved aggressively towards the Bobo doll. One group of children saw the adult praised for their behaviour (being told 'Well done'). A second group saw the adult punished for their aggression towards the doll, by being told off. The third group (**control group**) saw the aggression without any consequence.

When given their own Bobo doll to play with, the first group showed much more aggression, followed by the third group, and then the second.

Question: Which aspect of SLT does study B illustrate?



Evaluation

The importance of cognitive factors in learning

Neither classical nor operant conditioning can offer an adequate account of learning on their own. Humans and many animals store information about the behaviour of others and use this to make judgements about when it is appropriate to perform certain actions. As Bandura observed:

'Learning would be exceedingly labourous, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. From observing others one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide to action' (Bandura 1977).

Over-reliance on evidence from lab studies

As such, SLT provides a more comprehensive explanation of human learning by recognising the role of mediational processes.

Many of Bandura's ideas were developed through observation of young children's behaviour in **lab** settings. Lab studies are often criticised for their contrived nature where participants may respond to **demand characteristics**. It has been suggested, in relation to the Bobo doll research (bottom of facing page) that, because the main purpose of the doll is to strike it, the children were simply behaving in a way that they thought was expected.

Thus the research may tell us little about how children actually learn aggression in everyday life.

Underestimates the influence of biological factors

Bandura makes little reference to the impact of biological factors on social learning. One consistent finding in the Bobo doll experiments was that boys were often more aggressive than girls regardless of the specifics of the experimental situation. This may be explained by **hormonal** factors, such as differences in levels of **testosterone**, a hormone that is present in greater quantities in boys than girls and which is linked to increased aggressive behaviour.

This means that this important influence on behaviour is not accounted for in SLT.

Evaluation extra

Explains cultural differences in behaviour

Social learning theory has the advantage of being able to explain cultural differences in behaviour. Social learning principles can account for how children learn from other individuals around them, as well as through the media, and this can explain how cultural norms are transmitted through particular societies. This has proved useful in understanding a range of behaviours, such as how children come to understand their gender role.

Consider: How could the learning of gender-appropriate behaviour be explained by social learning theory? Why would the biological approach have difficulty accounting for cultural differences in gender behaviour?

Less deterministic than the behaviourist approach

Bandura emphasised **reciprocal determinism**, in the sense that we are not merely influenced by our external environment, but we also exert an influence upon it, through the behaviours we choose to perform. This element of choice suggests that there is some **free will** in the way we behave.

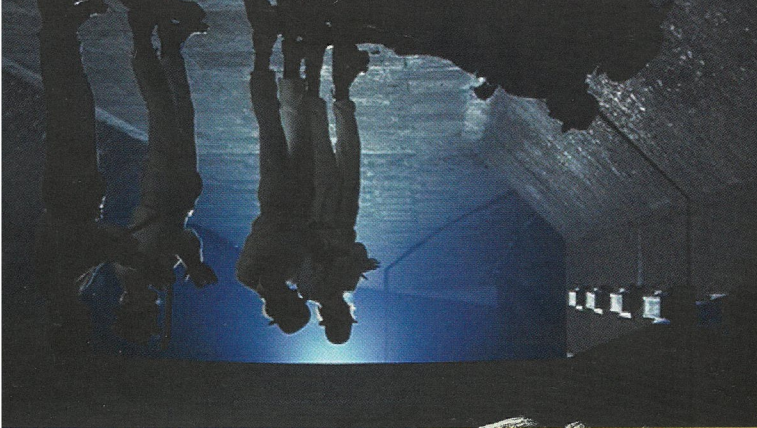
Consider: Why is this a less deterministic position than that suggested by the behaviourist approach? In what way is this preferable?

CHECK IT

STUDY TIPS

• If you need to evaluate social learning theory you might, for example, use the Bobo doll studies (or other studies) to illustrate key points. However, you should keep descriptions of the procedures and findings within these studies to a minimum and instead make it clear how the implications/conclusions from these studies support (or contradict) key SLT concepts.

Stanley Kubrick withdrew his controversial 1971 film *A Clockwork Orange* from British cinemas after a series of 'copycat' incidents based on scenes from the film.



Apply it

Bandura's Bobo doll experiments have implications for the media – are children, and indeed some adults, influenced by the violence and aggression they see on television, in movies and video games?

This debate was brought into sharp focus in 1990 following the death of James Bulger, a toddler from Liverpool murdered by two ten-year-old boys. At the time it was argued by many UK newspapers that the child killers were inspired by the horror film *Child's Play 3*, and there were many calls for rules and censorship on such 'video nasties' to be tightened.

However, many researchers dispute the link between the media and real-life violence. For example, Guy Cumberbatch (2001) argues that supposed 'video nasties', of the type cited in the Bulger case, are much more likely to frighten children than to make them frightening (aggressive) towards others. He argues that isolated incidents such as these are better explained by other factors such as social deprivation, child abuse and early exposure to violence in the home.

Questions

1. Using social learning principles explain why media (such as violent videos) may potentially have a negative impact on children's behaviour.
2. How might the media vicariously reinforce violence and aggression?

1. Outline what is meant by the term **identification** in relation to the social learning theory approach. [2 marks]
2. Explain **one** limitation of the social learning theory approach. [3 marks]
3. Outline and evaluate the social learning theory approach. Refer to the behaviourist approach as part of your evaluation. [12 marks AS, 16 marks AL]

THE COGNITIVE APPROACH

THE SPECIFICATION SAYS...

The cognitive approach: the study of internal mental processes, the role of schema, the use of theoretical and computer models to explain and make inferences about mental processes. The emergence of cognitive neuroscience.

The cognitive approach developed in the 1960s as a response to the behaviourists' failure to acknowledge mental processes. The development of the first computers gave cognitive psychologists a metaphor for describing mental processes.

KEY TERMS

Cognitive approach – The term 'cognitive' has come to mean 'mental processes', so this approach is focused on how our mental processes (e.g. thoughts, perceptions, attention) affect behaviour.

Internal mental processes – 'Private' operations of the mind such as perception and attention that mediate between stimulus and response.

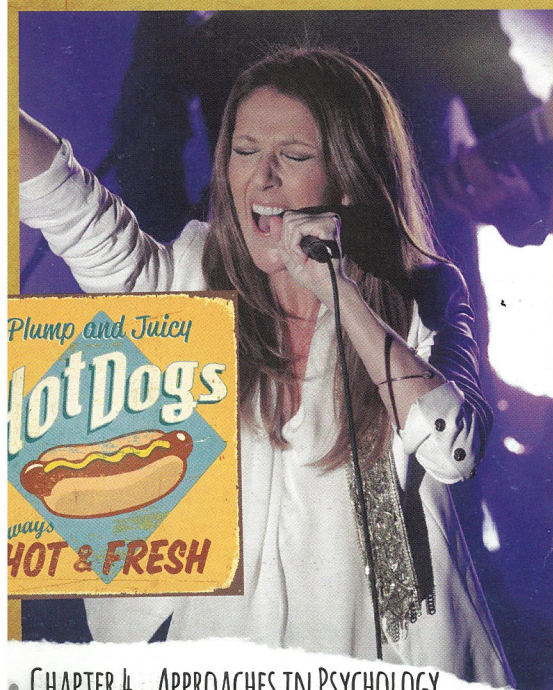
Schema – A mental framework of beliefs and expectations that influence cognitive processing. They are developed from experience.

Inference – The process whereby cognitive psychologists draw conclusions about the way mental processes operate on the basis of observed behaviour.

Cognitive neuroscience – The scientific study of biological structures that underpin cognitive processes.

Misperceived song lyrics

Did Celine Dion really sing 'The hot dogs go on' on the 1997 Titanic movie soundtrack? A case of schema distorting our interpretations of sensory information, leading to perceptual errors.



The cognitive approach

Assumptions

In direct contrast to the **behaviourist approach**, the **cognitive approach** argues that **internal mental processes** can, and should, be studied scientifically. As a result, the cognitive approach has investigated those areas of human behaviour that were neglected by behaviourists, such as memory, perception and thinking. These processes are 'private' and cannot be observed, so cognitive psychologists study them *indirectly* by making **inferences** about what is going on inside people's minds on the basis of their behaviour.

Theoretical and computer models

One way to study internal processes is through the use of **theoretical models**. One important theoretical model is the **information processing approach**, which suggests that information flows through the cognitive system in a sequence of stages that include input, storage and retrieval, as in the **multi-store model** (see page 48).

The cognitive approach also uses **computer models**, where the mind is compared to a computer (the 'computer analogy') by suggesting that there are similarities in the way information is processed. These models use the concepts of a central processing unit (the brain), the concept of **coding** (to turn information into a useable format) and the use of 'stores' to hold information. Such computational models of the mind have proved useful in the development of 'thinking machines' or **artificial intelligence**.

The role of schema

Cognitive processing can often be affected by a person's beliefs or expectations, often referred to as **schema**. Schema are 'packages' of ideas and information developed through experience. They act as a mental framework for the interpretation of incoming information received by the cognitive system; for example, you have a schema for a chair – something with legs that you can sit on. That's a package of information learned through experience that helps you to respond to the object appropriately.

Babies are born with simple motor schema for innate behaviours such as sucking and grasping. For example, the grasping schema consists of moving a hand towards an object and shaping the hand around the object in co-ordination with visual input.

As we get older, our schema become more detailed and sophisticated. Adults have developed mental representations for everything from the concept of psychology to a schema for what happens in a restaurant or what a typical zombie looks like.

Schema enable us to process lots of information quickly and this is useful as a sort of mental short-cut that prevents us from being overwhelmed by environmental stimuli. However, schema may also distort our interpretations of sensory information, leading to perceptual errors (see examples on facing page).

The emergence of cognitive neuroscience

Cognitive neuroscience is the scientific study of the influence of brain structures on mental processes. Mapping brain areas to specific cognitive functions has a long history in psychology. As early as the 1860s Paul Broca had identified how damage to an area of the **frontal lobe** (which came to be known as **Broca's Area**) could permanently impair speech production.

It is only in the last twenty years, however, with advances in brain imaging techniques such as **fMRI** and **PET** scans, that scientists have been able to systematically observe and describe the **neurological** basis of mental processes. For example, in research involving tasks that required the use of **episodic** and **semantic memory**, Tulving *et al.* (see page 51) were able to show how these different types of **long-term memory** may be located on opposite sides of the **pre-frontal cortex**. As well as this, the system in overall charge of **working memory** – the **central executive** – is thought to reside in a similar area (see the 1997 study by Braver *et al.* on page 53).

Scanning techniques have also proved useful in establishing the neurological basis of some mental disorders. On page 150 the link between the **parahippocampal gyrus** and **OCD** is discussed. It appears to play a role in processing unpleasant emotions.

The focus of cognitive neuroscience has expanded recently to include the use of computer-generated models that are designed to 'read' the brain. This has led to the development of mind mapping techniques known as 'brain fingerprinting'. One possible future application of this could be to analyse the brain wave patterns of **eyewitnesses** to determine whether they are lying in court!

Evaluation

Scientific and objective methods

The cognitive approach has always employed highly controlled and rigorous methods of study in order to enable researchers to infer cognitive processes at work. This has involved the use of **lab experiments** to produce reliable, objective data. In addition, the emergence of cognitive neuroscience has enabled the two fields of biology and cognitive psychology to come together.

This means that the study of the mind has established a credible scientific basis.

Machine reductionism

Although there are similarities between the human mind and the operations of a computer (inputs and outputs, storage systems, the use of a central processor), the computer analogy has been criticised by many. Such **machine reductionism** ignores the influence of human emotion and motivation on the cognitive system, and how this may affect our ability to process information. For instance, research has found that human memory may be affected by emotional factors, such as the influence of anxiety on eyewitnesses (see page 60).

Application to everyday life

As we have seen, cognitive psychologists are only able to infer mental processes from the behaviour they observe in their research. As a consequence, cognitive psychology occasionally suffers from being too abstract and theoretical in nature. Similarly, experimental studies of mental processes are often carried out using artificial stimuli (such as tests of memory involving word lists) that may not represent everyday memory experience.

Therefore research on cognitive processes may lack **external validity**.

Evaluation extra

Real-life application

The cognitive approach is probably the dominant approach in psychology today and has been applied to a wide range of practical and theoretical contexts. For example, cognitive psychology has made an important contribution in the field of artificial intelligence (AI) and the development of 'thinking machines' (robots), exciting advances that may revolutionise how we live in the future.

Consider: How has cognitive psychology been applied to the treatment of depression? In what way has cognitive psychology improved the reliability of eyewitness testimony?

Less determinist than other approaches

The cognitive approach is founded on **soft determinism** – it recognises that our cognitive system can only operate within the limits of what we know, but that we are free to think before responding to a stimulus. This is a more reasonable 'interactionist' (middle-ground) position than the hard determinism suggested by some other approaches.

Consider: Explain how this is more flexible than the hard determinism of the behaviourist approach.

CHECK IT

1. Outline the emergence of cognitive neuroscience. [4 marks]
2. Briefly explain how theoretical models are used in cognitive psychology to make inferences about mental processes. [4 marks]
3. Describe the cognitive approach in psychology. Evaluate the research methods used by cognitive psychologists. [12 marks AS, 16 marks AL]

Apply it

Concepts: The influence of schema on perception

1. Read the following paragraph:

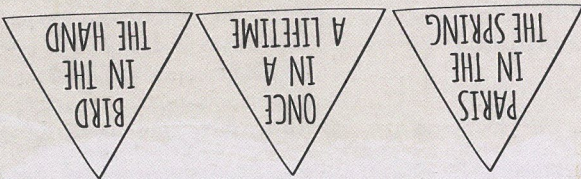
The Psychology of Zombies

Every generation gets the monster it deserves as the representation of its deepest fears. Today's zombies, who are usually infected in their thousands, represent our modern fear of contagious diseases, uncontrolled medical technology and social collapse. Zombies are linked, in our culture, with death and we probably evolved to avoid daed and diseased bodies to avoid infection; according to Lynn Alden, a professor of psychology at the University of British Columbia, 'But its one thing to avoid a corpse that isn't moving and quite another when they start chasing you!'

Question:

Explain the role of schema in helping you make sense of the information above.

2. In contrast, many people misread the following sentences.



Question:

Explain the role of schema in the misperception of the sentences above.

3. Bugelski and Alampay (1962) – the rat-man

Two groups of participants were shown a sequence of pictures, either a number of different faces or a number of different animals. They were then shown the ambiguous figure the 'rat-man' (below).



Explain how the influence of schema may account for this.

Apply it

Methods: Problem solving

A cognitive psychologist carried out an experiment into the effects of other people on problem solving. An **independent groups design** was used. In Condition A, 15 children were given 30 problems each to solve in two hours. The children completed the task in the same room and were allowed to talk to each other. In Condition B, a different group of 15 children were given the same problems and the same time to solve them but worked in silence. The number of problems solved in Condition A was 204; the number of problems solved in Condition B was 324.

Questions

1. What percentage of the total number of problems solved were solved in Condition B? (2 marks) (See page 196.)
2. Calculate the **mean** number of problems solved in Condition A and Condition B. (2 marks) (See page 192.)
3. Sketch a suitable graphical display to represent the **mean** number of problems solved in Condition A and Condition B. (3 marks)
4. Explain **one** conclusion that can be drawn from the mean number of problems solved in Condition A and Condition B. (2 marks)