AQA Psychology for A Level Year 1 & AS Revision Guide
Knowledge Check answers

PLEASE NOTE: This document contains suggested model answers that would achieve a good mark if provided in an exam. They are designed to help guide and instruct you but should not be considered definitive.

PLEASE ALSO NOTE: The suggested essay answers are for 12 mark answers. More evaluation is required when answering 16 mark essay questions - one or two further critical points.

1. Social influence

P11

1 Internalisation is when a person genuinely accepts group norms. This results in a private as well as public change of opinions/behaviour. This change persists in the absence of group members.

Identification is when we want to become part of group we value so we publically change our opinions/behaviour, even if we don't privately agree with everything the group stands for.

Compliance involves 'going along with others' in public, but privately not changing opinions/behaviour. This results in only a superficial change and the opinion/behaviour stops as soon as group pressure ceases.

2 ISI is about information, a desire to be right. Often we are uncertain about what behaviour or beliefs are right or wrong especially in new or ambiguous situations so we conform to the group norm as we believe others are right. You may not know the answer to a question in class, but if most of the other students agree, you go along with them because you feel they are probably right.

NSI concerns what is 'normal' or typical behaviour for a social group (i.e. norms). NSI is based on the idea that people prefer social approval rather than rejection and want to 'fit in'. It is important with people you know rather than strangers because people are more concerned about the social approval of friends.

3 A limitation of ISI is that there are individual differences. Asch (1955) found that students were less conformist (28%) than other participants (37%). Perrin and Spencer (1980) also found less conformity in students in a replication of the Asch study. In this study they were engineering students (i.e. confident about precision). People who are knowledgeable and/or more confident are less influenced by the apparently 'right' view of a majority. Therefore there are differences in how individuals respond to ISI.

A strength of NSI is that there is research support. Asch (1951) asked participants to explain why they agreed with the wrong answer. Some said they felt self-conscious giving the right answer and were afraid of disapproval. When Asch asked participants to write down their answers, conformity rates fell to 12.5%. This supports the participants' own reports that they were conforming because of NSI.

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NSI concerns what is 'normal' or typical behaviour for a social group (i.e. norms). NSI is an emotional rather than cognitive process – people prefer social approval rather than rejection. It is important with people you know rather than strangers because people are concerned about the social approval of friends. Someone may be persuaded to try smoking because all their friends are, even though they know it is an unhealthy behaviour.

A strength of ISI is that there is research support. Lucas *et al*. (2006) asked students to give answers to easy and more difficult maths problems. There was more conformity to incorrect answers when the problems were difficult. This was most true for students who rated their maths ability as poor. People conform in situations where they feel they don't know the answer (ISI). We look to others and assume they know better than us and must be right.

A limitation of ISI and NSI is that the 'two-process' approach is oversimplified. This approach states that behaviour is due to either NSI or ISI. However, conformity was reduced when there was a dissenting partner in the Asch experiment. This dissenter may reduce the power of NSI (by providing social support) or reduce the power of ISI (because they are an alternative source of information).

A limitation of NSI is that there are individual differences. People who care more about being liked are more affected by NSI. They are *nAffiliators* – people who have a greater need for social relationships. McGhee and Teevan (1967) found that students who were nAffiliators were more likely to conform. The desire to be liked underlies conformity for some people more than others. One general theory does not cover the fact there are differences.

P13

1 Asch recruited 123 American male students. Each was tested individually with a group of between six and eight confederates. On each trial, participants identified the length of a standard line. On the first few trials confederates gave correct answers but then all selected the same wrong answers. Each participant completed 18 trials. On 12 'critical trials' confederates gave the wrong answer.

The naïve participants gave a wrong answer 36.8% of the time (i.e. the proportion of critical trials when the participants agreed with the confederates' wrong answers). There were considerable individual differences: 25% of the participants never gave a wrong answer, so 75% conformed at least once. A few participants conformed most of the time.

2 *Group size:* With two confederates, conformity to the wrong answer was 14%; with three it rose to 32%. Adding any more confederates made little difference.

Unanimity: The presence of a dissenting confederate reduced conformity, whether the dissenter was giving the right or wrong answer. The figure was, on average, 25% wrong answers.

Task difficulty: Conformity increased when the task was more difficult (the comparison lines were closer in length). So *informational social influence* plays a greater role when the task becomes harder.

3 One limitation is that Asch's findings may be a 'child of the times'. Perrin and Spencer (1980) found just one conforming response in 396 trials. Participants (UK engineering students) felt more confident measuring lines than Asch's original sample, so were less conformist. Also, the 1950s were a conformist time in America and people might be less likely to conform in subsequent decades. The Asch effect is not consistent over time, so is not an enduring feature of human behaviour.

A second limitation is that the situation and task were artificial. Participants knew they were in a study so may have just responded to demand characteristics. The line task was trivial so there was no reason not to conform. Also, the naïve participants were in a 'group', but not like groups found in everyday life. Findings do not generalise to everyday situations where consequences of conformity are important, and where we interact with groups more directly.

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The naïve participants gave a wrong answer 36.8% of the time (i.e. the proportion of critical trials when the participants agreed with the confederates' wrong answers). There were considerable individual differences: 25% of the participants never gave a wrong answer, so 75% conformed at least once. A few participants conformed most of the time. This suggests that participants were conforming due to *normative social influence* – they knew the answer was wrong but gave the wrong answer to receive social approval.

A limitation is that the findings only apply to certain groups. Only men were tested by Asch. Neto (1995) suggested that women might be more conformist, possibly because they are more concerned about social relationships (and being accepted). Participants were from the USA, an individualist culture (people are more concerned with themselves than their social group). Smith and Bond (1998) suggest that conformity rates are higher in collectivist cultures (e.g. China) which are more concerned with group needs. This suggests that conformity levels are sometimes even higher than Asch found; his findings may be limited to American men.

Another limitation is that the findings only apply to certain situations. Participants answered out loud and were with a group of strangers they wanted to impress. Conformity could be higher than usual. But Williams and Sogon (1984) found conformity was higher when the majority were friends rather than strangers. Therefore the Asch effect varies depending on circumstances.

There are ethical issues associated with Asch's research. Naïve participants were deceived. They thought the others in the procedure (confederates) were genuine. But this ethical cost should be weighed against the benefits of the study. The main benefit was highlighting people's susceptibility to group conformity and the variables affecting it.

P15

1 Zimbardo and his colleagues (Haney *et al.* 1973) set up a mock prison in the basement of the psychology department at Stanford University. They recruited 24 'emotionally stable' students determined by psychological testing – randomly assigned roles of guards or prisoners. The prisoners' daily routines were heavily regulated. There were 16 rules to follow, enforced by guards working in shifts, three at a time.

Within two days, the prisoners rebelled against their treatment. They ripped their uniforms and shouted and swore at the guards, who retaliated with fire extinguishers. Guards harassed the prisoners constantly by conducting frequent headcounts, sometimes in the middle of the night. After the rebellion was put down, the prisoners became subdued, anxious and depressed. Three prisoners were released early because they showed signs of psychological disturbance. One prisoner went on hunger strike and the study had to be stopped after 6 days.

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3 A strength of the SPE is that the researchers had some control over variables. Emotionally stable participants were recruited and randomly assigned the roles of guard or prisoner. The guards and prisoners had those roles only by chance. So their behaviour was due to the pressures of the situation and not their personalities. Control increases the study's internal validity. We can be more confident in drawing conclusions about the influences of social roles on behaviour.

A limitation with the SPE is a lack of realism. Banuazizi and Mohavedi (1975) suggest participants were play-acting. Their performances reflected stereotypes of how prisoners and guards are supposed to behave. One guard based his role on a character from the film *Cool Hand Luke*. Prisoners rioted because they thought that is what real prisoners did. But Zimbardo's data showed 90% of the prisoners' conversations were about prison life. The simulation seemed real to them, increasing the study's internal validity.

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The simulation revealed the power of the situation to influence people's behaviour. Guards, prisoners and researchers all conformed to their social roles within the prison (identification).

Fromm (1973) argues that Zimbardo understated dispositional influences. Only a third of the guards behaved brutally. Another third applied the rules fairly. The rest supported the prisoners, offering them cigarettes and reinstating privileges. Zimbardo's conclusion – that participants conformed to social roles – may be over-stated, exaggerating the power of the situation. The differences in the guards' behaviour show that they could exercise right and wrong choices, despite situational pressures to conform to a role.

SPE lacks research support and has been contradicted by subsequent research. Reicher and Haslam (2006) partially **replicated** the SPE, with different findings. Prisoners eventually took control. Tajfel's (1981) *social identity theory* (SIT) explains this. Guards in the replication failed to develop shared social identity as a group, but prisoners did and refused to accept the limits of their assigned roles. So the brutality of the guards in the original SPE was due to a shared social identity as a cohesive group, rather than conformity to their social roles.

A limitation is that there were major ethical issues with the SPE. One issue arose because Zimbardo was both lead researcher and prison superintendent. A student who wanted to leave the study spoke to Zimbardo, who responded as a superintendent worried about the running of his prison rather than as a researcher. This limited Zimbardo's ability to protect his participants from harm because his superintendent role conflicted with his lead researcher role.

P17

1 Stanley Milgram recruited 40 male participants through newspaper ads. The ad said he was looking for participants for a memory study. Participants were aged between 20 and 50 years and were given $4.50 for just turning up. A confederate ('Mr Wallace') was always the 'learner' while the true participant was the 'teacher'. The learner was strapped into a chair in another room and wired with electrodes. The teacher had to give the learner an increasingly severe electric 'shock' each time he made a mistake on a task (learning word pairs). The teachers were not told that the shocks were all fake and that Mr Wallace was an actor. The 'teacher' was encouraged to continue by the professor/authority figure who gave a series of 'verbal prods'.

2 No participant stopped below 300 volts. Five (12.5%) stopped at 300 volts; 65% continued to 450 volts. Observations (qualitative data) indicated that participants showed signs of extreme tension; many were seen to 'sweat, tremble, bite their lips, groan and dig their fingernails into their hands'. Three had 'full-blown uncontrollable seizures'.

3 A limitation of Milgram's study is that it lacked internal validity. Orne and Holland (1968) suggest participants guessed the electric shocks were fake. So Milgram was not testing what he intended to test (i.e. obedience).

A strength of Milgram's research is that it has good external validity. Milgram argued that the lab-based relationship between experimenter and participant reflected wider real-life authority relationships.

Replications have supported Milgram's research findings. In a French documentary, contestants in a reality TV game show were paid to give (fake) electric shocks – when ordered by the presenter – to other participants (actors). 80% gave the maximum 450 volts to an apparently unconscious man, which lends support to Milgram's original findings.

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A limitation of Milgram's study is that it lacked internal validity. Orne and Holland (1968) suggest participants guessed the electric shocks were fake. So Milgram was not testing what he intended to test (i.e. obedience). However, Sheridan and King's (1972) participants gave real shocks to a puppy; 54% of males and 100% of females delivered what they thought was a fatal shock. So the obedience in Milgram's study might be genuine, 70% of Milgram's participants thought the shocks were genuine.

Social identity theory (SIT) is an alternative explanation to Milgram's. Obedience is about group identification. Milgram's participants identified with the experimenter (the science of the study). When obedience levels fell, the participants identified more with the victim. Haslam and Reicher (2012) suggest the first three 'prods' are appeals for help with science ('experiment requires you continue'). Only the 4th prod demands obedience. Every time this was used, the participant quit. The participants did not give shocks due to obedience, but due to their identification with the experimenter as a scientist (as explained by *social identity theory*).

A limitation is there are ethical issues associated with Milgram's research. Baumrind (1964) criticised Milgram's deceptions. Participants believed the allocation of roles was randomly assigned, but it was fixed. The most significant deception was that participants believed the electric shocks were real. Baumrind objected because deception is a betrayal of trust that damages the reputation of psychologists and their research. Deception of participants may also make them less likely to volunteer for future research.

P19

1 In Milgram's original study, the teacher and learner were in adjoining rooms. The teacher could hear the learner but not see him. In the *proximity variation*, teacher and learner were in the same room and the obedience rate dropped

from 65% to 40%. In the *touch proximity variation*, the teacher had to force the learner's hand onto a shock plate. The obedience rate dropped to 30%.

The role of the experimenter was taken over by an 'ordinary member of the public' in everyday clothes rather than a lab coat. The obedience rate dropped to 20%, the lowest of the variations.
This suggests that uniform does act as a strong visual authority symbol and a cue to behave in an obedient manner.

2 There is research support for the influence of situational variables. Bickman (1974) looked at the effect of authority on obedience (**confederate** dressed in jacket/ tie, milkman or security guard). The confederate asked passers-by to provide a coin for the parking meter, for example. People were twice as likely to obey the 'security guard' than the 'jacket/tie' confederate. This supports Milgram's conclusion that a uniform conveys authority and is a situational factor producing obedience.

A limitation is Milgram's variations may lack internal validity. Orne and Holland (1968) suggest participants in Milgram's variations were even more likely to realise the procedure was faked because of the extra experimental manipulation. In the variation where the experimenter was replaced by 'a member of the public', even Milgram recognised this was so contrived that some participants may have worked it out. So it is unclear whether the results are due to obedience or because the participants saw the deception and 'play-acted'.

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The location of the obedience study was a run-down building rather than the prestigious university setting where it was originally conducted (Yale University). Obedience fell to 47.5%. This indicates that the experimenter had less authority in this setting.

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This suggests that uniform does act as a strong visual authority symbol and a cue to behave in an obedient manner.

A strength is that Milgram's research has been replicated in other cultures. Miranda *et al*. (1981) found over 90% obedience in Spanish students. Milgram's findings are not limited to American males. However, Smith and Bond (1998) note that most replications have taken place in Western societies (e.g. Spain), culturally not that different from the USA. It is premature to conclude that Milgram's findings about proximity, location and uniform apply to people everywhere.

A strength is that Milgram's research has control of variables. Milgram systematically altered one variable at a time to test effects on obedience. Other variables were kept constant as the study was replicated many times with over 1000 participants. This control gives us more certainty that changes in obedience were caused by the variable manipulated (e.g. location), showing cause and effect relationships.

A limitation is that Milgram's conclusions provide an 'obedience alibi'. Milgram's findings are an 'excuse' for obedience – suggesting that it is the situation not the person who is responsible. Mandel (1998) claims this is offensive to Holocaust survivors to suggest that the Nazis simply obeyed orders and were victims of situational factors beyond their control. Milgram's situational perspective is dangerous because it ignores the roles that discrimination, racism and prejudice played in the Holocaust.

P21

1 Milgram proposed that obedience to destructive authority occurs because a person becomes an 'agent', someone who acts for or in place of another. In an agentic state a person feels no personal responsibility for their actions. A person in an autonomous state behaves according to their own principles and feels responsible for their own actions. The shift from autonomy to being an 'agent' is called the agentic shift. Milgram suggested that this occurs when we perceive someone else as an authority figure. This person has power because of their position in a social hierarchy. Binding factors are aspects of a situation that allow the person to ignore or minimise the damaging effect of their behaviour and reduce the 'moral strain' they feel. Milgram proposed a number of strategies the individual uses, such as shifting the responsibility to the victim or denying the damage they are doing to victims.

2 Blass and Schmidt (2001) showed students a film of Milgram's study and asked them to identify who was responsible for harm to the learner. Students blamed the 'experimenter' rather than the participant. This responsibility was due to legitimate authority (the 'experimenter' was top of the hierarchy) but also to expert authority (he was a scientist). The students recognised legitimate authority as the cause of obedience, supporting this explanation.

3 Most societies are structured hierarchically. People in certain positions hold authority over the rest of us. Parents, teachers, police officers, nightclub bouncers, all have some kind of authority over us at times. The authority they wield is legitimate in the sense that it is agreed by society. Most of us accept that authority figures should exercise social power over others because this allows society to function smoothly. One consequence of legitimate authority is that some people are granted the power to punish others. We give up some of our independence to people we trust to exercise their authority appropriately. We learned to accept authority from parents and teachers during childhood.

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A limitation is the agentic shift doesn't explain many of the research findings. Some participants did not obey – humans are social animals in social hierarchies and therefore should all obey. Also, in Hofling *et al.*'s (1966) study, nurses should have shown anxiety as they gave responsibility over to the doctor, because they understood their role in a destructive process. But this was not the case. So agentic shift can only account for some situations of obedience.

A limitation is the agentic state cannot account for the behaviour of the Nazis. Mandel (1998) described German Reserve Police Battalion 101 – men shot civilians in a small town in Poland (World War 2). They did this even though they were not directly ordered to (they were told they could be assigned other duties). This challenges the agentic state explanation because the Reserve Police were not powerless to disobey.

A strength is that legitimacy of authority can explain real-life obedience. Kelman and Hamilton (1989) suggest the My Lai massacre (Vietnam War) is explained by the power hierarchy of the US Army. The army has authority recognised by the US government and the law. Soldiers assume orders given by the hierarchy to be legal; even orders to kill, rape and destroy villages. The legitimacy of authority explanation is able to give reasons why destructive obedience is committed.

P23

1 Authoritarian personality forms in childhood through harsh parenting and extremely strict discipline. Adorno *et al*. suggested that people with an authoritarian personality have exaggerated respect for authority and express contempt for people of inferior social status.

2 Adorno *et al*. (1950) investigated unconscious attitudes towards other racial groups of more than 2000 middle-class white Americans. Several scales were developed, including the potential for fascism scale (F-scale). Authoritarians (who scored high on the F-scale and other measures) identified with 'strong' people and were contemptuous of the 'weak'. They were conscious of their own and others' status, showing excessive respect and deference to those of higher status.

3 There is support for the link between authoritarian personality and obedience. Elms and Milgram (1966) interviewed fully obedient participants – all scored highly on the F-scale. However, this link is just a *correlation* between measured variables. We cannot conclude from this that authoritarian personality causes obedience. A 'third factor' may be involved. Both obedience and authoritarian personality may be caused by a lower level of education (Hyman and Sheatsley 1954).

The authoritarian personality explanation is limited. Millions of individuals in Germany displayed obedient and anti-Semitic behaviour – but didn't have the same personality. It seems unlikely the majority of Germany's population possessed an authoritarian personality. An alternative explanation is more realistic – *social identity theory*. Most Germans identified with the anti-Semitic Nazi state and adopted its views.

4 Adorno *et al*. (1950) wanted to understand the anti-Semitism of the Holocaust. They believed that unquestioning obedience is a psychological disorder, and tried to find its causes in the individual's personality. Adorno *et al*. suggested that people with an authoritarian personality are especially obedient to authority. They have exaggerated respect for authority and submissiveness to it and express contempt for people of inferior social status. Authoritarian personality forms in childhood through harsh parenting: extremely strict discipline, expectation of absolute loyalty, impossibly high

standards, and severe criticism. It is also characterised by conditional love – parents' love depends entirely on how their child behaves. These experiences create resentment and hostility in the child, but they cannot express these feelings directly against their parents because they fear reprisals. So the feelings are displaced onto others who are seen as weaker – known as scapegoating.

A limitation is that the F-scale (which was used by Adorno to measure authoritarianism) is politically biased. Christie and Jahoda (1954) suggest the F-scale aims to measure tendency towards extreme right-wing ideology. But right-wing and left-wing authoritarianism (e.g. Chinese Maoism) both insist on complete obedience to political authority. Adorno's theory is not a comprehensive dispositional explanation of obedience to authority because it doesn't explain obedience to left-wing authoritarianism, i.e. it is politically biased.

A limitation is that the explanation is based on a flawed methodology. Greenstein (1969) suggests the F-scale is 'a comedy of methodological errors', for example items are worded in the same 'direction' so the scale just measures the tendency to agree to everything. Also, researchers knew the participants' test scores when they interviewed them. So they knew who had authoritarian personalities. They also knew the study's hypothesis, which makes biased results likely. This suggests that the data collected is meaningless and the concept of authoritarian personality lacks validity.

A further limitation is that much of the research uses correlations. Adorno measured many variables and found significant correlations between them (e.g. authoritarianism correlated with prejudice against minority groups). No matter how strong a correlation between two variables is, it does not mean that one causes the other. Therefore Adorno could not claim that harsh parenting style *caused* development of an authoritarian personality.

P25

1 Pressure to conform is reduced if other people are not conforming. Asch's research showed that the dissenter doesn't have to give the 'right' answer. Simply someone else not following the majority frees others to follow their own conscience. The dissenter acts as a 'model'.

Pressure to obey can be reduced if another person is seen to disobey. In Milgram's study, independent behaviour increased in the disobedient peer condition (from 35% to 90%). The participant may not follow the disobedient peer but the dissenter's disobedience frees the participant to act from their own conscience.

2 Rotter (1966) described internal versus external locus of control. Internals believe things that happen to them are largely controlled by themselves. Externals believe things happen outside their control.

People with internal LOC are more likely to resist pressures to conform or obey. If someone takes personal responsibility for their actions and experiences (good or bad) they are more likely to base their decisions on their own beliefs. People with high internal LOC are more self-confident, more achievement-oriented, have higher intelligence and less need for social approval. These personality traits lead to greater resistance.

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Rotter (1966) described internal versus external locus of control. Internals believe things that happen to them are largely controlled by themselves. Externals believe things happen outside their control. People with internal LOC are more likely to resist pressures to conform or obey. If someone takes personal responsibility for their actions and experiences (good or bad) they are more likely to base their decisions on their own beliefs. People with high internal LOC are more self-confident, more achievement-oriented, have higher intelligence and less need for social approval. These personality traits lead to greater resistance.

Research evidence supports the role of dissenting peers in resisting conformity. Allen and Levine (1971) found independence increased with one dissenter in an Asch-type study. This occurred even if the dissenter wore thick glasses and said he had problems with vision (he couldn't judge the line lengths). So resistance is not motivated by following what someone else says but it enables someone to be free of pressure from the group.

Research evidence supports the role of dissenting peers in resisting obedience. Gamson *et al*. (1982) found higher levels of rebellion (i.e. independent behaviour) than Milgram did. Gamson's participants were in groups (to produce evidence that an oil company would use to run a smear campaign). In Gamson's study 29 out of 33 groups of participants (88%) rebelled. This shows that peer support is linked to greater resistance.

Research evidence supports the link between LOC and resistance to obedience. Holland (1967) repeated the Milgram study and measured whether participants were internals or externals: 37% of internals did not continue to the highest shock level (they showed independence). Only 23% of validity of the LOC explanation and our confidence that it can explain resistance.

P27

1 Minority influence refers to how one person or small group influences the beliefs and behaviour of other people. The minority may influence just one person, or a group of people (the majority) – this is different from conformity where the majority does the influencing.

2 Moscovici (1969): A group of six people viewed a set of 36 blue-green coloured slides varying in intensity, then stated whether the slides were blue or green.
The study had three conditions:
1. Confederates consistently said the slides were green.
2. Confederates were inconsistent about the colour of the slides.
3. A control group – no confederates.

Consistent minority condition: participants gave the same wrong answer on 8.42% of trials; 32% gave the same answer on at least one trial.
Inconsistent minority condition: agreement fell to 1.25%.
Control group: participants wrongly identified colour 0.25% of the time.

3 *Consistency*: If the minority is consistent this makes others rethink their own views ('Maybe they've got a point if they all think this way and they have kept saying it').

Commitment: The minority' activities must create some risk to demonstrate commitment to the cause ('Wow, he must really believe in what he's saying, so perhaps I ought to consider his view' – augmentation principle).

Flexibility: Being consistent and repeating the same arguments and behaviours is seen as rigid and off-putting to the majority. Instead, the minority should adapt their point of view and accept reasonable counter-arguments.

4 There are three processes that make minorities more likely to convince majorities of their view. Consistency makes others rethink their own views ('Maybe they've got a point if they all think this way and they have kept saying it'). This is illustrated by the Moscovici (1969) study in which a consistent minority persuaded a majority to 'see' blue slides as green. Commitment: activities must create some risk to the minority to demonstrate commitment to the cause ('Wow, he must really believe in what he's saying, so perhaps I ought to consider his view' – augmentation principle). Flexibility: being consistent and repeating the same arguments and behaviours is seen as rigid and off-putting to the majority. Instead, the minority should adapt their point of view and accept reasonable counter-arguments.

Research evidence shows change to minority position involves deeper thought. Martin *et al*. (2003) gave participants a message supporting a particular viewpoint, and attitudes measured. Then they heard an endorsement of the view from either a minority or a majority. Finally they heard a conflicting view; attitudes measured again. People were less willing to change their opinions to the new conflicting view if they had listened to a minority group than if they listened to a majority group. This suggests that the minority message had been more deeply processed and had a more enduring effect.

A limitation is minority influence research often involves artificial tasks. Moscovici's task was identifying the colour of a slide, far removed from how minorities try to change majority opinion in real life. In jury decision making and political campaigning, outcomes are vastly more important, maybe a matter of life or death. Findings of studies lack external validity and are limited in what they tell us about how minority influence works in real-life situations.

Applications of minority influence research are limited. Studies make a clear distinction between majority and minority, but real-life situations are more complicated. The difference is about more than just numbers. Majorities usually have power and status. Minorities are committed and tight-knit groups whose members know and support each other. Minority influence research rarely reflects the dynamics of these groups so findings may not apply to real-life minority influence situations which exert a more powerful influence.

P29

1 This occurs when whole societies rather than just individuals adopt new attitudes, beliefs and ways of doing things. Examples include accepting that the Earth orbits the Sun, gay rights or environmental issues.

2 Minority influence research can be applied to social change. Minorities draw attention to the issue, such as civil rights marches In the US drew attention to the segregation of blacks and whites. Even though a minority of the American population was arguing for civil rights, they displayed consistency of message and intent. This attention meant that many people who had accepted the status quo began thinking about the unjustness of it (deeper processing). Civil rights activists showed their commitment to the cause by placing themselves at risk (the augmentation principle). Many were beaten and subject to mob violence. Over time – with the force of argument advanced by key figures such as Martin Luther King – the minority became the majority view (the snowball effect).

3 Minority influence is only indirectly effective in creating social change. Nemeth (1986) suggests the effects of minority influence are indirect and delayed. It took decades for attitudes against drink-driving and smoking to shift. Indirect: the majority is influenced only on matters related to the central issue, and not the issue itself; delayed: effects not seen for some time. Using minority influence to explain social change is limited because it shows that effects are fragile and its role in social influence narrow.

A limitation is the nature of deeper processing has been questioned. Moscovici suggested that minority influence causes individuals to think deeply – which is a different cognitive process from majority influence. Mackie (1987) disagrees, arguing that *majority influence* creates deeper processing if you do not share their views. We believe that others think in the same ways as us; when we find that a majority believes differently, we are forced to think hard about their arguments. So a central element of minority influence is challenged and may be incorrect, casting doubt on the validity of Moscovici's theory.

4 Minority influence research suggests that minorities can draw the attention of majorities towards social change issues and are especially persuasive if they demonstrate commitment (the augmentation principle) and consistency (as evidenced in Moscovici's (1969) study in which consistent minorities persuaded a majority group to report seeing blue slides as green). Minorities may advance arguments that encourage deeper processing of the issue leading to a gradual change in majority opinion over time (the snowball effect).

Environmental and health campaigns exploit conformity by appealing to normative social influence. They provide information about what others are doing, e.g. reducing litter by printing normative messages on bins ('Bin it – others do'). Social change is encouraged by drawing attention to the majority's behaviour.

Research support for role of normative social influence (NSI) in social change. Nolan *et al*. (2008) hung messages on front doors of houses. The key message was most residents are trying to reduce energy usage. Significant decreases in energy use compared to control group who saw messages to save energy with no reference to other people's behaviour. So conformity can lead to social change through the operation of NSI.

Identification is an important variable overlooked in minority influence research. Bashir *et al*. (2013) suggest people are less likely to behave in environmentally friendly ways because they wanted to avoid label of being minority 'environmentalists'. Participants rated environmental activists negatively ('tree huggers'). Minorities wanting social change should avoid behaving in ways that reinforce stereotypes; off-putting to the majority. This suggests that being able to identify with a minority group is just as important as agreeing with their views in terms of changing behaviour.

A limitation is there are methodological issues in this area of research. Explanations of social change rely on studies by Moscovici, Asch and Milgram. These can be evaluated in terms of methodology, mainly over the artificial nature of the tasks and whether the group dynamics reflect real life. These criticisms apply to the evaluation of explanations for the link between social influence processes and social change.

2. Memory

P31

1 Short-term memory is a temporary memory store with a duration of around 30 seconds and a capacity of 7+/-2 items. Long term memory is a potentially permanent memory store with an infinite capacity.

2 Peterson and Peterson (1959) investigated the duration of STM: 24 students were given a consonant syllable (e.g. YCG) to remember and a 3-digit number to count backwards for 3, 6, 9, 12, 15 or 18 seconds. Accurate recall of the syllable was recorded for each different time period.

3 Jacobs (1887) tested the capacity of STM using the digit span technique. The researcher read four digits and increased until the participant could recall the order correctly. On average, participants could repeat back 9.3 numbers and 7.3 letters in the correct order immediately after they were presented.

4 In Bahrick's (1975) study, participants tested 48 years after graduation were about 70% accurate in photo recognition. Free recall was less accurate.

5 Baddeley (1966) tested coding in STM and LTM. Participants were presented with acoustically similar words (e.g. cat, cab) or acoustically dissimilar words (e.g. pit, few) and were asked to recall these words in order. Participants were also presented with semantically similar words (e.g. large, big) or semantically dissimilar words (e.g. good, hot) and asked to recall these in order. Immediate recall was worse with acoustically similar words, suggesting that STM relies on an acoustic code. Recall after 20 minutes was worse with semantically dissimilar words, suggesting that LTM is relies on a semantic code.

6 Jacobs (1887) tested the capacity of STM using the digit span technique. The researcher read four digits and increased until the participant could recall the order correctly. On average, participants could repeat back 9.3 numbers and 7.3 letters in the correct order immediately after they were presented. This suggests that STM has a limited capacity of around 7–9 items.

This is supported by Miller's (1956) research who made observations of everyday practice. For example, he noted that things come in sevens: there are 7 notes on the musical scale, 7 days of the week, 7 deadly sins, and so on. He concluded that STM functions best when dealing with 7 items (the 'magic number seven').

Peterson and Peterson (1959) 24 students were given a consonant syllable (e.g. YCG) to remember and a 3-digit number to count backwards for 3, 6, 9, 12, 15 or 18 seconds. Students recalled (on average) about 80% of the syllables correctly with a 3-second interval. Average recall after 18 seconds fell to about 3%. Suggesting that duration of STM without rehearsal is about 18 to
30 seconds.

A limitation of Jacobs' study is that it was conducted a long time ago. Early research in psychology often lacked adequate control of extraneous variables. For example, some participants may have been distracted while they were being tested so they didn't perform as well as they might. This would mean that the results may not be valid because there were confounding variables that were not controlled. However, these results have been confirmed in other research, supporting its validity.

A limitation of Miller's research is it may have overestimated capacity of STM. For example, Cowan (2001) reviewed other research. He concluded that the capacity of STM was only about 4 chunks. This suggests that the lower end of Miller's estimate (5 items) is more appropriate than 7 items.

A limitation of Peterson and Peterson's study is the artificial stimulus. Trying to memorise consonant syllables does not reflect most real-life memory activities where what we try to remember is meaningful. So it could be argued that this study lacked external validity. On the other hand, we do sometimes try to remember fairly meaningless things, such as phone numbers. So the study is not totally irrelevant.

P33

1 The SR takes in stimuli from the environment and is not a single store but five, one for each sense. The duration is very brief (less than half a second) but the capacity is very large, e.g. over one hundred million cells in one eye, each storing data.

2 The MSM describes how information flows through the memory system. Memory is made of three stores linked by processing. The sensory register takes in stimuli from the environment and is not a single store but five, one for each sense. The duration is very brief (less than half a second) but the capacity is very large. If attention is paid to information in the SR, this transfers to short-term memory. The duration of STM is about 18 to 30 seconds unless the information is rehearsed. The capacity is between 5 and 9 items and it is based on an acoustic code. We can keep information in STM as long as we rehearse it. If we rehearse it long enough, it passes into long-term memory – a permanent memory store. The duration of LTM is potentially up to a lifetime; it has an unlimited capacity and is based on a semantic code.

3 A limitation of MSM is that evidence suggests there is more than one type of STM. Shallice and Warrington (1970) studied KF, a patient with amnesia. His STM for digits was poor when they read them out loud to him. But his recall was much better when he read the digits himself. The MSM states that there is only one type of STM (unitary store). But the KF study suggests there must be one short-term store to process visual information and another to process auditory information. The working memory model is a better explanation for this finding because it includes separate stores.

Another limitation of the MSM is that it only explains one type of rehearsal. Craik and Watkins (1973) argued there are two types of rehearsal – maintenance and elaborative. Maintenance is the one described in the MSM but this does not transfer information into LTM. Elaborative rehearsal is needed for long-term storage. This occurs when you link information to your

existing knowledge, or process it means.This is a very serious limitation of the MSM because it is another research finding that cannot be explained by the model.

4 The MSM describes how information flows through the memory system. Memory is made of three stores linked by processing. The sensory register takes in stimuli from the environment and is not a single store but five, one for each sense. The duration is very brief (less than half a second) but the capacity is very large. If attention is paid to information in the SR, this transfers to short-term memory. The duration of STM is about 18 to 30 seconds unless the information is rehearsed. The capacity is between 5 and 9 items and it is based on an acoustic code. We can keep information in STM as long as we rehearse it. If we rehearse it long enough, it passes into long-term memory – a permanent memory store. The duration of LTM is potentially up to a lifetime; it has an unlimited capacity and is based on a semantic code.

The MSM is supported by research showing STM and LTM are different. Baddeley (1966) found that we tend to mix up words that sound similar when using our STMs. But we mix up words that have similar meanings when we use our LTMs. This clearly shows that coding in STM is acoustic and in LTM it is semantic. This supports the MSM's view that these two memory stores are separate and independent.

A limitation is that research studies supporting the MSM use artificial materials. Researchers often asked participants to recall digits, letters and sometimes words. Peterson and Peterson (1959) even used consonant syllables which have no meaning. In everyday life we form memories related to all sorts of useful things – people's faces, their names, facts, places, etc. This suggests the MSM lacks external validity. Research findings may reflect how memory works with meaningless material in lab testing, but does not reflect how memory mainly works in everyday life.

A further limitation of the MSM is that it oversimplifies LTM. There is a lot of research evidence that LTM is not a unitary store. We have one LTM store for memories of facts about the world (semantic), and a different one for memories of how to ride a bike (episodic). The MSM is limited because it does not reflect these different types of LTM.

P35

1 Episodic memory is memory for events in a person's life, for example, knowing what you did yesterday.

2 Episodic memory is a form of declarative memory: details of episodic memories are very easy to put into words. However, procedural are non-declarative memories: they are stored as a sequence of motor movements that are difficult to express in words.

3 Semantic memory stores our knowledge of the world. This is like a combination of an encyclopaedia and a dictionary. For example, it includes knowledge of such things as applying to university, the taste of an orange, and the meaning of words. Semantic memories are not timestamped; for example, we do not usually remember when we first learned about 'Justin Bieber'.

4 As above.

5 Episodic memory stores events from our lives. This store has been likened to a diary of daily happenings. For example, your most recent visit to the dentist, the psychology class you had yesterday, the breakfast you ate this morning. They are time-stamped – you remember when they happened and they involve several elements – people, places, objects and behaviours are woven into one memory. Semantic memory stores our knowledge of the world. This is like a combination of an encyclopaedia and a dictionary. For example, it includes knowledge of such things as applying to university, the taste of an orange, and the meaning of words. Semantic memories are not timestamped; for example, we do not usually remember when we first learned about 'Justin Bieber'. Procedural memory stores memories for actions and skills. These are memories of how we do things, for example driving a car or playing table tennis. These are the sorts of skills we might even find quite hard to explain to someone else because we recall these memories without conscious awareness.

A strength is that brain scan studies show that there are different LTM stores. Tulving *et al*. (1994) had participants perform various memory tasks while their brains were scanned with a PET scanner. Episodic and semantic memories were in the prefrontal cortex; semantic in left side and episodic in right prefrontal cortex. This shows a physical reality in the brain to the different types of LTM, confirmed in many research studies, supporting its validity.

A strength is that identifying different LTM stores has real-life applications. Psychologists can target certain kinds of memory in order to improve people's lives. Belleville *et al*. (2006) found that episodic memories can be improved in older people with mild cognitive impairments. Training led to improvements (compared to control group). This highlights the benefit of distinguishing between different types of LTM – it allows specific treatments to be developed.

A limitation of Tulving's approach is that there may be only two types of LTM. Cohen and Squire (1980) argued that episodic and semantic memories are stored together in one LTM store called declarative memory (memories that can be consciously recalled). Cohen and Squire agree that procedural memory is a distinctly different kind of memory to semantic/episodic, and call it non- declarative. It is important to get the distinction between semantic and episodic memories right because the way we define them influences how memory studies are conducted.

P37

1 The phonological loop deals with auditory information and preserves the order in which the information arrives. It is subdivided into the phonological store (stores the words you hear) and the articulatory process (allows maintenance rehearsal).

The episodic buffer is a temporary store for information. It integrates visual, spatial and verbal information from other stores and links STM to LTM.

2 Working memory is an explanation of how STM is organised and how it functions.
For example, WMM is concerned with the part of the mind that is active when working on an arithmetic problem or playing chess or comprehending language, etc. The *central executive*
(CE) is in overall charge and allocates attentional resources to slave systems depending on the task. It has a very limited storage capacity. The *visuo-spatial sketchpad* (VSS) stores visual and/or spatial information when required (e.g. recalling how many windows your house has). Logie (1995) subdivided the VSS into the visual cache (stores visual data) and the inner scribe (records the arrangement of objects in the visual field). The *phonological loop* deals with auditory information and preserves the order in which the information arrives. It is subdivided into the phonological store (stores the words you hear) and the articulatory process (allows maintenance rehearsal). The *episodic buffer* is a temporary store for information. It integrates visual, spatial, and verbal information from other stores and links STM to LTM.

3 A strength of the WMM is that the case of KF supports separate STM stores. Shallice and Warrington (1970) carried out a case study of patient KF who had brain damage. He had poor STM ability for verbal information but could process visual information normally (difficulty with sounds but could recall letters/digits). So his phonological loop had been damaged but other areas of memory were intact. This suggests there are separate visual and acoustic stores.

Another strength is that dual task performance studies support the VSS. Baddeley *et al*. (1975) found participants had more difficulty doing two visual tasks (tracking a light and describing the letter F) than doing a visual and verbal task at the same time. The greater difficulty is because both visual tasks compete for the same limited resources. When doing a verbal and visual task simultaneously, there is no competition. Therefore dual task performance activity provides evidence for the existence of the visuo-spatial sketchpad. The multi-store model cannot explain this.

4 Working memory is an explanation of how STM is organised and how it functions.
For example, WMM is concerned with the part of the mind that is active when working on an arithmetic problem or playing chess or comprehending language, etc. The *central executive*
(CE) is in overall charge and allocates attentional resources to slave systems depending on the task. It has a very limited storage capacity. The *visuo-spatial sketchpad* (VSS) stores visual and/or spatial information when required (e.g. recalling how many windows your house has). Logie (1995) subdivided the VSS into the visual cache (stores visual data) and the inner scribe (records the arrangement of objects in the visual field). The *phonological loop* deals with auditory information and preserves the order in which the information arrives. It is subdivided into the phonological store (stores the words you hear) and the articulatory process (allows maintenance rehearsal). The *episodic buffer* is a temporary store for information. It integrates visual, spatial, and verbal information from other stores and links STM to LTM.

A limitation of the WMM is a lack of clarity over the central executive. Cognitive psychologists suggest that the CE is unsatisfactory and doesn't really explain anything. The CE should be more clearly specified than just being simply 'attention'. Some psychologists believe it may consist of separate components. This means that the WMM hasn't been fully explained.

A strength is that the word length effect supports the phonological loop. Baddeley *et al*. (1975) found people have more difficulty remembering a list of long words (e.g. 'association') than short words. This is the word length effect. This is because there is limited space for rehearsal in the articulatory process (probably about two seconds). Word length effect disappears if a person is given a repetitive task tying up the articulatory process, demonstrating the process at work.

A further strength of the model is support from brain scanning studies. Braver *et al*.'s (1997) participants did tasks involving the CE while they were having a brain scan. Activity seen in an area known as the prefrontal cortex. Activity in this area increased as the task became harder. This makes sense in terms of the WMM: as demands on the CE increase, it has to work harder to fulfil its function. So this study provides evidence that the CE may have a physical reality in the brain.

P39

1 Retroactive interference is when new information conflicts with/disrupts previously stored information. For example, a teacher learns many new names this year and can't remember the names of her previous students.

2 Proactive interference is when previously stored information conflicts with/disrupts new information. For example, a teacher learns many names in the past and can't remember names of her current class.

3 A limitation of the research into interference is the use of artificial materials. The stimulus material used is often word lists. This is more realistic than consonant syllables, but is still quite different from things we remember in everyday life.

Another limitation of the research is the time allowed between learning. Time periods between learning lists of words and recalling them are quite short in lab studies. A participant might learn two lists within 20 minutes. Research reduces the whole experience of learning into a short time period which does not reflect how we learn and remember most information in real life.

4 McGeogh and McDonald (1931) gave participants lists of words to recall to 100% accuracy.
Then they were given a new list to learn. The new material varied in the degree to which it was similar to the old:
Group 1 – words had same meanings as the originals.
Group 2 – words had opposite meanings to the originals.
Group 3 – words unrelated to the original ones.
Group 4 – nonsense syllables.
Group 5 – three-digit numbers.
Group 6 – no new list.

Performance depended on the nature of the second list. The most similar material (synonyms) produced the worst recall. When the participants were given very different material, such as three-digit numbers, the mean number of items recalled increased.

5 Interference occurs when two pieces of information are in conflict. This causes forgetting in LTM because we can't get access to memories even though they are available. Proactive interference is when previously stored information conflicts with/disrupts new information. For example, a teacher learned many names in the past and can't remember names of her current class. Retroactive interference is when new information conflicts with/disrupts previously stored information. For example, a teacher learns many new names this year and can't remember the names of her previous students. Interference is worse when memories are similar. This may be because in PI previously stored information makes new information more difficult to store, or in RI new information overwrites previous memories which are similar.

Evidence from lab studies consistently demonstrates interference in memory. Many lab experiments have been carried out into interference and most of these studies show that both types of interference are very likely causes of forgetting from LTM. Lab experiments control the effects of extraneous variables and so give us confidence that interference is a valid explanation.

Another strength is that real-life studies have supported the interference explanation. Baddeley and Hitch (1977) asked rugby players to recall the names of teams they had played so far in that season, week by week. Accurate recall did not depend on how long ago the match took place. More important was the number of games played in the meantime. This study shows that interference explanations can apply to at least some everyday situations.

A limitation is that interference effects may be overcome using cues. Tulving and Psotka (1971) gave participants five lists of 24 words, each organised into six categories (e.g. metals, fruit, etc.). Categories were not explicit but it was assumed they would be obvious when presented. Recall was about 70% for the first list, but this fell as each additional list was learned, presumably due to interference. However, when given a cued recall test (told the names of the categories) recall rose again to about 70%. The memories of the words were stored in LTM but interference prevented access to them. When given a cue, it was easier to access the forgotten words.

P41

1 Lack of cues can cause retrieval failure. When information is initially placed in memory, associated cues are stored at the same time. If these cues are not available at the time of recall, you might not be able to access memories that are actually there.

2 Lack of cues can cause retrieval failure. When information is initially placed in memory, associated cues are stored at the same time. If these cues are not available at the time of recall, you might not be able to access memories that

are actually there. Tulving (1983) suggested that cues help retrieval if the same cues are present at encoding (i.e. 'coding', when we learn the material) and at retrieval (when we are recalling it). The closer the retrieval cue to the original cue, the better the cue works. This is called the *encoding specificity principle*.

3 A limitation is that context effects are actually not very strong in real life. Baddeley (1966) argued that different contexts have to be very different indeed before an effect is seen (e.g. on land versus underwater). Learning something in one room and recalling it in another is unlikely to result in much forgetting because the environments are not different enough. So the real-life applications of retrieval failure due to contextual cues don't actually explain much forgetting.

Another limitation is context effects only occur when memory is tested in certain ways. Godden and Baddeley (1980) replicated their underwater experiment using a recognition test instead of recall. There was no context-dependent effect. Performance was the same in all four conditions whether the environmental contexts for learning and recall matched or not. This limits retrieval failure as an explanation for forgetting because the presence or absence of cues only affects memory when you test recall rather than recognition.

4 Godden and Baddeley (1975) gave deep-sea divers list of words to learn and recall.
Group 1: Learn on land – recall on land.
Group 2: Learn on land – recall underwater.
Group 3: Learn underwater – recall on land.
Group 4: Learn underwater – recall underwater.
When the environmental contexts of learning and recall did not match (i.e. conditions 2 and 3) accurate recall was 40% lower than when they did match (i.e. conditions 1 and 4). This study demonstrates context-dependent forgetting because information was not accessible (i.e. was forgotten) when context at recall did not match context at learning.

5 Lack of cues can cause retrieval failure. When information is initially placed in memory, associated cues are stored at the same time. If these cues are not available at the time of recall, you might not be able to access memories that are actually there. Some cues are linked to the material-to-be-remembered in a meaningful way. For example, the cue 'STM' may lead you to recall all sorts of information about short term memory. Other cues are also encoded at the time of learning but not in a meaningful way. Context-dependent forgetting is when memory retrieval is dependent on an external/environmental cue (e.g. the weather or a place). State-dependent forgetting is when memory retrieval is dependent on an internal cue, state of mind (e.g. feeling upset, being drunk). Tulving (1983) suggested that cues help retrieval if the same cues are present at encoding (i.e. 'coding', when we learn the material) and at retrieval (when we are recalling it). The closer the retrieval cue to the original cue, the better the cue works. This is called the *encoding specificity principle*.

An impressive range of evidence supports this explanation of forgetting, for example Godden and Baddeley's research with deep sea divers. In fact, Eysenck (2010) goes so far as to argue that retrieval failure is perhaps the main reason for forgetting in LTM. Supporting evidence increases the validity of an explanation, especially when conducted in real-life situations as well as the highly controlled conditions of the lab.

A limitation is that the encoding specificity principle (ESP) cannot be tested and leads to circular reasoning. When a cue produces successful recall of a word, we assume the cue must have been present at the time of learning. If a cue does not result in successful recall, then we assume that the cue was not encoded at the time of learning. But there is no way to independently establish whether or not the cue has really been encoded.

A strength is that context-related cues have useful everyday applications. People often report these experiences: they were upstairs and went downstairs to get an item but forgot what they came downstairs for. But when they go back upstairs, they remember again! The application is that when we have trouble remembering something, it is probably worth making the effort to revisit the environment in which you first experienced it. This is a basic principle of the *cognitive interview*, a method of getting eyewitnesses to recall more information about crimes by using a technique called 'context reinstatement'.

P43

1 Eyewitness testimony is the ability of people to remember the details of events, such as accidents and crimes, which they themselves have observed. Accuracy of EWT can be affected by factors such as misleading information, leading questions and anxiety.

2 Incorrect information given to the eyewitness usually after the event. It can take many forms such as leading questions and post-event discussion between co-witnesses and/or other people.

3 A leading question is one that suggests a certain answer because of the way it is phrased. For example, 'Was the knife in his left hand?' This implies the answer is 'left hand'.

In post-event discussion (PED), witnesses to an event discuss what they have experienced. This could affect the accuracy of their recall if they 'suggest' a particular detail of the event to each other which did not happen.

4 Loftus and Palmer (1974) showed 45 participants (students) film clips of car accidents and then asked them questions about speed. The critical question was 'About how fast were the cars going when they hit each other?' Five groups of participants were each given a different verb in the critical question: hit, contacted, bumped, collided or smashed. The verb 'contacted' produced a mean estimated speed of 31.8 mph. For the verb 'smashed', the mean was 40.5 mph. The *leading question* (verb) biased eyewitness recall of an event. The verb 'smashed' suggested a faster speed of the car than 'contacted'.

5 Gabbert *et al*. (2003) got paired participants to watch a video of the same crime, but it was filmed in a way that each participant could see elements in the event that the other could not.
Both participants discussed what they had seen on the video before individually completing a test of recall; 71% of the participants mistakenly recalled aspects of the event that they did not see in the video but had picked up in the post-event discussion. In a control group, where there was no discussion, there were no errors.

6 Misleading information may come in two forms: leading questions and post-event discussion. A leading question is one that suggests a certain answer because of the way it is phrased. For example, 'Was the knife in his left hand?' This implies the answer is 'left hand'.

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In post-event discussion (PED), witnesses to an event discuss what they have experienced. This could affect the accuracy of their recall if they 'suggest' a particular detail of the event to each other which did not happen.

A strength is that research into misleading information has real-life applications. The research has led to important practical uses for police officers and investigators, important because the consequences of inaccurate EWT can be very serious. Loftus (1975) claimed that leading questions can have such a distorting influence on memory that police officers need to be careful about how they phrase questions when interviewing eyewitnesses. Research into EWT is one area where psychologists can make an important difference to the lives of real people, e.g. by improving how the legal system works and acting as expert witnesses.

A limitation is there may be individual differences in accuracy of EWT. Anastasi and Rhodes (2006) found that older people were less accurate than younger people when giving eyewitness reports. However, they also found that all age groups were more accurate when identifying people of their own age group (*own-age bias*). Research studies often use younger people as the target to identify. So some age groups may seem less accurate but this is not really the case.

A further limitation is that many EWT research studies lack external validity. Foster *et al*. (1994) argue that what you remember as an eyewitness can have important consequences in the real world, but the same is not true in research studies. Real eyewitnesses search their memory with more effort because their testimony may lead to a successful conviction (or wrongful if inaccurate). This is not true in research studies. Therefore EWT accuracy may be greater in the real world because of the seriousness with eyewitnesses undertake their role.

P45

1 In a real-life crime a gun-shop owner shot a thief dead. There were 21 witnesses, 13 agreed to participate in the study. Participants were interviewed 4–5 months after the incident. Accounts were compared to the police interviews at the time of the shooting. Witnesses rated how stressed they felt at the time of the incident.

Witnesses were very accurate and there was little change after 5 months. Some details were less accurate, e.g. colours of items, and age/weight/height. Participants who reported the highest levels of stress were most accurate (about 88% compared to 75% for the less-stressed group).

2 Yerkes and Dodson (1908) argue that the relationship between accuracy of eyewitness testimony and arousal/stress is curvilinear rather than linear, an *inverted U relationship*. Deffenbacher (1983) found that lower levels of

anxiety did produce lower levels of recall accuracy. Recall accuracy increases with anxiety up to an optimal point. A drastic decline in accuracy is seen when an eyewitness experiences more anxiety than the optimal point.

3 Anxiety may have negative and positive effects on recall. Johnson and Scott (1976) involved participants hearing an argument in the next room. In the *low-anxiety condition,* a man walked through the waiting room carrying a pen with grease on his hands. In the *high-anxiety condition*, the heated argument was accompanied by the sound of breaking glass. A man then walked through the room holding a paper knife covered in blood. 49% of participants in the low-anxiety condition were able to identify the man from a set of photographs when tested later. The corresponding figure for high-anxiety participants was just 33%. The *tunnel theory of memory* argues that a witness's attention is on the weapon (*weapon focus*), because it is a source of danger and anxiety.

In contrast, Yuille and Cutshall (1986) found very accurate recall of a real-life shooting up to 5 months after the event. Participants who reported the highest levels of stress were most accurate (about 88% compared to 75% for the less-stressed group). This suggests that anxiety can enhance accuracy of EWT.

Yerkes and Dodson (1908) argue that the relationship between accuracy of eyewitness testimony and arousal/stress is curvilinear rather than linear, an *inverted U relationship*. Deffenbacher (1983) found that lower levels of anxiety did produce lower levels of recall accuracy. Recall accuracy increases with anxiety up to an optimal point. A drastic decline in accuracy is seen when an eyewitness experiences more anxiety than the optimal point.

A limitation of Johnson and Scott's study is that it may test surprise not anxiety. Participants may focus on a weapon because they are surprised at what they see rather than because they are scared. Pickel (1998) used scissors, handgun, wallet and raw chicken as hand-held items in a hairdressing salon. EWT accuracy was poorer for high unusualness (chicken and handgun). So the weapon focus effect is due to unusualness rather than anxiety/threat and therefore tells us nothing specifically about the effects of anxiety on EWT.

Another limitation is that there are ethical issues in this research area. Creating anxiety in participants is potentially unethical because it may subject people to psychological harm purely for research purposes. So real-life studies are beneficial: psychologists interview people who have already witnessed an event, so there is no need to create it. Ethical issues don't challenge the findings of studies (e.g. Johnson and Scott) but they do raise questions about conducting such research.

The inverted-U explanation is limited because it is too simplistic. Anxiety is difficult to define and measure because it has many elements – cognitive, behavioural, emotional and physical. The inverted-U explanation assumes that one of these is linked to poor performance – physiological (physical) arousal. The explanation fails to account for other factors; for example the effect of the emotional experience of witnessing a crime (e.g. terror, fear) on the accuracy of memory.

P47

1 A method of interviewing eyewitnesses to help them retrieve more accurate memories. It uses four main techniques, all based on well-established psychological knowledge of memory – report everything, reinstate the context, reverse the order, and change perspective.

2 To improve the accuracy of EWT, the cognitive interview uses four techniques.
Report everything: witnesses are encouraged to include every detail of an event, even if it seems irrelevant or the witness is not confident about it. Seemingly trivial details could be important and may trigger other memories.
Reinstate the context: the witness returns to the original crime scene 'in their mind' and imagines the environment (e.g. the weather, what they could see) and their emotions (e.g. what they felt) as this may trigger recall as in context-dependent forgetting.
Reverse the order: events are recalled in a different chronological order (e.g. from the end back to the beginning, or from the middle to the beginning). This prevents people using their expectations of how the event must have happened rather than the actual events.
Change perspective: witnesses recall the incident from other people's perspectives. This prevents the influence of expectations and *schema* on recall. Schema are packages of information developed through experience. They generate a framework for interpreting incoming information.

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A strength is that some elements of the full CI are useful. Milne and Bull (2002) found that each individual element of the CI was equally valuable. However, they also found that a combination of 'report everything' and 'context reinstatement' produced better recall than any of the other techniques individually. So at least these two elements should be used to improve police interviewing of eyewitnesses even if the full CI isn't used.

A limitation of the CI is that it is time-consuming. Police are reluctant to use CI because it takes much more time than the standard police interview. More time is needed to establish rapport with the witness to allow them to relax. Kebbell and Wagstaff (1997) point out that the CI also requires special training and many forces have not been able to provide more than a few hours. This means it is unlikely that the 'proper' version of the CI is actually used (which may explain why police have not been that impressed by it).

Another limitation is that CI produces an increase in inaccurate information. The techniques of the CI aim to increase the *amount* of correct information recalled, but the recall of incorrect information may also be increased. Köhnken *et al*. (1999) found an 81% increase in correct information but also a 61% increase in incorrect information (false positives) when the enhanced CI was compared to a standard interview. The increase in correct information implies that police should continue to use CI. However, the results also suggest that police need to treat all information collected with caution.

3. Attachment

P49

1 *Reciprocity*: From around three months, reciprocal interaction tends to be increasingly frequent, when each person responds to the other and elicits a response from them. It involves close attention to each other's verbal signals and facial expressions.

Interactional synchrony: two people are said to be 'synchronised' when they carry out the same action simultaneously. Interactional synchrony can be defined as 'the coordination of micro-level behaviour' (Feldman 2007). It takes place when mother and infant interact in such a way that their actions and emotions mirror the other.

2 Isabella *et al*. (1989) observed 20 mothers and infants together and assessed the degree of synchrony and the quality of mother–infant attachment. The researchers found that high levels of synchrony were associated with better quality mother–infant attachment (e.g. the emotional intensity of the relationship).

3 Meltzof and Moore (1977) observed the beginnings of interactional synchrony and reciprocity in infants as young as two weeks old. An adult displayed one of three facial expressions or one of three distinctive gestures and the child's response was filmed. An association was found between the expression/gesture and the action of the child.

4 From birth, babies and their mothers (or other carers) spend a lot of time in intense and pleasurable interaction. Babies have periodic 'alert phases' and signal they are ready for interaction, which mothers respond to around two-thirds of the time (Feldman and Eidleman 2007).

One feature of caregiver–infant interaction is interactional synchrony which can be defined as 'the coordination of micro-level behaviour' (Feldman 2007). It takes place when mother and infant interact in such a way that their actions and emotions mirror the other. Synchrony provides the necessary foundation for the mother and infant connection which can be built upon in subsequent years. Isabella *et al*. (1989) observed 20 mothers and infants together and assessed the degree of synchrony and the quality of mother–infant attachment. The researchers found that high levels of synchrony were associated with better quality mother–infant attachment (e.g. the emotional intensity of the relationship).

Reciprocity is when one person responds to the other. From around three months reciprocal interaction tends to be increasingly frequent, when each person responds to the other and elicits a response from them. It involves close attention to each other's verbal signals and facial expressions. Brazleton *et al*. (1975) described this interaction as a 'dance' because it is just like a couple's dance where each partner responds to each other's moves.

A limitation of research into caregiver–infant interaction is that it is hard to know what is happening when observing infants. Many studies into mother–infant interactions have shown the same patterns of behaviour (Gratier 2003). However, what is being observed is merely hand movements or changes in expression. It is difficult to be sure, based on these observations, what is taking place from the infant's perspective. For example, is the infant's imitation of adult signals conscious and deliberate? This means we cannot be certain that behaviours seen in mother–infant interactions have a special meaning.

A strength of the research is that it uses well-controlled procedures. Mother–infant interactions are usually filmed, often from multiple angles. Very fine details of behaviour can be recorded and analysed later. Also babies don't know they are being observed, so their behaviour does not change in response to observation (generally the main problem for observation research). This is a strength of this line of research because it means the studies have good validity.

However, observations don't tell us the purpose of synchrony and reciprocity. Feldman (2012) points out that synchrony (and by implication reciprocity) simply describe behaviours that occur at the same time. These are robust phenomena in the sense that they can be reliably observed, but this may not be particularly useful as it does not tell us their purpose. However, there is some evidence that reciprocity and synchrony are helpful in the development of mother–infant attachment, stress responses, empathy, language and moral development.

P51

1 In Schaffer and Emerson's (1964) study, 75% of children eventually formed *secondary attachments* with their father at 18 months. This was indicated by the fact the infants protested when their father walked away, a sign of attachment.

In Grossman's (2002) study, the quality of fathers' play with infants was related to children's attachments. This suggests that fathers have a different role in attachment, one that is more to do with play and stimulation and less to do with nurturing.

2 Schaffer and Emerson (1964) found that the majority of babies became attached to their mother first (this happens around 7 months). In only 3% of cases was the father the first sole object of attachment. In 27% of cases the father was the joint first object of attachment with the mother. Within a few weeks or months they then formed secondary attachments to other family members, including the father.

Grossmann (2002) carried out a longitudinal study looking at parents' behaviour and its relationship to the quality of children's attachments into their teens. This research found that quality of attachment with the father was less important in the attachment type of the teenagers than quality of attachment with the mother. Therefore fathers may be less important in long-term emotional development.

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A limitation is researchers are interested in different research questions. Some psychologists want to understand the role of fathers as secondary attachment figures. But others are more concerned with fathers as a primary attachment figure. The former have tended to see fathers as behaving differently from mothers and having a distinct role. The latter have found that fathers can take on a 'maternal' role. This is a limitation because it means psychologists cannot easily answer the simple question: what is the role of the father?

Research fails to provide a clear answer about fathers and primary attachments. The answer could be related to traditional gender roles, in which women are expected to be more caring and nurturing than men. Therefore, fathers simply don't feel they should act in a nurturing way. Or it could be that female hormones (e.g. oestrogen) create higher levels of nurturing and therefore women are biologically predisposed to be primary attachment figures.

A further limitation is that social biases prevent objective observation. Preconceptions about how fathers behave are created by common discussions about mothers' and fathers' parenting behaviour. These stereotypes (e.g. fathers are more playful, stricter, etc.) may cause unintentional observer bias whereby observers 'see' what they expect rather than recording actual reality. As such, conclusions on the role of the father in attachment are hard to disentangle from social biases about their role.

P53

1 Multiple attachments are attachments to two or more people. Most babies appear to develop multiple attachments once they have formed one true attachment to a main caregiver.

2 In the asocial stage (first few weeks), the baby's behaviour towards inanimate objects and humans is quite similar. There is some preference for familiar adults – babies are more easily calmed by them. In the indiscriminate attachment stage (2–7 months), babies now display more observable social behaviour, with a preference for people rather than inanimate objects. They recognise and prefer familiar adults but do not show *stranger* or *separation anxiety*. Attachment is indiscriminate because it's the same towards all. In the specific attachment stage (from around 7 months), stranger anxiety and separation anxiety are seen when separated from one particular adult (the primary attachment figure). Baby is said to have formed a specific attachment with the *primary attachment figure*. This is the biological mother in 655 of cases. In the multiple attachments stage (one year), s*econdary attachments* with other adults form shortly after. In Schaffer and Emerson's study, 29% of babies had secondary (multiple) attachments within a month of forming a primary (specific) attachment. By the age of one year the majority of infants had multiple secondary attachments.

3 One limitation is that there is a problem in studying the asocial year. Schaffer and Emerson describe the first few weeks as the 'asocial' stage, although important interactions take place. But young babies have poor coordination and are fairly immobile, making it difficult to make judgments based on observations of their behaviour. It may be the babies are actually quite social but, because of flawed methods they appear to be asocial.

Evidence on the timing of multiple attachments is conflicting. Bowlby (1969) argues that most (or all) babies form attachments to a single main carer before they are able to develop multiple attachments. But multiple attachments appear from the outset in cultures where multiple attachments are the norm (based on research by van Ijzendoorn 1993). Such cultures are called collectivist because families work together jointly in everything (e.g. producing food and raising children).

4 Schaffer and Emerson (1964) studied 60 babies from Glasgow, most from working-class families. Babies and their mothers were visited at home every month for a year and at
18 months. *Separation anxiety* was measured by asking mothers about their children's behaviour during everyday separations (e.g. adult leaving the room). *Stranger anxiety* was measured by asking mothers questions about their children's anxiety response to unfamiliar adults.

50% of babies showed *separation anxiety* towards a particular adult between 25 and 32 weeks of age. This *specific (primary) attachment* was usually with the mother. Attachment tended to be to the caregiver who was most interactive and sensitive to infant signals and facial expressions (i.e. *reciprocity*). This was not necessarily the person the infant spent most time with.

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A strength of Schaffer and Emerson' study is that it has external validity. Most of the observations (not stranger anxiety) were made by parents during ordinary activities and reported to researchers. So the behaviour of the babies was unlikely to be affected by the presence of observers. It is highly likely that the participants behaved naturally while being observed.

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Another strength of the study is that it was carried out longitudinally. This means that the same children were followed-up and observed regularly. The quicker alternative would have been to observe different children at each age. This is called cross-sectional design. But longitudinal designs have better internal validity because they do not have the confounding variable of individual differences between participants (participant variables).

However, there may be a problem with how multiple attachment is assessed. Just because a baby gets distressed when an individual leaves the room does not necessarily mean that the individual is a 'true' attachment figure. Bowlby (1969) pointed out that children may be distressed when a playmate leaves the room, but this does not signify attachment to them. So Schaffer and
Emerson's research does not distinguish between behaviour shown towards secondary attachment figures and towards playmates.

P55

1 Harry Harlow (1958) reared 16 rhesus monkeys with two wire model 'mothers'. In one condition, milk was dispensed by the plain wire 'mother'. In a second condition, it was dispensed by the cloth-covered 'mothers'. The monkeys' preferences were measured. As a further measure of attachment-like behaviour, the reactions of the monkeys to more frightening situations were observed. For example, Harlow added a noisemaking teddy bear to the environment.

Baby monkeys cuddled the soft object in preference to the wire one and regardless of which dispensed milk. This suggests that contact comfort was of more importance than food when it came to attachment behaviour. The monkeys sought comfort from the cloth wire mother when frightened. As adults, the monkeys that had been deprived of their real mothers suffered severe consequences: they were more aggressive, less sociable and less skilled in mating than other monkeys. They also neglected and sometimes killed their own offspring.

2 Konrad Lorenz (1952) randomly divided 12 goose eggs, half hatched with the mother goose in their natural environment and the other half hatched in an incubator where the first moving object they saw was Lorenz. He then mixed all the goslings together to see whom they would follow. Lorenz also observed birds and their later courtship behaviour.

The incubator group followed Lorenz, the control group followed the mother. Lorenz identified a *critical period* in which *imprinting* needs to take place, e.g. few hours after hatching. If imprinting did not occur within that time, chicks did not attach themselves to the mother figure. Sexual imprinting also occurs whereby the birds acquire a template of the desirable characteristics required in a mate.

3 One limitation of Lorenz's work is generalising findings and conclusions from birds to humans. The mammalian attachment system is quite different from that in birds. For example, mammalian mothers show more emotional attachment to their young. This means that it is not appropriate to generalise Lorenz's ideas to humans.

Guiton (1966) found that chickens imprinted on yellow washing-up gloves tried to mate with them as adults. But with experience they learned to mate with their own kind. This study suggests that the effects of imprinting are not as long-lasting as Lorenz believed.

4 Lorenz (1952) randomly divided 12 goose eggs, half hatched with the mother goose in their natural environment and the other half hatched in an incubator where the first moving object they saw was Lorenz. He then mixed all the goslings together to see whom they would follow. Lorenz also observed birds and their later courtship behaviour. The incubator group followed Lorenz, the control group followed the mother. Lorenz identified a *critical period* in which *imprinting* needs to take place, e.g. few hours after hatching.

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A strength of Lorenz's work is support for the concept of imprinting. Guiton (1966) found that chicks imprinted on yellow washing up gloves would try to mate with them as adults. This suggests that young animals are born with an innate mechanism to imprint on a moving object present in the critical window of development. This suggests there is an innate mechanism causing a young animal to imprint on a moving object during in the critical period of development.

A strength is that Harlow's research has important practical applications. It has helped social workers understand risk factors in child abuse and so intervene to prevent it (Howe 1998). We also now understand the importance of attachment figures for baby monkeys in zoos and breeding programmes in the wild. The usefulness of Harlow's research increases its value.

However, Harlow faced severe criticism for the ethics of his research. Rhesus monkeys are similar enough to humans for us to generalise findings, which also means their suffering was presumably human-like. Harlow himself was aware of the suffering caused. He referred to the wire mothers as 'iron maidens', named after a medieval torture device. The counter-argument is that Harlow's research was sufficiently important to justify the procedures.

P57

1 This is sometimes called the 'cupboard love' explanation because it emphasises the importance of food in attachment formation. Children learn to love whoever feeds them.
Classical conditioning involves learning to associate two stimuli. In attachment the UCS (food) leads to UCR (a feeling of pleasure). A caregiver (e.g. mother) starts as a neutral stimulus but by providing food over time becomes associated with food. So the neutral stimulus becomes a CS. Once conditioning has taken place the sight of the caregiver produces a CR of pleasure. According to a learning theorist, this is the basis of attachment love.

Operant conditioning explains why babies cry for comfort (an important building block for attachment). Crying leads to a response from the caregiver (e.g. feeding). As long as the caregiver provides the correct response, crying is reinforced because it produces a pleasurable consequence. At the same time as the baby is reinforced for crying, the caregiver receives *negative reinforcement* because the crying stops.

2 Animal studies provide evidence against food as the basis of attachment. Lorenz's imprinted geese maintained attachments regardless of who fed them. Harlow's monkeys attached to a soft surrogate in preference to a wire one with milk. In both these animal studies, attachment did not develop as a result of feeding. The same must be true for humans (that food does not create the attachment bond). After all, learning theorists believe that non-human animals and humans are equivalent.

Learning theory ignores other factors linked with attachment. Research shows that quality of attachment is associated with developing reciprocity and good levels of interactional synchrony. Studies also show that the best quality attachments are with sensitive carers who pick up infant signals and respond appropriately. It is very hard to reconcile these findings with the idea that attachment develops primarily through feeding.

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Human research shows that feeding is not an important factor. Schaffer and Emerson (1964) showed that for many babies a primary attachment was not to the person who fed them. This shows that feeding is not the key element to attachment and so there is no unconditioned stimulus or primary drive involved. The evidence suggests that other factors are more important than food in the formation of attachment.

A strength is that some elements of conditioning could still be involved. The main problem with learning theory is the idea that feeding provides the unconditioned stimulus, reinforcement or primary drive. However, many aspects of human development are affected by conditioning, so it seems plausible that it could still play a role in attachment (but not in relation to feeding). For example, associations (classical conditioning) between the primary caregiver and provision of comfort and social interaction could be part of what builds attachment.

There is a newer learning explanation based on social learning theory (SLT). Hay and Vespo (1988) suggest that parents teach children to love them by *modelling* attachment behaviours (e.g. hugging them and other family members). And also by rewarding them with approval when they display their own attachment behaviours ('that's a lovely smile', etc.). In this version, babies have learned attachment behaviours as a result of their interactions, which fits with research on the importance of interactional synchrony and reciprocity.

P59

1 Critical period – Bowlby proposed that there is a critical period when the infant attachment system is active. A child is maximally sensitive up to the age of two years. If an attachment has not formed in this time, he or she will find it much harder to form one later.

Internal working model – Bowlby argued that the child forms a mental representation of the relationship with their primary attachment figure. This internal working model is a 'template' for what relationships are like. A child whose first experience is a loving relationship with a reliable caregiver will tend to form an expectation that all relationships are like this.

2 Bowlby argued that attachment is innate, like imprinting and provides the infant with a survival advantage. He introduced the concept of monotropy, the idea that the child will attach to one primary attachment figure (usually the mother), and that this attachment is different from others and more important. Bowlby believed that the more time a baby spent with this primary attachment figure / mother-figure (not necessarily the biological mother) the better.

Babies are born with *social releasers* – a set of innate 'cute' behaviours (e.g. smiling, cooing, gripping, etc.) that encourage attention from adults. The purpose of these social releasers is to activate the adult attachment system (i.e. make an adult feel love towards the baby); Bowlby recognised that attachment is a reciprocal system.

Bowlby proposed that there is a *critical period* of about two years when the infant attachment system is active and the child is maximally sensitive to forming an attachment. If an attachment has not formed in this time, the child will find it much harder to form one later.

Finally, the first attachment forms an *internal working model* of relationships. Bowlby argued that the child forms a mental representation of the relationship with their primary attachment figure and that this serves as a 'template' for what relationships are like.

3 The evidence for monotropy is mixed. Schaffer and Emerson (1964) found that most babies did attach to one person at first, but a significant minority formed multiple attachments at the same time. This contradicts Bowlby's assertion that babies form one attachment to a primary caregiver and that this attachment is unique. Attachment to mothers (not fathers) better predicts later behaviour, but this may be because mother is the primary attachment, not the different attachment quality.

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There is clear evidence to support the existence and value of social releasers. Brazleton *et al*. (1975) instructed primary attachment figures to ignore their babies' social releasers (cute infant behaviours). Babies (who were previously shown to be normally responsive) initially showed some distress, but eventually some curled up and lay motionless. This supports Bowlby's ideas about the significance of infant social behaviour eliciting caregiving from adults and the role of releasers in initiating social interaction.

There is also support for the idea of an internal working model. The idea of internal working models predicts that patterns of attachment will be passed from one generation to the next. Bailey *et al*. (2007) studied 99 mothers; those with poor attachment to their own parents were more likely to have one-year olds who were poorly attached. This supports Bowlby's idea of an internal working model of attachment as it is being passed through families.

Monotropy is socially sensitive because of implications for mothers' lifestyle. Bowlby argued that substantial time apart from a primary attachment figure risks a poor quality attachment that will disadvantage the child in a range of ways. Feminists (e.g. Burman 1994) argue that mothers are blamed for anything that goes wrong in a child's life and pushes mothers into making lifestyle choices, e.g. not returning to work when a child is born. However, this was not Bowlby's intention.
He saw himself as boosting the status of mothers by emphasising the importance of their role.

P61

1 Secure – the child is happy to explore but seeks proximity with the caregiver (secure base). The child shows moderate separation anxiety and stranger anxiety.

Insecure–avoidant – the child explores freely but does not seek proximity (no secure base). It shows little/no separation and stranger anxiety.

Insecure–resistant – the child explores less and seeks greater proximity. It shows extreme stranger and separation anxiety.

2 Insecure–avoidant infants do not require comfort from the caregiver upon reunion whereas insecure–resistant infants resist comfort on reunion.

3 Ainsworth (1969) developed the Strange Situation as a way of assessing the quality of a child's attachment to a caregiver. It is a *controlled observation* procedure in a lab (a controlled environment) with a two-way mirror through which psychologists can observe an infant's behaviour. The procedure has seven 'episodes', each lasting three minutes. This includes the caregiver leaving the child on its own and a stranger entering and trying to interact with the child. The child's response to being left alone, the stranger and reunion with the mother is observed. On the basis of the child's behaviour they are judged to be one of three attachment types: secure, insecure–avoidant and insecure–resistant.

4 A limitation is that the Strange Situation may be a culture-bound test. The test might not have the same meaning in countries outside Western Europe and the USA. Cultural differences in children's experiences mean they respond differently. Also caregivers from different cultures behave differently. Takahashi (1990) notes that Japanese mothers are rarely separated from infants, thus the infants show high levels of separation anxiety and would be judged as 'insecure' i.e. not 'normal', using Ainsworth's method.

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Secure infants are happy to explore but seek proximity with the caregiver (secure base). These children shows moderate separation anxiety and stranger anxiety. Insecure–avoidant children explore freely but do not seek proximity (no secure base). They show little/no separation and stranger anxiety. Insecure–resistant infants explore less and seek greater proximity. They shows extreme stranger and separation anxiety.

There is predictive validity of attachment types in the Strange Situation. It seems attachment type predicts later development; for example, secure babies typically have greater success at school and more lasting romantic relationships. In contrast, insecure–resistant attachment is associated with the worst outcomes, e.g. bullying (Kokkinos 2007) and adult mental health problems (Ward *et al*. 2006). This is evidence for the validity of the concept because it can explain future outcomes.

A strength is that the Strange Situation shows very good inter-rater reliability. Different observers watching the same children generally agree on attachment type. Bick *et al*. (2012) found 94% agreement in one team. This may be because the Strange Situation takes place under controlled conditions and because the behavioural categories are easy to observe. So we can be confident that the attachment type of an infant identified in the Strange Situation does not just depend on who is observing them.

Another limitation is that temperament may be a confounding variable. Ainsworth assumed that the main influence on separation and stranger anxiety was the quality of the attachment. But Kagan (1982) suggests that temperament (the child's genetically influenced personality) is a more important influence on behaviour in the Strange Situation. This challenges the validity of the Strange Situation because its intention is to measure the quality of attachment, not the temperament of the child (i.e. a confounding variable).

P63

1 Cultural variations are differences in norms and values that exist between people in different groups. In attachment research it is concerned with the differences in the proportion of children of different attachment types.

2 Van Ijzendoorn and Kroonenberg (1988) conducted a meta-analysis of 32 studies of attachment where the Strange Situation had been used. These were conducted in eight countries, 15 in the USA. Overall the studies yielded results for 1,990 children.

Secure attachment was the most common classification in all countries, but ranged from 50% in China to 75% in Britain. In individualist cultures rates of insecure–resistant attachment were similar to Ainsworth's original sample (all under 14%) but this was not true for the collectivist samples from China, Japan and Israel where rates were above 25% (and where rates of insecure–avoidant attachment were reduced).

3 Simonelli *et al*. (2014) assessed 76 12-month olds using the Strange Situation to see whether the proportion of attachment types still matched previous studies in Italy. Mothers were reasonably varied in terms of their education levels (57% university degree, 40% high school, 2% did not finish high school) and their professions (48% employees, 13% professionals, 39% did not work or worked part-time).

4 Van Ijzendoorn and Kroonenberg (1988) – secure attachment was the most common classification in all countries, but ranged from 50% in China to 75% in Britain. In **individualist** cultures rates of *insecure–resistant attachment* were similar to Ainsworth's original sample (all under 14%) but this was not true for the **collectivist** samples from China, Japan and Israel where rates were above 25% (and where rates of *insecure–avoidant attachment* were reduced). Variations between results of studies *within* the same country were actually 150% greater than those *between* countries. In the USA, one study found 46% securely attached compared to one sample as high as 90%.

5 Van Ijzendoorn and Kroonenberg (1988) conducted a meta-analysis of 32 studies of attachment where the Strange Situation had been used. These were conducted in eight countries, 15 in the USA. Overall the studies yielded results for 1,990 children.

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Variations between results of studies *within* the same country were actually 150% greater than those *between* countries. In the USA, one study found 46% securely attached compared to one sample as high as 90%.

A limitation is that the samples used may not be representative of cultures. Van Ijzendoorn and Kroonenberg's meta-analysis made comparisons between countries, not cultures. Within any country there are different cultures each with

different childrearing practices. For example, van Ijzendoorn and Sagi (2001) found attachment types in urban Tokyo in similar proportions to Western studies. A more rural sample overrepresented insecure–resistant individuals. This means that comparisons between countries (such as Italy or Korea) may have little meaning. The particular cultural characteristics (and thus caregiving styles) of the sample need to be specified.

The Strange Situation method may be biased towards American/British culture. The Strange Situation was designed by an American researcher (Ainsworth) based on a British theory (Bowlby). This theory and assessment may not be applicable to other cultures. Trying to apply a theory or technique designed for one culture to another is known as imposed etic (etic means cultural universals) which disregards the notion of cultural emic (cultural uniqueness). The idea that a lack of pleasure on reunion indicates insecure attachment is an imposed etic. In Germany this behaviour might be seen more as independence than avoidance and not a sign of insecurity.

There is an alternative explanation for the similarities found between cultures. Bowlby's explanation for cultural similarities was that attachment is innate and universal so produces the same kind of behaviours all over the world. Van Ijzendoorn and Kroonenberg proposed an alternative possibility. They suggest that small cross-cultural differences may reflect the effects of the mass media. Many books and TV programmes are broadcast around the world and create parenting norms, so similarities in childrearing have become more common.

P65

1 The emotional and intellectual consequences of separation between a child and his/her mother or mother substitute, including lowered IQ, delinquent behaviour and affectionless psychopathy.

2 Bowlby argued that continuous emotional (maternal) care from a mother or mother-substitute is necessary for normal emotional and intellectual development. If a child is separated from their mother (without substitute emotional care) for an extended time during the first 30 months, then psychological damage is inevitable. For instance, the child will suffer mental retardation and abnormally low IQ. Maternal deprivation may also lead to affectionless psychopathy – the inability to experience guilt or strong emotion for others. This prevents the person developing normal relationships and is associated with criminality.

3 A limitation is that sources of evidence for maternal deprivation are flawed. Goldfarb studied war orphans who were traumatised and often had poor aftercare. These factors may have caused later developmental difficulties rather than separation. Similarly, children growing up from birth in poor quality institutions were deprived of many aspects of care, not just maternal care. Bowlby carried out the assessments for affectionless psychopathy and the family interviews himself, knowing what he hoped to find. This may have produced biased results.

There is also counter-evidence which does not support Bowlby's findings. Lewis (1954) partially replicated the 44 thieves study on a larger scale, looking at 500 young people. Early prolonged maternal separation did not predict criminality or difficulty forming close relationships. This is a limitation of Bowlby's theory because it suggests that other factors may affect the outcome of early maternal separation.

4 The sample in Bowlby's (1944) study was 44 delinquent teenagers accused of stealing.
Families were also interviewed to establish any prolonged separations from mothers. All 'thieves' were interviewed for signs of affectionless psychopathy: characterised by a lack of affection, guilt and empathy.

Of the 44 thieves, 14could be described as affectionless psychopaths. Of these, 12 had experienced prolonged separation from their mothers in the first two years of their lives. In contrast only 5 of the remaining 30 'thieves' had experienced separations. This suggests prolonged early separation/ deprivation caused affectionless psychopathy.

5 According to Bowlby, continuous emotional (maternal) care from a mother or mother-substitute is necessary for normal emotional and intellectual development. If a child is separated from their mother (without substitute emotional care) for an extended time during the first 30 months – the critical period – then psychological damage is inevitable. Maternal deprivation, amongst other things, lowers IQ. If a child is deprived of maternal care for too long during the critical period they will suffer mental retardation and abnormally low IQ. Goldfarb (1947) found lower IQs in children from institutions compared to fostered children. Lack of emotional care may also lead to affectionless psychopathy – the inability to experience guilt or strong emotion for others. This prevents the person developing normal relationships and is associated with criminality. Bowlby's (1944) 44 thieves study demonstrated how juvenile delinquents who experienced prolonged separation from their mothers during their early years were more likely to show evidence of this personality type.

A strength of the theory is that animal studies have demonstrated maternal deprivation. Most psychologists are critical of the maternal deprivation theory, but one line of research supports the idea that maternal deprivation can have long-term effects. Levy *et al.* (2003) showed that separating baby rats from their mother for as a little as a day had a permanent

effect on social development. However, there is always some doubt over the extent to which animal studies like this can be generalised to human behaviour.

Later research suggests that the critical period is more of a sensitive period. Koluchová's (1976) case study of Czech twin boys isolated from age 18 months (locked in a cupboard). Later they were looked after by two loving adults and appeared to recover fully. Shows that severe deprivation can have positive outcomes provided the child has some social interaction and good aftercare. Cases like the Czech twins show that the period identified by Bowlby may be a 'sensitive' one but it cannot be critical.

A limitation is that Bowlby didn't distinguish between deprivation and privation. Rutter (1981) distinguished between deprivation (the loss of the primary attachment figure after attachment has developed) and privation (the failure to form any attachment at all). Rutter argues that the severe long-term damage Bowlby associated with deprivation is actually more likely to be the result of privation. Many of the 44 thieves in Bowlby's study had moved from home to home during their childhood so may have never formed attachments in the first place. This could be the cause of their affectionless psychopathy rather than deprivation.

P67

1 An institution refers to a place like a hospital or an orphanage where children live for long, continuous periods. In such places, there is very little emotional care provided and this may have long-term effects on the child's development.

2 Rutter *et al.* (2011) followed a group of 165 Romanian orphans who experienced very poor conditions before being adopted in Britain. Physical, cognitive and emotional development has been assessed at 4, 6, 11 and 15 years. The study also followed a control group of 52 adopted British children.

Half of the orphans showed mental retardation when they came to the UK. At age 11, recovery rates were related to their age of adoption: Those adopted before six months had a mean IQ of 102. Those adopted between six months and two years had a mean IQ of 86. Those adopted after two years had a mean IQ of 77.

3 See Q2.

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Frequency of *disinhibited attachment* related to the age of adoption. It was apparent in children adopted after they were six months old: they showed clinginess, attention-seeking and indiscriminate affection to strangers. It was rare in children adopted before the age of six months. These findings support the view that there is a *sensitive period* in the development of attachments – a failure to form an attachment before the age of six months appears to have long-lasting effects.

Studying Romanian orphans has important practical applications. Results from this research have led to improvements in the way children are cared for in institutions (Langton 2006). Children's homes now avoid having large numbers of caregivers for each child. They have one or two 'key workers' who play a central role. This gives the child a chance to develop normal attachments and avoid disinhibited attachments, immensely valuable in practical terms.

A limitation is that children were not randomly assigned to conditions. Rutter *et al*. did not interfere with the adoption process, so those children adopted early may have been more sociable ones, a confounding variable. To control for such variables, the *Bucharest Early Intervention* study did randomly assign the orphans to institutional care or fostering. This is methodologically better because it removes the confounding variable of some children being selected by parents, but it raises ethical issues.

The long-term effects of early experience are not yet clear. It is too soon to say for certain whether children suffered short- or long-term effects because the adopted orphans have only been followed into their mid-teens. The children who spent longer in institutions and currently lag behind in intellectual development or display attachment difficulties may still 'catch up' as adults. Equally, early-adopted/fostered children who appear to have no issues now may experience emotional problems as adults.

P69

1 Bowlby argued that the child forms a mental representation of the relationship with their primary attachment figure. This internal working model is a 'template' for what relationships are like. A child whose first experience is a loving relationship with a reliable caregiver will tend to form an expectation that all relationships are like this.

2 The quality of a child's first attachment is crucial because it provides a template that will affect the nature of their future relationships. This is due to the influence of the *internal working model* created by that first attachment. A child whose first experience is of a loving relationship with a reliable caregiver assumes this is how all relationships are meant to be. They will then seek out functional relationships and behave functionally within them. A child with bad experiences of their first attachment will bring these experiences to bear on later relationships. This may mean they struggle to form relationships in the first place or they do not behave appropriately in them. Securely attached infants tend to go on to form the best quality childhood friendships (Kerns 1994).
Securely attached infants are less likely to be involved in bullying whereas insecure–avoidant children are most likely to be victims and insecure–resistant are most likely to be bullies (Myron-Wilson and Smith 1998).

3 Hazan and Shaver (1987) analysed 620 replies to a 'love quiz' printed in an American local newspaper. The quiz assessed three different aspects of relationships:
•Respondents' current and most important relationship.
•General love experiences.
•Attachment type.
56% of respondents were identified as *securely attached*, with 25% *insecure–avoidant* and 19% *insecure–resistant*. Their attachment type was reflected in their romantic relationships. *Secure respondents* were the most likely to have good and longer lasting romantic relationships. *Avoidant respondents* tended to be jealous and fear intimacy.

4 The quality of a child's first attachment is crucial because it provides a template that will affect the nature of their future relationships (internal working model). A child with bad experiences of their first attachment will bring these experiences to bear on later relationships. This may mean they struggle to form relationships in the first place or they do not behave appropriately in them. Securely attached infants tend to go on to form the best quality childhood friendships (Kerns 1994).
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People base their parenting style on their internal working model so attachment type tends to be passed on through generations of a family. Hazan and Shaver (1987) found that attachment type was reflected in later romantic relationships. *Secure respondents* to the Love Quiz were the most likely to have good and longer lasting romantic relationships. *Avoidant respondents* tended to be jealous and fear intimacy.

A limitation is that the evidence on continuity of attachment is mixed. Internal working models predict that attachment type in infancy is usually the same as that characterising the person's future relationships. However, Zimmerman (2000) assessed infant attachment type and adolescent attachments to parents. There was very little relationship between quality of infant and adolescent attachment. This is a limitation because it is not what we would expect if internal working models were important in development.

Several studies indicate associations but this is not the same as causation. There are alternative explanations for the continuity that often exists between infant and later relationships. The child's temperament may influence both infant attachment and the quality of later relationships. This is a limitation because it is counter to Bowlby's view that the internal working model caused these outcomes.

The influence of infant attachment on future relationships is exaggerated. Clarke and Clarke (1998) describe the influence of infant attachment on later relationships as probabilistic. People are not doomed to always have bad relationships because they had attachment problems. They just have a greater risk of problems. By over-emphasising this risk we become too pessimistic about people's futures.

Approaches

P71

1 The first systematic experimental attempt to study the mind by breaking up conscious awareness into basic structures of thoughts, images and sensations. Isolating the structure of consciousness in this way is called *structuralism*.

2 In 1879, Wundt opened the first experimental psychology lab with the aim of describing the nature of human consciousness (the 'mind'). He pioneered the method of introspection – the first attempt to study the mind by breaking up conscious awareness into basic structures of thoughts, images and sensations. Isolating the structure of consciousness in this way is called *structuralism*. The same standardised instructions were given to all participants so procedures could be

repeated (replicated). For instance, participants were given a ticking metronome and they would report their thoughts, images and sensations, which were then recorded.

Wundt recorded the introspections within a controlled lab environment and all participants were tested in the same way. For this reason, Wundt's research can be considered a forerunner to the later scientific approaches in psychology. Other aspects of this research would be considered unscientific, however. Wundt relied on participants self-reporting their 'private' mental processes. Such data is subjective and participants may not have wanted to reveal some of the thoughts they were having. Participants would also not have had exactly the same thoughts every time, so establishing general principles would not have been possible (one of the key aims of science).

3 Watson (1913) argued that introspection was subjective, in that it varied from person to person. According to the behaviourist approach, 'scientific' psychology should only study phenomena that can be observed and measured. B.F. Skinner (1953) brought the language and rigour of the natural sciences into psychology. The behaviourists' focus on learning, and the use of carefully controlled lab studies, would dominate psychology for the next few decades.

Many claim that a scientific approach to the study of human thought and experience is not possible, nor is it desirable, as there are important differences between the subject matter of psychology and the natural sciences. Also, there are approaches in psychology that employ methods that are much less rigorous and controlled than the behaviourist approach – such as the humanistic and psychodynamic approaches which rely on more subjective methods such as case studies.

P73

1 The behaviourist approach is only concerned with studying behaviour that can be observed and measured. It is not concerned with mental processes of the mind. *Introspection* was rejected by behaviourists as its concepts were vague and difficult to measure.

2
Following Darwin, behaviourists suggest the processes that govern learning are the same in all species, so animals (e.g. rats, cats, dogs and pigeons) can replace humans as experimental subjects. Subsequently, the basic laws of learning can be generalised to human behaviour.

2 Rats and pigeons, were placed in specially designed cages (Skinner boxes). When a rat activated a lever (or a pigeon pecked a disc) it was *rewarded* with a food pellet. A desirable consequence led to behaviour being repeated. If pressing a lever meant an animal avoided an electric shock, the behaviour would also be repeated.

3 Positive reinforcement – receiving a reward when behaviour is performed makes it more likely to be repeated. Thus a child could be encouraged to come at 9pm by being allowed to stay out until 10pm the following night if they do.

Negative reinforcement – when an animal or human produces behaviour that avoids something unpleasant. Before the child leaves the house they could be warned that if they are not in at 9pm, they will be grounded for the rest of the week.

4 The behaviourist approach is only concerned with studying behaviour that can be observed and measured. It is not concerned with mental processes of the mind. *Introspection* was rejected by behaviourists as its concepts were vague and difficult to measure. Behaviourists tried to maintain more control and objectivity within their research and relied on lab studies to achieve this. They also suggest that the processes that govern learning are the same in all species, so animals (e.g. rats, cats, dogs and pigeons) can replace humans as experimental subjects.

Pavlov introduced the concept of classical conditioning by training dogs to salivate to the sound of a bell. Pavlov showed how a neutral stimulus (bell) can come to elicit a new learned response (conditioned response) through association – by presenting the bell and food together on several occasions.

Skinner placed rats and pigeons in specially designed cages (Skinner boxes). When a rat activated a lever (or a pigeon pecked a disc) it was *rewarded* with a food pellet. A desirable consequence led to behaviour being repeated. If pressing a lever meant an animal avoided an electric shock, the behaviour would also be repeated. This is operant conditioning – behaviour is shaped and maintained by its consequences.

A strength of behaviourism is that it gave psychology scientific credibility. The approach focused on the careful measurement of observable behaviour within controlled lab settings. Behaviourists emphasised the importance of scientific processes such as objectivity and replication. This brought the language and methods of the natural sciences into psychology, giving the subject greater credibility and status.

The laws of learning developed by behaviourists have real-life application. The principles of conditioning have been applied to a broad range of real-world behaviours and problems. *Token economy systems* reward appropriate behaviour with tokens that are exchanged for privileges (operant conditioning). This technique has been successfully used in prisons and

psychiatric wards. Treatments like these are suitable for patients who lack 'insight' into their condition and are not capable of talking about their problems.

A limitation is the behaviourist approach portrays a mechanistic view of human behaviour. Animals and humans are seen as passive and machine-like responders to the environment, with little conscious insight into their behaviour. Other approaches, such as social learning theory and the cognitive approach, have placed much more emphasis on the mental events that occur during learning. Processes that mediate between stimulus and response suggest that humans play a much more active role in their own learning.

P75

1 Children are more likely to imitate the behaviour of people with whom they identify. Such role models are similar to the observer, tend to be attractive and have high status. For instance, a little boy may identify with Justin Bieber because of his popularity, attractiveness and boundless talent.

2 In a controlled observation, children watched either: an adult behaving aggressively towards a Bobo doll; or an adult behaving non-aggressively towards a Bobo doll. When given their own doll to play with, the children who had seen aggression were much more aggressive towards the doll. This suggest that children may learn aggressive behaviour through observation and imitation of adult role models.

3 To learn to bake a cake a child must first pay attention to the actions of its mother. The child must store the sequence of events in memory (retention) – the ingredients, rolling out the dough, etc. The child must be capable of reproducing the behaviour – they must have access to the correct utensils and be physically capable of imitating the actions. Finally, the child must be motivated to reproduce the behaviour. They may have observed cake-making behaviour being rewarded in the past – such as the look on their mum's happy face when tucking into what she has made (vicarious reinforcement).

4 Bandura agreed with the behaviourist approach that learning occurs through experience.
However, he also proposed that learning takes place in a social context through *observation* and *imitation* of others' behaviour. Children (and adults) observe other people's behaviour and take note of its consequences. Behaviour that is seen to be rewarded (reinforced) is much more likely to be copied than behaviour that is punished. Bandura called this vicarious reinforcement. *Mediational (cognitive) processes* play a crucial role in learning. There are four mediational processes in learning:
1. Attention – whether behaviour is noticed.
2. Retention – whether behaviour is remembered.
3. Motor reproduction – being able to do it.
4. Motivation – the will to perform the behaviour.
The first two relate to the learning of behaviour, the last two to the performance of behaviour (so, unlike behaviourism, learning and performance do not have to occur together).
Finally, *identification* with role models is also important. Children are more likely to imitate the behaviour of people with whom they identify. Such role models are similar to the observer, tend to be attractive and have high status.

A strength is SLT emphasises the importance of cognitive factors in learning. Neither classical conditioning nor operant conditioning can offer a comprehensive account of human learning on their own because cognitive factors are omitted. Humans and animals store information about the behaviour of others and use this to make judgements about when it is appropriate to perform certain actions. SLT provides a more complete explanation of human learning than the behaviourist approach by recognising the role of mediational processes.

A limitation is SLT relies too heavily on evidence from controlled lab studies. Many of Bandura's ideas were developed through observation of children's behaviour in lab settings and this raises the problem of demand characteristics. The main purpose of a Bobo doll is to hit it. So the children in those studies may have been behaving as they thought was expected. Thus the research may tell us little about how children actually learn aggression in everyday life.

Another limitation is that SLT underestimates the influence of biological factors. A consistent finding in the Bobo doll experiments was that boys showed more aggression than girls regardless of the specifics of the experimental condition. This may be explained by differences in the levels of testosterone, which is present in greater quantities in boys and is linked to aggression. This means that Bandura may have underplayed the important influence of biological factors on social learning.

P77

1 Schema are packages of information developed through experience. They act as a 'mental framework' for the interpretation of incoming information received by the cognitive system. Babies are born with simple motor schema for innate behaviours such as sucking and grasping, but as we get older, our schema become more sophisticated.

2 A theoretical model is a sequence of boxes and arrows, often represented as a flow diagram, which represent the passage of information through the cognitive system. The information processing approach suggests that information flows through a sequence of stages that include input, storage and retrieval, as in the *multi-store model*. This model shows how sensory information is registered, then passed through STM and LTM where it is retained unless forgotten.

3 Cognitive neuroscience is the scientific study of the influence of brain structures (neuro) on mental processes (cognition). With advances in brain scanning technology in the last twenty years, scientists have been able to describe the neurological basis of mental processing. This involves pinpointing those brain areas/structures that control particular cognitive processes. This includes research in memory that has linked *episodic* and *semantic memories* to opposite sides of the prefrontal cortex in the brain. Scanning techniques have also proved useful in establishing the neurological basis of some disorders, e.g. the *parahippocampal gyrus* and OCD.

4 In direct contrast to the behaviourist approach, the cognitive approach argues that mental processes should be studied, e.g. studying perception and memory. Mental processes are 'private' and cannot be observed, so cognitive psychologists study them indirectly by making inferences (assumptions) about what is going on inside people's heads on the basis of their behaviour. Cognitive psychologists emphasise the importance of schema: packages of information developed through experience which act as a 'mental framework' for the interpretation of incoming information received by the cognitive system.

Cognitive psychologists have always employed controlled and rigorous methods of study, e.g. lab studies, in order to infer cognitive processes at work. This has enabled the two fields of biology and cognitive psychology to come together (cognitive neuroscience) and means that the study of the mind has established a credible, scientific basis.

However, although there are similarities between the operations of the human mind and a computer (inputs and outputs, central processor, storage systems), the computer analogy has been criticised. For instance, human emotion and motivation have been shown to influence accuracy of recall, e.g. in eyewitness accounts. Therefore, the cognitive approach oversimplifies human cognitive processing and ignores important aspects that influence performance.

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Theoretical models are used to describe and explain how 'unseen' cognitive processes work. The information processing model 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* of memory The 'computer analogy' suggests similarities in how computers and human minds process information. For instance, the use of a central processor (the brain), changing of information into a useable code and the use of 'stores' to hold information.

The cognitive approach is based on research that lacks external validity. Cognitive psychologists are only able to infer mental processes from the behaviour they observe, so the approach sometimes suffers from being too abstract and theoretical. Also, research is often carried out using artificial stimuli, such as recall of word lists in studies of memory, which may not represent everyday experience. Therefore, research into cognitive processes may lack external validity.

A strength of the approach is the application to everyday life. The cognitive approach is dominant in psychology today and has been applied to a wide range of practical and theoretical contexts. For instance, the approach has made an important contribution to the field of *artificial intelligence* (AI) and the development of robots. These exciting advances are likely to revolutionise how we live in the future.

Another strength is that the approach is less determinist than other approaches. The cognitive approach is based on soft determinism, recognising that our cognitive system can only operate within certain limits, but that we are free to think before responding to a stimulus. This is in contrast to the behaviourist approach which suggests that we are passive 'slaves' to the environment and lack free choice in our behaviour. For this reason, the cognitive approach takes a more reasonable and flexible middle-ground position in the free will-determinism debate.

P79

1 Behaviour has a genetic and neurochemical basis. Behaviours are inherited in the same way as physical characteristics such as height or eye colour. For example, the 5HT1-D beta gene implicated in OCD. Neurochemistry also explains behaviour, for example low levels of serotonin in OCD.

The mind and body are one and the same. From a biological perspective, the mind lives in the brain – meaning that all thoughts, feelings and behaviour ultimately have a physical basis. This is in contrast to the cognitive approach which sees the mind as separate from the brain.

2 A person's genotype is their actual genetic make-up. Phenotype is the way that genes are expressed through physical, behavioural and psychological characteristics. The expression of genotype (phenotype) is influenced by environmental factors. For example, PKU is a genetic disorder (genotype), the effects of which can be prevented by a restricted diet (phenotype).

3 Any genetically determined behaviour that enhances survival and reproduction will be passed on to future generations. Such genes are described as adaptive and give the possessor and their offspring advantages. For instance, attachment behaviours in new-borns promote survival and are therefore adaptive and naturally selected.

4 According to the biological approach, everything psychological is at first biological. If we want to fully understand human behaviour we must look to biological structures and processes within the body, such as genes, neurochemistry and the nervous system. Behaviour has a genetic and neurochemical basis. Behaviours are inherited in the same way as physical characteristics such as height or eye colour. For example, the 5HT1-D beta gene implicated in OCD.

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Twin studies are used to investigate the genetic basis of behaviour. Concordance rates between twins are calculated – the extent to which twins share the same characteristic. Higher concordance rates among identical (monozygotic, MZ) twins than non-identical (dizygotic, DZ) twins is evidence of a genetic basis. For example, 68% of MZ twins both have OCD compared with 31% of DZ twins (Nestadt *et al*. 2010).

A strength of the approach is its use of scientific methods of investigation. In order to investigate the genetic and biological basis of behaviour, the biological approach makes use of a range of precise and highly scientific methods. These include scanning techniques and drug trials. It is possible to accurately measure biological and neural processes in ways that are not open to bias. This means that the biological approach is based on reliable data.

The biological approach has real-life application. Increased understanding of biochemical processes in the brain has led to the development of psychoactive drugs that treat serious mental disorders, such as depression. Although these drugs are not effective for all patients, they have revolutionised treatment for many. This is a strength of the approach because it means that sufferers are able to live a relatively normal life, rather than in hospital.

A methodological problem for the approach is the difficulty of separating nature and nurture. Identical twins, non-identical twins and members of the same family all have genetic similarities, so any similarity in the way they behave must be genetic from a biological perspective. However, the fact that family members are exposed to similar environmental conditions is an important confounding variable. This is a problem for the biological approach because findings could be just as easily interpreted as supporting nurture rather than nature.

P81

1 When a stressor is perceived – for instance, your psychology teacher tells you you have an important test in the morning – the *hypothalamus* triggers activity in the *sympathetic branch* of the ANS. The ANS changes from its normal resting state (the *parasympathetic state*) to the physiologically aroused sympathetic state. The stress hormone *adrenaline* is released from the *adrenal medulla* into the bloodstream. Adrenaline triggers physiological changes in the body, e.g. increased heart rate, dilation of the pupils, decreased production of saliva. This is called the fight or flight response. The body will slowly return to its resting state but the response may be reactivated when you walk into the test room in the morning!

2 The autonomic nervous system (ANS) governs vital functions in the body such as breathing, heart rate, digestion, sexual arousal and stress responses.

The somatic nervous system (SNS) controls muscle movement and receives information from sensory receptors.

3 The major endocrine gland is the *pituitary gland*, located in the brain. It is called the 'master gland' because it controls the release of hormones from all the other endocrine glands in the body.
The adrenal gland secretes adrenaline which is released during the stress response and causes physiological changes in the body, such as increased heart-rate.

4 The nervous system is a specialised network of cells and our body's primary communication system. The endocrine system works alongside the nervous system to control vital functions in the body through the action of hormones. The endocrine system supports the nervous system. However, the endocrine system works much more slowly than the nervous system but has widespread and powerful effects.

P83

1 *Motor neurons* connect the CNS to effectors such as muscles and glands whereas *relay neurons* connect sensory neurons to motor or other relay neurons.

2 Neurons vary in size but all have the same basic structure:
Cell body (or soma) – includes a nucleus which contains the genetic material of the cell.
Dendrites – branch-like structures that carry nerve impulses from neighbouring neurons towards the cell body.
Axon – carries the electrical impulse away from the cell body down the neuron.
Terminal buttons at the end of the axon communicate with the next neuron in the chain across the *synapse*.

3 Neurotransmitters generally have either an excitatory or inhibitory effect on the neighbouring neuron. For example, *adrenaline* is generally excitatory, increasing the positive charge of the postsynaptic neuron, making it more likely the neuron will fire. *Serotonin* is generally inhibitory, increasing the negative charge of the postsynaptic neuron, making it less likely the neuron will fire.

4 When the electrical impulse reaches the end of the neuron (the *presynaptic terminal*) it triggers the release of *neurotransmitter* from tiny sacs called *synaptic vesicles*. Once the neurotransmitter crosses the gap, it is taken up by the *postsynaptic receptor* site on the next neuron. The chemical message is converted back into an electrical impulse and the process of electric transmission begins.

P85

1 The unconscious mind is a vast storehouse of biological drives and instincts that have been repressed during childhood. The psychodynamic approach explains all behaviour as determined by unconscious conflicts over which we have no control. Even something as apparently random as a 'slip of the tongue' is driven by unconscious forces and has deep symbolic meaning – so mistakenly describing our partner's new dress as 'fattening' rather than 'flattering' may reveal our true feelings!

2 Defence mechanisms are used by the ego to keep the id 'in check' and reduce anxiety. *Denial* is when we refuse to acknowledge reality so someone may continue to turn up for work even though they have lost their job.

3 The Oral Stage occurs from 0 to 1 years and the focus of pleasure is the mouth; the mother's breast is the object of desire.

4 The psychodynamic approach suggests that the unconscious mind has an important influence on behaviour. Freud proposed that the mind is made up of the conscious mind – what we are aware of at any one time; the pre-conscious – thoughts we may become aware of through dreams and 'slips of the tongue'; the unconscious mind – a vast storehouse of biological drives and instincts that influence our behaviour.

Freud also introduced the tripartite structure of personality and claimed that the dynamic interaction between the three parts determines behaviour. The id is the primitive part of the personality which operates on the pleasure principle and demands instant gratification. The ego works on the reality principle and is the mediator between the id and superego. Finally, the superego is our internalised sense of right and wrong. It is based on the morality principle and punishes the ego through guilt for wrongdoing.

Freud proposed five psychosexual stages that determine adult personality. Each stage is marked by a different conflict that the child must resolve to move on to the next. Any conflict that is unresolved leads to fixation where the child becomes 'stuck' and carries behaviours associated with that stage through to adult life. For instance, the Oedipus complex is an important psychosexual conflict occurring at the phallic stage which influences gender role and the formation of moral values.

A strength is that the psychodynamic approach has explanatory power. Although Freud's theory is controversial and often bizarre, it has had huge influence on Western contemporary thought. It has been used to explain a wide range of behaviours (moral, mental disorders) and drew attention to the influence of childhood on adult personality. Alongside behaviourism, it was the dominant approach in psychology for the first half of the twentieth century.

The case study method that Freud relied on has been criticised. Freud's ideas were developed using a small number of case studies, e.g. Little Hans, Dora and the Rat Man. Critics have suggested that it is not possible to make universal claims about human nature based on such a limited sample. Although Freud's observations were detailed and carefully recorded, his interpretations were highly subjective and it is unlikely that any other researcher would have drawn the same conclusions.

The psychodynamic approach includes lots of untestable concepts. Karl Popper (philosopher of science) argued that the psychodynamic approach does not meet the scientific criterion of falsification, in the sense that it cannot be proved or disproved. Many of Freud's concepts, such as the id or the Oedipus complex, occur at an unconscious level, making them difficult, if not impossible, to test. This affords psychodynamic theory the status of pseudoscience ('fake' science) rather than real science.

A strength is that the approach has practical application in the real world. Freud introduced a new form of therapy: psychoanalysis. The therapy is designed to access the unconscious mind using a range of techniques such as hypnosis and dream analysis. Psychoanalysis is most suitable for individuals suffering from mild neuroses but has been criticised as inappropriate for people with severe mental disorders such as schizophrenia. That said, psychoanalysis is the forerunner to many modern-day psychotherapies and 'talking cures' that have since been established.

P87

1 A parent who sets boundaries on their love for their child (conditions of worth) by claiming 'I will only love you if...' is storing up psychological problems – related to their sense of self-worth – for that child in future. For instance, a father may say to his teenage daughter, 'I will only love you if you stop seeing that boy'.

2 Self-actualisation refers to the innate tendency that each of us has to want to achieve our full potential and become the best we can possibly be. In Maslow's hierarchy of needs the four lower levels (deficiency needs) must be met before the individual can work towards self-actualisation – a growth need.

However the concept of self-actualisation is a vague, abstract idea that is difficult to test – what exactly is someone's potential? This means that the humanistic approach, and the concept of self-actualisation, lacks empirical evidence to support it.

3 Humanistic psychologists reject any attempt to break up behaviour and experience into smaller components. They advocate holism – the idea that subjective experience can only be understood by considering the whole person (their relationships, past, present and future, etc.). This approach may have more validity than its alternatives by considering meaningful human behaviour within its real-life context.

The approach has limited application in the real world. It is true that Rogerian therapy has revolutionised counselling techniques and Maslow's hierarchy of needs has been used to explain motivation, particularly in the workplace. However, compared to other approaches, humanistic psychology has had limited impact within psychology as a whole – perhaps because it lacks a sound evidence base. The approach has been described, not as a comprehensive theory, but as a rather loose set of abstract concepts.

4 Humanistic psychologists reject attempts to establish scientific principles of human behaviour. According to the approach, we are all unique, and psychology should concern itself with the study of subjective experience rather than general laws – a person-centred approach. The concept of self-actualisation refers to the innate tendency that each of us has to want to achieve our full potential and become the best we can possibly be. In Abraham Maslow's hierarchy of needs the four lower levels (deficiency needs) must be met before the individual can work towards self-actualisation – a growth need.

Carl Rogers argued that personal growth requires an individual's concept of self to be congruent with their ideal self (the person they want to be). If too big a gap exists between the two selves, the person will experience a state of incongruence and self-actualisation isn't possible.

In Rogers' client-centred therapy, the aim is to increase feelings of self-worth and reduce incongruence between the self-concept and the ideal self. An effective therapist should provide the client with three things: genuineness, empathy and unconditional positive regard (which the client may not have received from their parents) so as to remove the psychological barriers that may be preventing self-actualisation.

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A strength is the approach portrays a positive image of the human condition. Humanistic psychologists have been praised for promoting a positive image of the human condition – seeing people as in control of their lives and having the freedom to change. Freud saw human beings as slaves to their past and claimed all of us existed somewhere between 'common unhappiness and absolute despair'. Humanistic psychology offers an optimistic alternative.

A limitation is that the approach may be guilty of a Western cultural bias. Many of the ideas that are central to humanistic psychology, such as individual freedom, autonomy and personal growth, are more associated with individualist cultures in the Western world such as the United States. Collectivist cultures such as India, which emphasise the needs of the group, may not identify so easily with the ideals and values of humanistic psychology. Therefore, it is possible that the approach would not travel well and is a product of the culture within which it was developed.

P89

1 Both approaches offer psychological therapies that are designed to deal with anxiety-related disorders. Freud saw these as emerging from unconscious conflicts and overuse of defence mechanisms, whereas humanistic therapy is based on the idea that reducing incongruence will stimulate personal growth.

2 Behaviourists suggest that all behaviour is environmentally determined by external forces that we cannot control. Skinner famously said that free will is an 'illusion' and even behaviour that appears freely chosen is the result of our reinforcement history. Although social learning theorists agree that we are influenced by our environment to some extent, they also believe that we exert some influence upon it (*reciprocal determinism*). They also place more emphasis on cognitive factors, suggesting that we have some control over when we perform particular behaviours.

3 In terms of views on development, the cognitive approach proposes stage theories of child development, particularly the idea of concept formation (schema) as children get older. This is in some ways similar to the biological approach which suggests that genetically determined maturational changes influence behaviour, for example cognitive/intellectual development. So cognitive advances are not possible until the child is physiologically and genetically 'ready'.

The cognitive approach recognises that many of our information-processing abilities are innate, but are constantly refined by experience. The biological approach would place less emphasis on the influence of experience and instead claims that 'anatomy is destiny': behaviour stems from the genetic blueprint we inherit from our parents. This is an extreme nature approach and distinct from the interactionist approach offered by the cognitive approach.

The cognitive approach advocates machine reductionism in its use of the computer analogy to explain human information processing. This ignores the influence of emotion and motivation on behaviour. The biological approach is also reductionist and explains human behaviour at the level of the gene or neuron – underplaying 'higher level' explanations at a cultural or societal level.

Finally, the cognitive approach has led to cognitive therapies such as cognitive behaviour therapy (CBT) which has been used in the treatment of depression and aims to eradicate faulty thinking. In contrast, psychoactive drugs have been developed by biological psychologists that regulate chemical imbalances in the brain and have revolutionised the treatment of mental disorders. Although such drugs are relatively cheap and fast acting, they may not be as effective in the long term as cognitive therapies which lead to greater insight.

5. Psychopathology

P91

1 *Statistical infrequency* – the most obvious way to define anything as 'normal' or 'abnormal' is in terms of the number of times it is observed. Behaviour that is rarely seen is abnormal. Any relatively 'usual', or often seen, behaviour can be thought of as 'normal'. Any behaviour that is different, or rare, is 'abnormal',

Deviation from social norms – when a person behaves in a way that is different from how they are expected to behave, they may be defined as abnormal. Societies and social groups make collective judgements about 'correct' behaviours in particular circumstances. There are relatively few behaviours that would be considered universally abnormal therefore definitions are related to cultural context. For example, homosexuality is viewed as abnormal in some cultures but not others.

2 A limitation is that unusual characteristics can also be positive. If very few people display a behaviour that makes the behaviour statistically abnormal but doesn't mean the person requires treatment. IQ scores over 130 are just as unusual as those below 70, but not regarded as undesirable and requiring treatment. This means statistical infrequency should not be used alone to judge abnormality.

3 Deviation from social norms is not a sole explanation of abnormality. Antisocial personality disorder (APD) shows there is a place for deviation from social norms in thinking about what is abnormal. However, there are other factors to consider, e.g. distress to other people due to APD. So in practice, deviation from social norms is never the sole reason for defining abnormality.

A limitation is that social norms are culturally relative. A person from one cultural group may label someone from another group as abnormal using their standards rather than the person's standards. For example, hearing voices is socially acceptable in some cultures but would be seen as a sign of abnormality in the UK. This creates problems for people from one culture living within another cultural group.

4 Statistical infrequency – the most obvious way to define anything as 'normal' or 'abnormal' is in terms of the number of times it is observed. Behaviour that is rarely seen is abnormal. Any relatively 'usual', or often seen, behaviour can be thought of as 'normal'. Any behaviour that is different, or rare, is 'abnormal'.

A strength of statistical infrequency is its real-life application. All assessment of patients with mental disorders includes some comparison to statistical norms. Intellectual disability disorder demonstrates how statistical infrequency can be used. Statistical infrequency is thus a useful part of clinical assessment.

A limitation is that not everyone unusual benefits from a label. When someone is living a happy and fulfilled life, there is no benefit to them being labelled as abnormal. Someone with a very low IQ who was not distressed or out of work, etc., would not need a diagnosis of intellectual disability. Being labelled as abnormal might have a negative effect on the way others view them and the way they see themselves.

Deviation from social norms – when a person behaves in a way that is different from how they are expected to behave, they may be defined as abnormal. Societies and social groups make collective judgements about 'correct' behaviours in particular circumstances. There are relatively few behaviours that would be considered universally abnormal therefore definitions are related to cultural context. For example, homosexuality is viewed as abnormal in some cultures but not others.

A limitation is that this definition could lead to human rights abuses. Too much reliance on deviation from social norms to understand abnormality can lead to a systematic abuse of human rights.
Drapetomania (black slaves trying to escape) and nymphomania (women attracted to working-class men) are examples of how diagnosis was used for social control. Such classifications appear ridiculous but some psychologists argue that some modern abnormal classifications are abuses of people's right to be different.

P93

1 Being rational and perceiving ourselves accurately; working towards self-actualisation; being able to cope with stress.

2 A person may cross the line between normal and abnormal at the point that they cannot deal with the demands of everyday life – they fail to function adequately. For instance, not being able to hold down a job, maintain relationships or maintain basic standards of nutrition and hygiene.
They may no longer conform to interpersonal rules, e.g. maintaining personal space and experience personal distress.

Failure to function recognises the patient's perspective. This may not be an entirely satisfactory approach because it is difficult to assess distress. However, the definition acknowledges that the experience of the patient (and/or others) is important. It captures the experience of many people who need help and is useful for assessing abnormality.

3 Some of the ideas in Jahoda's classification of ideal mental health are specific to Western European and North American cultures. For example, the emphasis on personal achievement (self-actualisation) would be considered self-

indulgent in much of the world where the focus is on community rather than oneself. Such traits are typical of individualist cultures and are culturally specific.

4 A person may cross the line between normal and abnormal at the point that they cannot deal with the demands of everyday life – they fail to function adequately. For instance, not being able to hold down a job, maintain relationships or maintain basic standards of nutrition and hygiene.
They may no longer conform to interpersonal rules, e.g. maintaining personal space and experience personal distress.

A limitation is that this is the same as deviation from social norms. It can be hard to say when someone is really failing to function or just deviating from social norms. People who live alternative lifestyles or do extreme sports could be seen as behaving maladaptively. If we treat these behaviours as 'failures' of adequate functioning, we may limit freedom.

A further limitation is that this is a subjective judgement. Someone has to judge whether a patient is distressed or distressing. Some patients may say they are distressed but may be judged as not suffering. There are methods for making such judgements as objective as possible, including checklists such as the *Global Assessment of Functioning Scale*. However, the principle remains whether someone, e.g. a psychiatrist, has the right to make this judgement.

A different way to look at normality and abnormality is to think about what makes someone 'normal' and psychologically healthy. Then anyone who deviates from this ideal is classed as abnormal. Marie Jahoda (1958) suggested several criteria for ideal mental health: we have no symptoms or distress; we are rational and perceive ourselves accurately; we self-actualise; we can cope with stress; we are independent of other people.

A limitation is that Jahoda's criteria set an unrealistically high standard for mental health. Very few people will attain all Jahoda's criteria for mental health. Therefore, this approach would see most of us as abnormal. On the positive side, it makes it clear to people the ways in which they could benefit from seeking help to improve their mental health. However, it is probably of no value in thinking about who might benefit from treatment against their will.

5 See 4.

P95

1 *Anxiety and distress* – obsessive thoughts are unpleasant and frightening, and the anxiety that goes with these can be overwhelming.
Guilt and disgust – irrational guilt, for example over a minor moral issue, or disgust which is directed towards oneself or something external like dirt.

2 Emotional – guilt/disgust
Behavioural – compulsive behaviour
Cognitive – obsessive thoughts

3 The fear response is widely disproportionate to the threat posed, e.g. an arachnophobic will have a strong emotional response to a tiny spider. There is considerable effort to avoid coming into contact with the phobic stimulus. This can make it hard to go about everyday life, especially if the phobic stimulus is often seen, e.g. public places. There is selective attention to the phobic stimulus. The phobic finds it hard to look away from the phobic stimulus e.g. a pogonophobic (fear of beards) cannot concentrate on a task if there is a bearded man in the room.

4 Emotional characteristics of depression include lowered mood. This is more pronounced than the daily experience of feeling lethargic or sad. Sufferers often describe themselves as 'worthless' or 'empty'. Another emotional characteristic is anger. On occasion, such emotions lead to aggression or self-harming behaviour.

5 In depression activity levels may be affected. Sufferers of depression have reduced levels of energy making them lethargic. In extreme cases, this can be so severe that the sufferer cannot get out of bed.

There may also be disruption to sleep and eating behaviour. Sufferers may experience reduced sleep (insomnia) or an increased need for sleep (hypersomnia). Appetite may increase or decrease, leading to weight gain or loss.

P97

1 The UCS triggers a fear response (fear is a UCR), e.g. being bitten by a dog creates anxiety. The NS (dog) is associated with the UCS, e.g. being bitten by a dog (the dog previously did not create anxiety). The NS becomes a CS producing fear (which is now the CR). The dog becomes a CS causing a CR of anxiety/fear following the bite.

2 The initial association that creates a phobia is explained by classical conditioning. A neutral stimulus (a dog) becomes associated a stimulus that would cause fear (being bitten by a dog). The neutral stimulus becomes a conditioned stimulus that produces fear (the conditioned response). The maintenance of the phobia is explained by operant conditioning. When a phobic avoids a phobic stimulus they escape the anxiety that would have been experienced. This reduction in fear negatively reinforces the avoidance behaviour and the phobia is maintained.

3 A strength of the two-process model is it has good explanatory power. The two-process model went beyond Watson and Rayner's simple classical conditioning explanation of phobias. It has important implications for therapy. If a patient is prevented from practising their avoidance behaviour then phobic behaviour declines. The application to therapy is a strength of the two-process model.

There are alternative explanations for avoidance behaviour. In more complex behaviours like agoraphobia, there is evidence that at least some avoidance behaviour is motivated more by positive feelings of safety. This explains why some agoraphobics are able to leave their house with a trusted friend with relatively little anxiety, but not alone (Buck 2010). This is a problem for the two-process model, which suggests that avoidance is motivated by anxiety reduction.

4 The initial association that creates a phobia is explained by classical conditioning. A neutral stimulus (a dog) becomes associated a stimulus that would cause fear (being bitten by a dog). The neutral stimulus becomes a conditioned stimulus that produces fear (the conditioned response). Once formed, the initial association is generalised to other, similar stimuli. The initial fear of dogs will be transferred to other breeds of dog and also, possibly, to other similar furry animals. For example, Little Albert also showed a fear in response to other white furry objects including a fur coat and a Santa Claus mask.

The maintenance of the phobia is explained by operant conditioning. When a phobic avoids a phobic stimulus they escape the anxiety that would have been experienced. This reduction in fear negatively reinforces the avoidance behaviour and the phobia is maintained. If someone has a morbid fear of clowns (coulrophobia) they will avoid circuses and other situations where they may encounter clowns. The relief felt from avoiding clowns negatively reinforces the phobia and ensures it is maintained rather than confronted.

A limitation is the two-process model is an incomplete explanation of phobias. Even if we accept that classical and operant conditioning are involved in the development and maintenance of phobias, there are some aspects of phobia behaviour that require further explaining. We easily acquire phobias of things that were a danger in our evolutionary past (e.g. fear of snakes or the dark). This is biological preparedness – we are innately prepared to fear some things more than others (Seligman 1971). Biological preparedness is a problem for the two-process model because it shows there is more to acquiring phobias than simple conditioning.

A limitation is that not all bad experiences lead to phobias. Sometimes phobias do appear following a bad experience and it is easy to see how they could be the result of conditioning. However, sometimes people have a bad experience (such as being bitten by a dog) and don't develop a phobia (DiNardo *et al*. 1988). This suggests that conditioning alone cannot explain phobias. They may only develop where a vulnerability exists.

The two-process model doesn't properly consider the cognitive aspects of phobias. We know that behavioural explanations, in general, are oriented towards explaining behaviour rather than cognition (thinking). This is why the two-process model explains maintenance of phobias in terms of avoidance – but we also know that phobias have a cognitive element. The two-process theory does not adequately address the cognitive element of phobias.

P99

1 Flooding involves bombarding the phobic patient with the phobic object without a gradual build-up (as in systematic desensitisation). An arachnophobic receiving flooding treatment may have a large spider crawl over their hand until they can relax fully (the phobic not the spider). Without the option of avoidance behaviour, the patient quickly learns that the phobic object is harmless through the exhaustion of their fear response. This is known as extinction. Flooding is not unethical but it is an unpleasant experience so it is important that patients give informed consent.

2 The question in the book is being replaced at the next reprint* with,
Identify and briefly discuss one limitation of flooding as a treatment for phobias (4 marks)
A limitation is that flooding is traumatic for patients. Perhaps the most serious issue with the use of flooding is the fact that it is a highly traumatic experience. The problem is not that flooding is unethical (patients do give informed consent) but that patients are often unwilling to see it through to the end. This is a limitation because ultimately it means that the treatment is not effective, and time and money are wasted preparing patients only to have them refuse to start or complete treatment.
(The question is being replaced because there isn't a description of the limitation of systematic desensitisation in the student book.)*

3 Although flooding is highly effective for treating simple phobias, it appears to be less so for more complex phobias like social phobias. This may be because social phobias have cognitive aspects, e.g. a sufferer of a social phobia doesn't simply experience anxiety but thinks unpleasant thoughts about the social situation. This type of phobia may benefit more from cognitive therapies because such therapies tackle the irrational thinking.

A further limitation is that flooding is traumatic for patients. The problem is not that flooding is unethical (patients do give informed consent) but that patients are often unwilling to see it through to the end. Time and money may be wasted preparing patients only to have them refuse to start or complete treatment.

4 Systematic desensitisation therapy aims to gradually reduce the anxiety caused by a phobia through counterconditioning. If a phobia has been learned so that the phobic stimulus (conditioned stimulus, CS) produces fear (conditioned response, CR), then the CS can be paired with relaxation and this becomes the new CR. It is not possible to be afraid and relaxed at the same time, so one emotion prevents the other (reciprocal inhibition).

The patient and therapist design an anxiety hierarchy – a list of fearful stimuli arranged in order from least to most frightening. An arachnophobic might identify seeing a picture of a small spider as low on their anxiety hierarchy and holding a tarantula as the final item.

The phobic individual is first taught relaxation techniques such as deep breathing and/or meditation. The patient then works through the anxiety hierarchy. At each level the phobic is exposed to the phobic stimulus in a relaxed state until the phobic stimulus is confronted and the fear extinguished.

A strength of SD is that it is effective. Gilroy *et al*. (2003) followed up 42 patients who had SD for spider phobia in three 45-minute sessions. At both three and 33 months, the SD group were less fearful than a control group treated by relaxation without exposure. This shows that SD is helpful in reducing the anxiety in spider phobia and that the effects of the treatment are long-lasting.

Another strength is that SD is suitable for a diverse range of patients. The alternatives to SD such as flooding and cognitive therapies are not well suited to some patients. For example, having learning difficulties can make it very hard for some patients to understand what is happening during flooding or to engage with cognitive therapies which require reflection. For these patients, SD is probably the most appropriate treatment.

A further strength of SD is that patients prefer it. Those given the choice of SD or flooding tend to prefer SD. This is because it does not cause the same degree of trauma as flooding. It may also be because SD includes some elements that are actually pleasant, such as time talking with a therapist. This is reflected in the low refusal rates (number of patients refusing to start treatment) and low attrition rates (number of patients dropping out of treatment) for SD.

P101

1 Negative views of the world, e.g. 'the world is a cold hard place'.
Negative view of the future, e.g. 'there isn't much chance that the economy will get any better'.
Negative view of the self, e.g. thinking 'I am a failure' and this negatively impacts upon self-esteem.

2 According to Ellis, depression occurs when we experience an activating event, e.g. failing an important test or ending a relationship. Negative events trigger irrational beliefs, for example Ellis called the belief that we *must* always succeed 'musterbation'. When an activating event triggers irrational beliefs there are emotional and behavioural consequences. For example, if you believe you must always succeed and then you fail at something, the consequence is depression.

3 A strength of Beck's theory is it has good supporting evidence. For example, Grazioli and Terry (2000) assessed 65 pregnant women for cognitive vulnerability and depression before and after birth. They found that those women judged to have been high in cognitive vulnerability were more likely to suffer post-natal depression. This suggests that Beck may be right about cognition causing depression, at least in some cases.

A limitation is that Beck's theory does not explain all aspects of depression. Depression is a complex disorder. Some depressed patients are deeply angry and Beck cannot easily explain this extreme emotion. Some depressed patients suffer hallucinations and bizarre beliefs. Beck's theory cannot always explain all cases of depression, and just focuses on one aspect of the disorder.

4 Beck (1967) suggested that some people are more prone to depression because of faulty information processing, i.e. thinking in a flawed way. When depressed people attend to the negative aspects of a situation and ignore positives,

they also tend to blow small problems out of proportion and think in 'black and white' terms. Maria told her friend that if she didn't pass she 'could not go on'.

Depressed people have negative self schemas. We use schemas to interpret the world, so if a person has a negative self-schema they interpr*et al*l information about themselves in a negative way. More specifically, Beck proposed the negative triad. There are three elements to the negative triad:
Negative views of the world – 'the test was unfair and examiner was out to get her'.
Negative view of the future – 'she will never try anything again'.
Negative view of the self – 'she hates herself'. The negative triad affects the depressive's self-esteem.

A strength is that the theory has practical application as a therapy. Beck's cognitive explanation forms the basis of cognitive behaviour therapy (CBT). The components of the negative triad can be easily identified and challenged in CBT. This means a patient can test whether the elements of the negative triad are true. This is a strength of the explanation because it translates well into a successful therapy.

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P103

1 A strength of CBT is that it is effective. There is a large body of evidence to support the effectiveness of CBT for depression, e.g. March *et al*. (2007) compared the effects of CBT with *antidepressant* drugs and a combination of the two in depressed adolescents. After 36 weeks, 81% of the CBT group, 81% of the antidepressant group and 86% of the CBT + antidepressants group were significantly improved. CBT was just as effective as medication and helpful alongside medication.
This suggests there is a good case for making CBT the first choice of treatment in the NHS.

2 A patient might talk about how unlucky they have been or how unfair life is. An REBT therapist would identify this as utopianism and challenge it as an irrational belief. This may involve empirical argument – disputing whether there is evidence to support the irrational belief. It may also include logical argument – disputing whether the negative thought actually follows from the facts.

3 The aim of CBT is to identify negative thoughts about the self, the world and the future – the negative triad. These thoughts must be challenged by the patient taking an active role in their treatment (the 'patient as scientist'). Patients are encouraged to test the reality of their irrational beliefs. They might be set homework, e.g. to record when they enjoyed an event or when people were nice to them, and these events are used to change the patient's cognitive style during therapy.

A limitation of CBT is it may not work for the most severe cases of depression. In some cases depression can be so severe that patients cannot motivate themselves to take on the hard cognitive work required for CBT. Where this is the case it is possible to treat patients with antidepressant medication and continue CBT when they are more alert and motivated. This is a limitation because it means CBT cannot be used as the sole treatment for all cases of depression.

4 According to Ellis, depression occurs when we experience an activating event, e.g. failing an important test or ending a relationship. Negative events trigger irrational beliefs, for example Ellis called the belief that we *must* always succeed 'musterbation'. When an activating event triggers irrational beliefs there are emotional and behavioural consequences. For example, if you believe you must always succeed and then you fail at something, the consequence is depression.

A limitation is that Ellis's model is a partial explanation of depression. There is no doubt that some cases of depression follow activating events. Psychologists call this reactive depression and see it as different from the kind of depression that arises without an obvious cause. This means that Ellis' explanation only applies to some kinds of depression.

Cognitive explanations are closely tied up with the concept of cognitive primacy, the idea that emotions are influenced by cognition (your thoughts). This is sometimes the case, but not necessarily always. Other theories of depression see emotions, such as anxiety and distress, as stored like physical energy, to emerge some time after their causal event. This casts doubt on the idea that cognitions are always the root cause of depression and suggests that cognitive theories may not explain all aspects of the disorder.

REBT (Ellis' therapy) extends the ABC model to an ABCDE model: D for dispute (challenge) irrational beliefs and E for effect. A patient might talk about how unlucky they have been or how unfair life is. An REBT therapist would identify this as

utopianism and challenge it as an irrational belief. This would involve empirical argument – disputing whether there is evidence to support the irrational belief, and/or logical argument – disputing whether the negative thought actually follows from the facts.

As with CBT, the success of REBT may be due to the therapist–patient relationship. Rosenzwieg (1936) suggested that the differences between various methods of psychotherapy might actually be quite small. All psychotherapies have one essential ingredient – the relationship between therapist and patient. It may be the quality of this relationship that determines success rather than any particular technique. Many comparative reviews (e.g. Luborsky *et al*. 2002) find very small differences between therapies, suggesting that they share a common basis.

P105

1 Researchers have identified specific genes which create a vulnerability for OCD, called candidate genes. Serotonin genes, e.g.5HT1-D beta, are involved in the transmission of serotonin across synapses. Dopamine genes are also implicated in OCD. Both dopamine and serotonin are neurotransmitters that have a role in regulating mood. OCD is not caused by one single gene but several genes are involved (polygenic). Taylor (2013) found evidence that up to 230 different genes may be involved in OCD.

2 One limitation is that the serotonin-OCD link may not be unique to OCD. Many people who suffer from OCD become depressed (co-morbidity). This depression probably involves (though is not necessarily caused by) disruption to the serotonin system. This leaves us with a logical problem when it comes to the serotonin system as a possible basis for OCD. It could simply be that the serotonin system is disrupted in many patients with OCD because they are depressed as well.

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As well as this, some cases of OCD, and in particular hoarding disorder, seem to be associated with impaired decision making. This is turn may be associated with abnormal functioning of the lateral frontal lobes of the brain. The frontal lobes are responsible for logical thinking and making decisions. There is also evidence to suggest that an area called the left parahippocampal gyrus, associated with processing unpleasant emotions, functions abnormally in OCD.

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As well as this, some cases of OCD, and in particular hoarding disorder, seem to be associated with impaired decision making. This in turn may be associated with abnormal functioning of the lateral frontal lobes of the brain. The frontal lobes are responsible for logical thinking and making decisions. There is also evidence to suggest that an area called the left parahippocampal gyrus, associated with processing unpleasant emotions, functions abnormally in OCD.

There is good supporting evidence for the genetic explanation of OCD. There is evidence, from a variety of sources which suggests that some people are vulnerable to OCD as a result of their genetic make-up. For example, Nestadt *et al*. (2010) reviewed twin studies and found that 68% of identical twins (MZ) shared OCD as opposed to 31% of non-identical (DZ) twins. This strongly supports a genetic influence on OCD.

A limitation of the genetic explanation is that environmental risk factors are also involved. For example, Cromer *et al*. (2007) found that over half the OCD patients in their sample had a traumatic event in their past, and OCD was more severe in those with one or more traumas. This supports the diathesis-stress model. Focusing on environmental causes may be more productive because we are more able to do something about these.

There is some supporting evidence for neural explanations of OCD. Antidepressants that work purely on the serotonin system are effective in reducing OCD symptoms and this suggests that the serotonin system may be involved in OCD. Also, OCD symptoms form part of biological conditions such as Parkinson's disease (Nestasdt *et al*. 2010). This suggests that the biological processes that cause the symptoms in those conditions may also be responsible for OCD.

P107

1 Low levels of serotonin are associated with OCD, therefore drugs work in various ways to increase the level of serotonin in the brain. SSRIs prevent the reabsorption and breakdown of serotonin in the brain. This increases its levels in the synapse and thus serotonin continues to stimulate the postsynaptic neuron. This compensates for whatever is wrong with the serotonin system in OCD. A typical daily dose of *Fluoxetine* (an SSRI) is 20mg, although this may be increased if it is not benefitting the patient.

2 A limitation is that drugs can have side-effects. Although drugs such as SSRIs help most people, a small minority will get no benefit. Some patients also suffer side-effects such as indigestion, blurred vision and loss of sex drive (although these side-effects are usually temporary).
Such factors reduce effectiveness because people stop taking the medication.

A further limitation is the evidence for drug treatments is unreliable. Although SSRIs are fairly effective and any side-effects will probably be short term, like all drug treatments, SSRIs have some controversy attached. For example, some believe the evidence favouring drug treatments is biased because it is sponsored by drug companies who may try to suppress evidence that does not support the effectiveness of certain drugs.

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One problem is that some cases of OCD follow trauma. OCD is widely believed to be biological in origin. It makes sense, therefore, that the standard treatment should be biological. However, it is acknowledged that OCD can have a range of other causes, and that in some cases it is a response to traumatic life events. It may not be appropriate to use drugs when treating cases that follow a trauma when psychological therapies may provide the best option.

4 Low levels of serotonin are associated with OCD, therefore drugs work in various ways to increase the level of serotonin in the brain. SSRIs prevent the reabsorption and breakdown of serotonin in the brain. This increases its levels in the synapse and thus serotonin continues to stimulate the postsynaptic neuron. This compensates for whatever is wrong with the serotonin system in OCD. A typical daily dose of *Fluoxetine* (an SSRI) is 20mg, although this may be increased if it is not benefitting the patient.

Tricyclics (an older type of antidepressant), such as *Clomipramine*, are sometimes used. These have the same effect on the serotonin system as SSRIs but the side-effects can be more severe.

Drugs are often used alongside cognitive behaviour therapy (CBT) to treat OCD. The drugs reduce a patient's emotional symptoms, such as feeling anxious or depressed. This means that patients can engage more effectively with CBT.

A strength of drug therapy is that it is effective at tackling OCD symptoms. For example, Soomro *et al*. (2009) reviewed 17 studies comparing SSRIs to placebos in the treatment of OCD. All 17 studies showed significantly better results for SSRIs than for the placebo conditions. Effectiveness is greatest when SSRIs are combined with a psychological treatment, usually CBT. Typically symptoms reduce for around 70% of patients taking SSRIs, the rest are helped by alternative drugs or CBT + drugs. So drugs can help most patients with OCD.

Another strength is that drugs are cost-effective and non-disruptive. Drug treatments are generally cheap compared to psychological treatments. Using drugs to treat OCD is therefore good value for the NHS. As compared to psychological therapies, SSRIs are also non-disruptive to patients' lives. If you wish you can simply take drugs until your symptoms decline and not engage with the hard work of psychological therapy. Many doctors and patients like drug treatments for these reasons.

A limitation is that drugs can have side-effects. Although drugs such as SSRIs help most people, a small minority will get no benefit. Some patients also suffer side-effects such as indigestion, blurred vision and loss of sex drive (although these side-effects are usually temporary). Such factors reduce effectiveness because people stop taking the medication.

6. Research Methods

P109

1 A directional *hypothesis* states whether changes are greater or lesser, positive or negative, etc. This is used when the researcher has confidence in the likely direction of the results based on previous research, for instance.

2 Extraneous variables (EVs) are 'nuisance' variables that do not vary systematically with the IV. A researcher may control some of these. Confounding variables (CVs) change systematically with the IV so we cannot be sure if any observed change in the DV is due to the CV or the IV. CVs must be controlled.

3 Any effect of the investigator's behaviour on the outcome of the research (the DV). If the researcher, knowingly or otherwise, gives more information to particular participants, or offers encouragement to some and not others in their behaviour, this may create a confounding variable so the true source of the change in the DV cannot be identified.

4 The person in both conditions has the same characteristics. This controls the important CV of participant variables.

P111

1 The IV is manipulated by the experimenter and the effect on the DV is recorded in a natural setting.

2 Lab studies can be easily replicated. Due to the standardised procedure the experiment can be repeated. If the results are the same this confirms their validity.

The controlled lab environment may be rather artificial and participants are aware they are being studied. Thus behaviour may not be 'natural' and can't be generalised to everyday life (low external validity).

3 In a field experiment, the IV is manipulated by the experimenter and the effect on the DV is recorded. In a natural experiment, the experimenter does not manipulate the IV. The IV would have varied even if the experimenter wasn't interested.

4 In a quasi-experiment, the IV is a difference between people, e.g. people with and without autism. This means that comparisons between different types of people can be made, which is a strength. However, participants are not randomly allocated. The experimenter has no control over which participants are placed in which condition as the IV is pre-existing. Participant variables may have caused the change in the DV acting as a CV.

P113

1 A population is the large group of people that a researcher is interested in studying, for example college students from the North West. It is usually not possible to include all members of the population in the study, so a smaller group is selected – the sample. The sample that is drawn should be representative of the population so generalisations can be made.

2 In a random sample, every person in the target population has an equal chance of being selected. This can be achieved through the use of a lottery method.

3 A systematic sample is an unbiased method. The first item is usually selected at random so the researcher has no control over this, it is an objective method. A complete list of the target population is required. This is likely to require time and effort, and so random sampling may as well be used.

4 Participants are selected according to their frequency in the target population. The college student population should be divided into subgroups, such as gender or age groups. The relative percentages of the subgroups in the population are reflected in the sample. For instance, if there are 60 females and 40 males, there should be 6 females and 4 males in a sample of 10.

5 In opportunity sampling the sample is unrepresentative of the target population as it is drawn from a very specific area, such as one street in one town. This means that the findings cannot be generalised.

P114

1 Ethical issues arise when a conflict exists between the rights of participants and the aims of the research. For instance, it may be necessary to not inform participants of the aim of the study to minimise demand characteristics, but this infringes their right to give informed consent.

2 Participants should be able to make an informed judgement about whether to take part in a particular study (informed consent). However, too much information may affect participants' behaviour so participants may instead give retrospective consent at the end of the study (during debriefing) when they are given full details of the research aims.

3 BPS code of conduct is a quasi-legal document to protect participants based on four principles: respect, competence, responsibility and integrity. This document includes details of what is, and is not, appropriate in relation to research human and animal participants in research, and provides a safeguard for those taking part.

4 **This question would not be asked and will be removed from the book at reprint. No essay in Research Methods.**

P115

1 The two things being compared to see if there is a relationship in correlational research are called co-variables. On a scattergraph, one of these is plotted on the x-axis and one on the y-axis to assess the strength and direction of the relationship.

2 In an experiment the researcher manipulates the IV and records the effect on the DV. In a correlation there is no manipulation of variables and so cause and effect cannot be demonstrated. In a correlation, it may be that a third 'untested' variable is causing the relationship between the co-variables (called an intervening variable).

3 Correlations are a useful starting point for research. By assessing the strength and direction of a relationship, correlations provide a precise measure of how two variables are related. If variables are strongly related it may suggest hypotheses for future research.

Correlations are often presented as causal, e.g. by the media, when they only show how two variables are related. There may be intervening variables that explain the relationship.

P117

1 A naturalistic observation takes place where the target behaviour would normally occur, such as a school canteen. A controlled observation takes place in a controlled setting (possibly a lab) and there may be some manipulation of variables and control of EVs.

2 A covert observation is when participants are unaware they are being studied and informed consent for their participation has not been obtained. This is seen as ethical if the behaviour the participants are engaged in is 'public' and does not invade their privacy.

3 Participant observations can lead to greater insight. The researcher experiences the situation as the participants do and this may enhance the validity of the findings. However, there may be a possible loss of objectivity. The researcher may identify too strongly with those they are studying ('going native') and this may threaten the validity of the findings.

P119

1 Any method in which a person is asked to state or explain their own feelings, opinions, behaviours and/or experiences related to a given topic, as in questionnaires and interviews.

2 In an unstructured interview there are no set questions. There is a general topic to be discussed but the interaction is free-flowing and the interviewee is encouraged to elaborate.

3 Structured interviews are easy to replicate because of the standardised format. This also reduces differences between interviewers. However, interviewees cannot elaborate their answers or deviate from the central topic, and this may be a source of frustration for some.

4 The data produced in a questionnaire is likely to be easier to analyse than that produced in an interview. Statistical data can be generated to produce graphs and charts for comparison, which makes conclusions easy to draw. However, respondents may often be restricted to a choice of answers that may not be representative of their true feelings on a topic. This may reduce the validity of the findings.

1 A pilot study is a small-scale trial run of a research design before doing the real thing. The aim of piloting is to find out if certain things don't work so you can correct them before spending time and money on the full investigation.

P120

1 Qualitative data is non-numerical data expressed in words, e.g. an extract from someone's diary.

2 Secondary data can be inexpensive because the desired information may already exist. For this reason it often requires minimal effort on the part of the researcher, reducing costs. However, the quality of the data may be poor. Information may be outdated or incomplete and this challenges the validity of any conclusions drawn.

3 If a meta-analysis of all the available studies on the genetic basis of schizophrenia is conducted, the eventual sample size is much larger than the samples of individual investigations. This increases the validity of the conclusions and increases the extent to which generalisations can be made. However, publication bias may occur. Researchers may not select all relevant studies, leaving out negative or nonsignificant results. Data may be biased because it only represents some of the data and incorrect conclusions are drawn. A researcher who thinks that schizophrenia has a genetic bias may leave out studies that do not confirm this view.

P121

1 The general term for any measure of the average value in a set of data, usually the mean, median or mode.

2 The mean is the arithmetic average; add up all the scores and divide by the number of scores.

3 The standard deviation is more precise than the range as it includes all values within the calculation. It therefore gives a more accurate picture of the overall distribution of the data set.
However, the SD may be misleading and may 'hide' some of the characteristics of the data set.
Extreme values may not be revealed, unlike with the range.

P122

1 Used for correlational analysis to show the strength and direction of the relationship between co-variables. Each dot represents one pair of related data. The data on both axes must be continuous.

2 A normal distribution produces a symmetrical, bell-shaped curve. Most people are in the middle area of the curve with very few at the extreme ends. The mean, median and mode all occupy the same mid-point of the curve – and this would be 100 on a normal distribution of IQ scores.

3 In a normal distribution, most people are in the middle area of the curve with very few at the extreme ends. The mean, median and mode all occupy the same mid-point of the curve – and this would be 100 on a normal distribution of IQ scores. Skewed distributions are distributions that lean to one side or the other because most people are either at the lower or upper end of the distribution – perhaps due to having sat a very difficult or easy test.

P123

1 (a) 70%
(b) 0.7
(c) 7/10

2 3.142

P124

1 Testing for difference; related design (repeated measures or matched pairs); nominal data.

2 The significance level (usually 0.05 or 5%).
The number of participants in the investigation (the N value) or the degrees of freedom (df).
Whether the hypothesis is directional or non-directional (one-tailed or two-tailed test).

3 If S is equal to or less than critical value, then S is significant and the experimental hypothesis is retained.

P125

1 Before publication, all aspects of the investigation are scrutinised by experts (‘peers’) in the field. These experts should be objective and unknown to the researcher.

2 One aim is to determine the allocation of research funding. This may be co-ordinated by government-run funding organisations who have a vested interest in establishing which research projects are most worthwhile.

Another aim is to validate the quality and relevance of research in order to suggest improvements or amendments. In some cases, reviewers may suggest that the work is inappropriate and should be withdrawn.

3 Peer review protects the quality of published research by minimising the possibility of fraudulent research. This preserves the reputation of psychology as a science and increases the credibility and status of the subject. However, it may be used to criticise rival research. A minority of reviewers may use their anonymous status to criticise rival researchers. Often there is competition for limited research funding so this may be an issue.
A final issue is publication bias. There may be a tendency for editors of journals to want to publish 'headline grabbing' findings. Research that does not meet this criterion may be ignored or disregarded.

P125

1 Recent research has stressed the importance of multiple attachments and the role of the father in healthy psychological development. This may promote more flexible working arrangements in the family so that modern parents are better equipped to contribute more effectively to the economy.
Psychological research into the causes and treatments of mental disorders means that patients have their condition diagnosed quickly allowing patients access to therapies or psychotherapeutic drugs, such as SSRIs. Sufferers can manage their condition effectively, return to work and contribute to the economy.

7/11/16