

## AQA Psychology for A Level Year 1 & AS Revision Guide 2nd Edition

### 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.

#### Chapter 1 Social influence

##### Page 11

1. Asch's research tells us that people conform because of group size. The larger the group of confederates, the more likely participants were to conform.

Asch's research also tells us that people conform because of unanimity. When all the other group members agreed on the same wrong answer, participants were more likely to conform.

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. Conformity reduced to less than 25% of the level it was when the majority was unanimous.

*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 the situation and task were artificial. Participants knew they were in a research study (demand characteristics). The task was trivial and there was no reason *not* to conform. Also, Fiske (2014) argued 'Asch's groups were not very groupy' (not like real-life groups). This means the findings do not generalise to everyday life (especially those situations where the consequences of conformity are important).

Another limitation is that Asch's findings have little application. Only American 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). Also the USA is an individualist culture and studies in collectivist cultures (e.g. China) have found higher conformity rates (Bond and Smith 1996). This means Asch's findings tell us little about conformity in women and people from some cultures.

4. Asch recruited 123 American male students. Each was tested individually in a group of between six and eight people and, unknown to the genuine participant, all other members of the group were 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. This suggests that participants were conforming due to *normative social influence* – they knew the answer was wrong but also gave the wrong answer to receive social approval.

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One strength is other evidence to support Asch's findings. Lucas *et al.* (2006) asked participants to solve 'easy' and 'hard' maths problems. Participants were given answers that (falsely) claimed to be from three other students. The participants conformed more often (agreed with the wrong answers) when the problems were harder. This shows Asch was correct that task difficulty is one variable affecting conformity.

### Page 13

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 a group we value so we publicly 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. Informational social influence (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.

Normative social influence (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 strength is research support for ISI. Lucas *et al.* (2006) found participants conformed more

to incorrect answers when maths problems were difficult (with easy problems, participants ‘knew their own minds’). For hard problems the situation was ambiguous (unclear) so they relied on the answers they were given. This supports ISI because the results are what ISI would predict.

One limitation is individual differences in NSI. Some people are concerned about being liked by others – *nAffiliators* who have a strong need for ‘affiliation’ (need to relate to other people). McGhee and Teevan (1967) found that students who were *nAffiliators* were more likely to conform. This shows NSI underlies conformity for some people more than for others – an individual difference not explained by a theory of situational pressures.

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Normative social influence (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 is research support for ISI. Lucas *et al.* (2006) found participants conformed more to incorrect answers when maths problems were difficult (with easy problems, participants ‘knew their own minds’). For hard problems the situation was ambiguous (unclear) so they relied on the answers they were given. This supports ISI because the results are what ISI would predict.

However, it is unclear if NSI or ISI operate in studies and real life. A dissenter may reduce the power of NSI (social support) or reduce the power of ISI (alternative source). Therefore ISI and NSI are hard to separate and operate together in most real-world situations.

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## Page 15

1. Zimbardo and his colleagues (1973) set up a mock prison in the basement of the psychology department at Stanford University. They recruited 21 ‘emotionally stable’ students (determined by psychological testing) and randomly allocated each to the role of guard or prisoner. 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 six days.

2. The Stanford Prison experiment reminds us that social roles are powerful influences on behaviour – most participants conformed strongly to their role. Guards became brutal, prisoners became submissive. Other volunteers also easily conformed to their roles in the prison (e.g. the ‘chaplain’). This suggests that people will conform to the norms and expectations associated with particular social roles.

3. One limitation is that the SPE lacked the realism of a true prison. 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. This suggests the SPE tells us little about conformity to social roles in actual prisons.

Another limitation is that Zimbardo exaggerated the power of roles. The power of social roles to influence behaviour may have been exaggerated in the SPE (Fromm 1973). 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. This suggests the SPE overstates the view that the guards were conforming to a brutal role and minimised dispositional influences (e.g. personality).

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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).

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One strength of the SPE is the control over key variables. Emotionally-stable participants were recruited and randomly allocated the roles of guard or prisoner. The guards and prisoners had those roles only by chance. So their behaviour was due to the role itself and not their personalities. This

control increased the study's internal validity, so we have more confidence in drawing conclusions about the effect of social roles on conformity.

## Page 17

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 was 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, and 65% continued to 450 volts (the highest level). 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'. Milgram's research shows how we obey legitimate authority even if that means that our behaviour causes harm to someone else.

3. One limitation is that Milgram's study lacked internal validity. Orne and Holland (1968) argued that participants guessed the electric shocks were fake. So they were 'play-acting'. This was supported by Perry's discovery that only half of the participants believed the shocks were real. This suggests that participants may have been responding to demand characteristics.

Another limitation is that the findings are not due to blind obedience. Haslam *et al.* (2014) found that every participant given the first three prods obeyed the Experimenter, but those given the fourth prod disobeyed. According to social identity theory, the first three prods required identification with the science of the research but the fourth prod required blind obedience. This shows that the findings are best explained in terms of identification with scientific aims and not as blind obedience to authority.

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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. This suggests the obedience in

Milgram's study might be genuine.

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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. A strength is cross-cultural replication of Milgram's research. Meeus and Raaijmakers (1986) worked with Dutch participants, who were ordered to say stressful comments to interviewees. They found 90% obedience, and obedience fell when proximity decreased (person giving orders not present). This shows that Milgram's findings are not limited to American males but are valid across cultures.

However, Smith and Bond (1998) note that most replications have taken place in Western societies (e.g. Spain, Australia), culturally not that different from the USA. Therefore we cannot conclude that Milgram's findings about proximity, location and uniform apply to people in all (or most) cultures.

One limitation is low internal validity in the studies. Orne and Holland (1968) suggested the variations (compared to baseline study) were even more likely to trigger suspicion 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. Therefore it is unclear whether the results are due to obedience or because the participants saw the deception and 'play-acted' (i.e. were influenced by demand characteristics).

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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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## Page 21

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. Most of Milgram's participants asked the 'Experimenter', 'Who is responsible if Mr Wallace (the Learner) is harmed?' When the Experimenter replied 'I'm responsible' the participants went through the procedure quickly without objecting. This shows participants acted more easily as an agent when they believed they were not responsible for their behaviour which supports the 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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One strength is that the agentic state explanation has research support. Most of Milgram's participants asked the 'Experimenter', 'Who is responsible if Mr Wallace (the Learner) is harmed?' When the Experimenter replied 'I'm responsible' the participants went through the procedure quickly without objecting. This shows participants acted more easily as an agent when they believed they were not responsible for their behaviour.

One limitation is the agentic shift doesn't explain many research findings. For example, Rank and Jacobson (1977) found that most nurses disobeyed a doctor's order to give an excessive drug dose. The doctor was an authority figure but the nurses remained autonomous and did not shift into an agentic state. The same is true for some of Milgram's participants. This shows that agentic shift can only explain obedience in some situations.

The men of Battalion 101 did not have direct orders to shoot civilians in a Polish town (Mandel 1998). Even so, they did perform the massacre, behaving autonomously. This suggests that the agentic shift is not required for destructive behaviour.

One strength is legitimacy can explain cultural differences. Research shows that countries differ in obedience to authority. For example, 16% of Australian women obeyed (Kilham and Mann 1974), and 85% of German participants did (Mantell 1971). This shows that authority is more likely to be seen as legitimate in some cultures, reflecting upbringing.

## Page 23

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) believed that unquestioning obedience is a psychological disorder, and tried to find its causes in the individual's personality. Adorno *et al.* concluded that people with an Authoritarian Personality are especially obedient to authority. They have exaggerated respect for authority and submissiveness to it. They express contempt for people of inferior social status. Authoritarians tend to follow orders and view 'other' groups as responsible for society's ills. 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 weaker – this is scapegoating. This is psychodynamic explanation.

3. One strength is evidence that authoritarians are obedient. Elms and Milgram (1966) interviewed 20 fully obedient participants from Milgram's original obedience studies. They scored significantly higher on the F-scale than a comparison group of 20 disobedient participants. This suggests that obedient people may share many of the characteristics of people with an Authoritarian Personality.

However, subscales of the F-scale showed that obedient participants had characteristics that were unusual for authoritarians. For example they did not experience high levels of punishment in childhood. This suggests a complex link and means that authoritarianism is not a useful predictor of obedience.

One limitation is authoritarianism can't explain a whole country's behaviour. Millions of individuals in Germany displayed obedient and anti-Semitic behaviour – but can't all have had the same personality. It seems unlikely the majority of Germany's population had an Authoritarian Personality. A more likely explanation is that Germans identified with the Nazi state. Therefore social identity theory may be a better explanation.

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, and this is known as scapegoating.

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## Page 25

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.

3. Rotter (1982) pointed out that LOC only significantly influences behaviour in new situations. In familiar situations, our previous responses are always more important. Therefore, the validity of the LOC explanation is limited because it can predict resistance in some situations but not in others.

4. 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.

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.

A strength is evidence for the role of support for dissenting peers. Gamson *et al.*'s (1982) groups asked to give evidence for an oil company to use in a smear campaign. 29 out of 33 groups (88%) rebelled against orders, much higher than in Milgram's studies. This shows how supporters can undermine legitimacy of authority and reduce obedience.

A strength is evidence to support the role of LOC in resisting 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 greater resistance). Only 23% of externals did not continue. Therefore resistance partly related to LOC, increasing the validity of this explanation of disobedience.

A limitation is not all research supports the role of LOC in resistance. Twenge *et al.* (2004)

analysed data from American locus of control studies over 40 years (1960 to 2002), showing that people have become more independent but also more external. This is surprising – if resistance was linked to internal LOC we would expect people to have become more internal. Therefore LOC may not be a valid explanation of resistance to social influence.

## Page 27

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 *et al.* (1969): A group of six people (four participants and two confederates) viewed a set of 36 blue-coloured slides varying in intensity, then stated whether the slides were blue or green.

The study had three conditions:

1. Both confederates consistently said the slides were green.
2. Both confederates were inconsistent about the colour of the slides (they said green for 24 slides and blue for 12).
3. A control group – with no confederates.

Consistent minority condition: participants gave the same wrong answer on 8.42% of trials; 32% gave the same wrong answer on at least one trial.

Inconsistent minority condition: agreement fell to 1.25%.

Control group: participants wrongly identified the 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's 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 counterarguments.

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 Moscovici *et al.*'s (1969) study in which a consistent minority persuaded a majority to 'see' blue slides as green. Commitment shows deep involvement and helps gain attention as activities create some risk to the minority which demonstrates their 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 involves the minority adapting their point of view and accepting reasonable counterarguments rather than repeating the same arguments and behaviours, which is seen as rigid and off-putting to the majority.

One strength is research supporting consistency. Moscovici *et al.* (1969) found a consistent minority opinion had a greater effect on other people than an inconsistent opinion. Wood *et al.* (1994) conducted a meta-analysis of almost 100 similar studies and found that minorities seen as being consistent were most influential. This confirms that consistency is a major factor in minority influence.

Another strength is research showing role of deeper processing. Martin *et al.* (2003) gave participants a message supporting a particular viewpoint, and measured attitudes. Then they heard an endorsement of view from either a minority or a majority. Finally they heard a conflicting view and their attitudes were measured again. Participants 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.

However, in research studies (e.g. Martin *et al.*) majority/minority groups were distinguished in terms of numbers. But there is more to majorities/minorities than just numbers (e.g. power, status, commitment). This means research studies are limited in what they tell us about real-world minority influence.

## Page 29

1. 'Social change' 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. A strength is that minority influence explains social change. Nemeth (2009) says that minority arguments cause people to engage in divergent thinking (broad, active information search, more options). This thinking leads to better decisions and creative solutions to social problems. This shows that minorities are valuable because they stimulate new ideas and open people's minds.

A limitation is deeper processing may apply to majority influence. Mackie (1987) disagrees with the view that minority influence causes individuals in the majority to think deeply about an issue. Majority influence creates deeper processing because we believe others think as we do. When a majority thinks differently, this creates pressure to think about their views. Therefore, a central element of minority influence has been challenged, casting doubt on its validity as an explanation of social change.

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 *et al.*'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.

One strength is research support for the 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. They found significant decreases in energy use compared to the 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.

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## Chapter 2 Memory

### Page 31

1. Short-term memory is a temporary memory store with a duration of around 18 seconds and a capacity of  $7 \pm 2$  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 from for 3, 6, 9, 12, 15 or 18 seconds. Accurate recall of the syllable was recorded for each different time period.
3. Peterson and Peterson (1959) found that after 3 seconds of counting backwards average recall was about 80%. After 18 seconds it was about 3%. STM duration without rehearsal is up to 18 seconds.
4. Coding in STM is acoustic which means sound-based (as in the rehearsal loop in STM). Coding in LTM is semantic which is based on meaning (so the most meaningful information will be stored the longest).
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 relies on a semantic code.

Jacobs (1887) tested the capacity of STM using the digit span technique. The researcher read four digits and increased the number until the participant could no longer 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.

Peterson and Peterson (1959) tested the duration of STM using recall of consonant syllables. 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%. This suggests that duration of STM without rehearsal is up to 18 seconds.

One limitation of Baddeley's study is that it used artificial stimuli. The words used had no personal meaning to the participants so the study tells us little about coding for everyday memory tasks. When processing more meaningful information, people use semantic coding even for STM. This means the findings of this study have limited application.

One strength of Jacobs' study is that it has been replicated. This is an old study and may have lacked adequate controls (confounding variables e.g. participants being distracted). Despite this, Jacobs' findings have been confirmed in later controlled studies (e.g. Bopp and Verhaeghen 2005). This shows that Jacobs' study is a valid measure of STM digit span.

One limitation of Peterson and Peterson's study is the meaningless stimuli. We sometimes try to recall meaningless things so the study is not completely irrelevant. But recall of consonant syllables does not reflect meaningful everyday memory tasks. Therefore the study lacked external validity.

### Page 33

1. The 'sensory register' (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. we have over one hundred million cells in one eye, each storing data.
2. The multi-store model of memory (MSM) describes how information flows through the memory system. Memory is made up of three stores linked by processing. The sensory register (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. If attention is paid to information in the SR, this transfers to short-term memory (STM). The duration of STM is about 18 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 (LTM) – 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. One limitation is evidence suggesting there is more than one STM store. KF had amnesia (Shallice and Warrington 1970), and his STM recall for digits was poor when he *heard* them, but much better when he *read* them. Other studies confirm there may also be a separate STM store for non-verbal sounds (e.g. noises). Therefore the MSM is wrong to claim there is just one STM store processing different types of information.

Another limitation is prolonged rehearsal is not needed for STM to LTM transfer. Craik and Watkins (1973) argued there are two types of rehearsal called maintenance and elaborative. Maintenance (amount of rehearsal) is the one described in the MSM. But elaborative rehearsal is needed for long-term storage. This occurs e.g. when you link information to your existing knowledge, or think about its meaning. This suggests that the MSM does not fully explain how long-term storage is achieved.

4. The multi-store model of memory (MSM) describes how information flows through the memory system. Memory is made up of three stores linked by processing. The sensory register (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. If attention is paid to information in the SR, this transfers to short-term memory (STM). The duration of STM is about 18 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 (LTM) – 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.

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### Page 35

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.

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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.

One strength is case study evidence of different types of LTM. Clinical studies of amnesia (HM and Clive Wearing) showed both had difficulty recalling events that had happened to them in their pasts (episodic memory). But their semantic memories were relatively unaffected (e.g. HM did not need the concept of 'dog' explained to him). Procedural memories were also intact (e.g. Clive Wearing still played the piano). This supports the view that there are different memory stores in LTM because one store can be damaged but other stores are unaffected.

However, researchers lack control in clinical case studies – they do not know anything about the person's memory before brain damage. Therefore clinical studies are limited in what they can tell us about different types of LTM.

One limitation is conflicting findings about types of LTM and brain areas. Buckner and Petersen (1996) reviewed research findings and concluded that semantic memory is located in the left prefrontal cortex and episodic in the right prefrontal cortex. But other studies (e.g. Tulving *et al.* 1994) have found that semantic memory was associated with the right prefrontal cortex and the reverse for episodic memory. This challenges any neurophysiological evidence to support types of memory as there is poor agreement on where each type might be located.

Another strength is helping people with memory problems. Memory loss in old age is specific to episodic memory – it is harder to recall memories of recent experiences although past episodic memories are intact. Belleville *et al.* (2006) devised an intervention for older people targeting episodic memory, which improved their memory compared to a control group. This shows that distinguishing between types of LTM enables specific treatments to be developed.

## Page 37

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, the working memory model (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. One strength is that dual task performance studies support the VSS. Baddeley *et al.*'s (1975) participants found it harder to carry out two visual tasks at the same time than do a verbal and a visual task together. (They found the same for two verbal tasks.) This is because both visual tasks compete for the same subsystem (VSS). There is no competition with a verbal and visual task. Therefore there must be a separate slave system that processes visual input (VSS) and also a separate system for verbal processes (PL).

One limitation is a lack of clarity over the central executive. Baddeley (2003) said the CE was the most important but the least understood component of working memory. There must be more to the CE than just being 'attention' e.g. it is made up of separate subcomponents. Therefore the CE is an unsatisfactory component and this challenges the integrity of the model.

4. Working memory is an explanation of how STM is organised and how it functions. For example, the working memory model (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.

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Another strength of the model is support from clinical evidence. For example, Shallice and Warrington (1970) studied patient KF who had a brain injury. His STM for auditory information was poor (damaged PL) but he could process visual information normally (intact VSS). This supports the WMM view that there are separate visual and acoustic memory stores.

## Page 39

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 students in her current class.

3. One limitation of the interference explanation for forgetting is that interference effects may be overcome using cues. Tulving and Psootka (1971) gave participants lists of words organized into categories (they were not told what the categories were). Recall of the first list was 70% but fell with each new list (showing proactive interference). However, when given a cued recall test (i.e. participants were told the names of categories) recall rose again to 70%. This shows that interference causes just a temporary loss of access to material still in LTM – and this is not predicted by the theory.

4. 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 (PI) 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 (RI) 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.

One strength is some support for interference in real-world situations. Baddeley and Hitch (1977) asked rugby players to recall the names of teams they had played against during a rugby season. Players did not play the same number of games (due to injuries). Those who played most (more interference) had the poorest recall. This shows that interference operates in some everyday situations, increasing the validity of the theory.

However, interference in everyday situations is unusual because the necessary conditions are relatively rare e.g. similarity of memories/learning does not occur often. Therefore most everyday forgetting may be better explained by other theories (e.g. retrieval failure due to lack of cues).

One limitation is that interference effects may be overcome using cues. Tulving and Psootka (1971) gave participants lists of words organized into categories (they were not told what the categories were). Recall of the first list was 70% but fell with each new list (showing proactive interference). However, when given a cued recall test (i.e. participants were told the names of categories) recall rose again to 70%. This shows that interference causes just a temporary loss of access to material still in LTM – and this is not predicted by the theory.

Another strength is support from drug studies. Material learned just before taking diazepam was recalled better than a placebo group one week later. This is retrograde facilitation (Coenen and van Luijtelaar 1997). The drug stopped new information reaching brain areas that process memories, so it could not retroactively interfere with stored information (Wixted). This shows that the forgetting is due to interference – reducing the interference reduced the forgetting.

## Page 41

1. An absence 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. One limitation is that context effects vary in recall and recognition. Godden and Baddeley (1980) replicated their underwater experiment using a recognition test instead of recall. There was no context-dependent effect. Findings were the same in all four conditions whether the contexts for learning and recall matched or not. This suggests that retrieval failure is a limited explanation for forgetting because it only applies when a person has to recall information rather than recognise it.

Retrieval failure theory is supported by research showing that forgetting occurs when there is a mismatch (or absence) of cues – the encoding specificity principle (ESP). However, we cannot independently establish whether a cue has really been encoded or not – so the argument for the role of cues is circular. Therefore, the ESP is not scientifically testable, so we cannot be certain that forgetting is due to retrieval failure.

4. Lack of cues can cause retrieval failure. When information is initially placed in memory, associated cues are 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*.

A strength is the impressive range of supporting evidence. For example, Godden and Baddeley (divers) and Carter and Cassaday (drugs) show that lack of cues at recall leads to everyday forgetting. In fact, Eysenck and Keane (2010) argue that retrieval failure is perhaps the main reason for forgetting in LTM. This evidence shows that retrieval failure due to lack of cues occurs in everyday life as well as in highly-controlled labs.

However, Baddeley (1997) argues 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. This means that retrieval failure due to lack of contextual cues may not explain much everyday forgetting.

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### Page 43

1. 'Eyewitness testimony' (EWT) 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. 'Misleading information' means 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. One factor is leading questions. 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. 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.

5. 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'.

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' suggesting that leading questions can affect the reliability of EWT.

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.

One strength is real-world applications in the criminal justice system. The consequences of inaccurate EWT are serious. Loftus (1975) argues police officers should be careful in phrasing questions to witnesses because of distorting effects. Psychologists are sometimes expert witnesses in trials and explain limits of EWT to juries. Therefore psychologists can improve how the legal system works and protect the innocent from faulty convictions based on unreliable EWT.

Loftus and Palmer showed film clips – a different experience from a real event (less stress). Participants are also less concerned about the effect of their responses in a lab study (Foster *et al.* 1994). Therefore researchers may be too pessimistic about the effects of misleading information – EWT may be more reliable than studies suggest.

One limitation of the substitution explanation is evidence challenging it. Sutherland and Hayne (2001) found their participants recalled central details of an event better than peripheral ones, even when asked misleading questions. This is presumably because their attention was focused on the central features and these memories were relatively resistant to misleading information. Therefore the original memory of the event survived and was not distorted, which is not predicted by the substitution explanation.

## Page 45

1. Anxiety refers to an increase in physiological arousal/stress which can have both a positive and negative effect on the recall of an event. Anxiety may be particularly acute if there is a weapon involved – ‘weapon focus’.
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’s (1976) study 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 five 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.

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One limitation is that anxiety may not be relevant to weapon focus. Johnson and Scott’s participants may have focused on the weapon not because they were anxious but because they were surprised. Pickel (1998) found accuracy in identifying the ‘criminal’ was poorest when the object in their hand was unexpected e.g. raw chicken and a gun in a hairdressers (both unusual). This suggests the weapons effect is due to unusualness rather than anxiety/threat and so tells us nothing about the specific effects of anxiety on recall.

One strength is supporting evidence for negative effects. Valentine and Mesout (2009) used heart rate (objective measure) to divide visitors to the London Dungeon's Labyrinth into low- and high-anxiety groups. High-anxiety participants were less accurate than low-anxiety participants in describing and identifying a target person. This supports the claim that anxiety has a negative effect on immediate eyewitness recall of a stressful event.

Another strength is supporting evidence for positive effects. Christianson and Hübner (1993) interviewed actual witnesses to bank robberies – some were direct victims (high anxiety) and others were bystanders (less anxiety). They found more than 75% accurate recall across all witnesses. Direct victims (most anxious) were even more accurate. This suggests that anxiety does not affect the accuracy of eyewitness recall and may even enhance it.

## Page 47

1. The 'cognitive interview' is 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 eyewitness testimony (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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4. To improve the accuracy of eyewitness testimony (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.

One strength is research support for the effectiveness of the CI. A meta-analysis by Köhnken *et al.* (1999) combined data from 55 studies comparing CI (and ECI) with the standard police interview. The CI produced an average of 41% more correct information than the standard interview. Only four studies showed no difference. This shows that the CI is effective in helping witnesses recall information that is available but not accessible.

However, Köhnken *et al.* also found increases in the amount of inaccurate information, especially in the ECI (quantity over quality). Therefore police officers need to be very careful about how they treat eyewitness evidence from CIs/ECIs.

One limitation is that some elements of the CI are more useful than others. Milne and Bull (2002) found that each individual technique of the CI alone produced more information than the standard police interview. But they also found that combining report everything and reinstate the context produced better recall than any other technique individually or combined. This casts doubt on the credibility of the overall CI because some of the techniques are less effective than the others.

Another limitation of the CI is that it is time-consuming. Police are reluctant to use the CI because it takes more time than the standard police interview (e.g. to establish rapport and allow the witness to relax). The CI also requires special training but many forces do not have the resources to provide more than a few hours' training (Kebbell and Wagstaff 1997). This suggests that the complete CI is not realistic for police officers to use and it might be better to focus on just a few key elements.

## Chapter 3 Attachment

### Page 49

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. One strength of the research into caregiver–infant interaction is the use of filmed observations. Mother–baby 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 observational research). This means the studies have good reliability and validity.

One limitation for the research is the difficulty in observing babies. It is hard to observe babies' behaviour because they are not very co-ordinated. We just observe small gestures and small changes in expression. It is also hard to interpret the meaning of babies' movements, e.g. deciding if a hand movement is a response to the caregiver or a random twitch. This means we cannot be certain that any particular interactions observed between baby and caregiver are meaningful.

3. Isabella *et al.* (1989) observed 30 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). Meltzoff 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 Eidelman 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 30 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. Brazelton *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.

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Another limitation is difficulty inferring developmental importance. Feldman (2012) points out that synchrony (and 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 useful as it does not tell us their purpose. This means that we cannot be certain from observations that reciprocity or synchrony are important in development.

There is some evidence from other sources, e.g. Isabella *et al.* (1989), to suggest that good levels of reciprocity and synchrony are associated with good quality attachments. This means that, on balance, these early interactions are likely to have importance for development.

## Page 51

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. Baby is said to have formed a specific attachment with the *primary attachment figure*. This is the biological mother in 65% of cases.

In the multiple attachments stage (one year), *secondary 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. A strength is real-world application to day care. In the early stages (asocial and indiscriminate attachments) babies can be comforted by any skilled adult. But if a child starts day care later, during the stage of specific attachments, care from an unfamiliar adult may cause distress and longer-term problems. This means that Schaffer and Emerson's stages can help parents making day care decisions.

A limitation is poor evidence for the asocial stage. Because of their stage of physical development young babies have poor co-ordination and are fairly immobile. This makes it difficult for mothers to accurately report signs of anxiety and attachment for this age group. This means the babies might actually be quite social but, because of flawed methods, they appear to be asocial.

4. Schaffer and Emerson's (1964) study showed that babies developed attachments through a sequence of stages, from asocial through to a specific attachment to multiple attachments. The specific attachment tended to be to the person who was most interactive and sensitive to babies' signals and facial expressions (i.e. reciprocity). This was not necessarily the person the baby spent most time with. Within a month of forming a specific attachment, 29% of babies had secondary (multiple) attachments. By the age of one year, the majority of infants had multiple attachments.

5. 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.

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day care decisions.

Schaffer and Emerson based their stages on a single but large-scale study of babies' development conducted in working-class Glasgow. However, child-rearing practices vary considerably according to cultural and historical context e.g. multiple attachments is the norm in collectivist cultures (van IJzendoorn 1993). This means that some of the observations from this study may not generalise to other populations.

6. 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.

A strength of Schaffer and Emerson's 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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### Page 53

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 Grossmann *et al.*'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 the father was 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 the babies then formed secondary attachments to other family members, including the father.

Grossmann *et al.* (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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One limitation is confusion over 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 means psychologists cannot easily answer the simple question: what is the role of the father?

Another limitation is conflicting evidence from different methodologies. Grossmann *et al.* (2002) suggest fathers have a distinct role in children's development, involving play and stimulation. However, McCallum and Golombok (2004) found that children without a father do not develop differently. This means the question of whether fathers have a distinctive role remains unanswered.

However, these findings may not be in conflict. Fathers may typically take on particular roles in two-parent heterosexual families. Other family structures adapt to not having fathers. This means that findings may be clear after all – there may be a distinctive role for fathers when present, but families adapt to not having one.

## Page 55

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 'mother'. 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 noisy mechanical teddy bear to the environment.

Baby monkeys cuddled the cloth-covered mother 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-covered mother when frightened. As adults, the monkeys who 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 a large clutch of goose eggs, allowing half the clutch to be hatched with the mother goose in their natural environment and the other half were 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.

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3. One strength of Lorenz's research is support for the concept of imprinting. Regolin and Vallortigara (1995) exposed chicks to simple shape combinations that moved. When shown a range of moving shapes the chicks followed these in preference to other shapes. This suggests that young animals are born with an innate mechanism to imprint on a moving object.

One limitation is generalising from birds to humans. The mammalian attachment system is quite different from imprinting in birds. For example, mammalian mothers show more emotional attachment to their young. This means that it may not be appropriate to generalise Lorenz's ideas about imprinting to humans.

4. Lorenz (1952) randomly divided a large clutch of 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 and 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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One strength is that Harlow's research has real-world value. It has helped social workers understand risk factors in child abuse and thus intervene to prevent it (Howe 1998). We also now understand the importance of attachment figures for baby monkeys in zoos and breeding

programmes. This means that Harlow's research has benefitted both animals and humans.

## Page 57

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. One limitation of learning theory is counter-evidence from animal studies. Lorenz's geese imprinted on the first moving object they saw. Harlow's monkeys attached to a soft surrogate in preference to a wire one with milk. In both these animal studies, imprinting/attachment did not develop as a result of feeding. This shows that factors other than feeding are important in attachment formation.

Another limitation is counter-evidence from human studies. Schaffer and Emerson (1964) showed that for many babies their main attachment was not to the person who fed them. Also, Isabella *et al.* (1989) found that interactional synchrony (unrelated to feeding) predicted attachment quality. This again suggests that other factors are more important in attachment formation than feeding.

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One strength is that some elements of conditioning could still be involved. It seems unlikely that association with food is central to attachment. However, conditioning may still play some role in attachment. For example a baby's choice of primary attachment figure may be determined by the fact that a caregiver becomes associated with warmth and comfort. This means that conditioning could still be important in choice of attachment figures, though not the process of attachment formation.

## Page 59

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. One limitation is that the concept of monotropy lacks validity. The relationship with the primary attachment figure may simply be stronger than other attachments, rather than different in quality, as Bowlby believed. Other family members may well develop attachments with the baby that have the same qualities, such as comfort and a secure base from which to explore. This means that Bowlby may have been wrong to suggest that there is a unique quality to a child's primary attachment.

One strength is evidence supporting the role of social releasers. Brazelton *et al.* (1975) instructed primary attachment figures to ignore their babies' social releasers. Babies (who were previously

shown to be normally responsive) initially showed some distress, but eventually some curled up and lay motionless. This supports the idea that social releasers play an important role in attachment development.

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Another strength is support for the idea of the internal working model. The idea of the internal working model 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.

However, there are other influences on social development. For example a baby’s genetically-influenced personality is important in the development of social behaviour, including their later parenting style. This suggests that Bowlby overemphasised the importance of the internal working model in development.

## Page 61

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

Insecure–avoidant – the baby explores freely but does not seek proximity (no secure base). The

baby shows little/no separation and stranger anxiety.

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

2. Insecure–avoidant babies show little or no anxiety when separated from their caregiver or when left alone with the stranger. However, insecure–resistant babies show considerable separation anxiety and stranger anxiety.

3. Ainsworth (1969) developed the Strange Situation as a way of assessing the quality of a baby'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 a stranger entering and trying to interact with the baby and the caregiver leaving the baby on its own with the stranger. The baby's response to the stranger, being left alone (with and without the stranger), and reunion with the mother is observed. On the basis of the baby's behaviour they are judged to be one of three attachment types: secure, insecure–avoidant and insecure–resistant.

4. One strength is the Strange Situation has good predictive validity. Attachment type predicts later development. For example, secure babies typically have greater success at school (McCormick *et al.* 2016). 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 (predict) future outcomes.

Another strength is the Strange Situation has good inter-rater reliability. Different observers watching the same babies 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. This means that we can be confident that the attachment type of a baby identified in the Strange Situation does not just depend on who is observing them.

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

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Although the Strange Situation measures something that predicts later development, it may be measuring genetic differences in anxiety (Kagan 1982). This means the Strange Situation may not actually measure attachment.

One limitation is that the Strange Situation may be a culture-bound test. The Strange Situation test might not have the same meaning in countries outside Western Europe and the USA where it was created. Cultural differences in children's experiences mean they respond differently, e.g. Japanese babies show anxiety because they are not used to being left by their caregiver (Takahashi 1986). This means it is difficult to know what the Strange Situation is measuring in some countries/cultures.

### Page 63

1. 'Cultural variations' in attachment 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).

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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%.

4. 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).

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%.

One strength of the studies is the use of indigenous researchers. Indigenous researchers are those from the same cultural background as the participants, e.g. Grossmann *et al.* (1981) – Germans working with German participants. Using indigenous researchers aids communication between researchers and participants and helps prevent misunderstandings e.g. of instructions. This means that there is an excellent chance that researchers and participants communicated successfully, increasing the validity of the study.

However, this has not been true of all cross-cultural attachment research, e.g. Americans Morelli and Tronick (1991) investigated the Efé in Zaire. This means that some cross-cultural attachment research may have communication errors and hence lacks validity.

One limitation is the impact of confounding variables. Studies conducted in different countries may not be matched for sample characteristics, e.g. studies in different countries may use children of different ages and social classes. Environmental variables may also differ, e.g. using smaller rooms which might encourage babies to explore more. This means that studies assessing attachment types carried out in different countries may tell us little about cultural differences in attachment.

## Page 65

1. 'Maternal deprivation' refers to 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 2½ years, then psychological damage is inevitable. For instance, the child will show mental retardation and an 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. One strength is there is some evidence from studies to support the theory of maternal deprivation. For example, Lévy *et al.* (2003) found that separating baby rats for one day had a permanent effect on their social development. This means that there is now some evidence for the theory of maternal deprivation.

A limitation is that Bowlby confused deprivation and privation. Rutter (1981) made the distinction between deprivation (separation from an attachment figure) and privation (failure to form an attachment) and concluded that privation has more serious effects. The children who Bowlby studied (e.g. the 44 thieves), and others he based his ideas on (e.g. Goldfarb's wartime orphans) may have been 'prived' rather than deprived. This means that Bowlby probably exaggerated the effects of deprivation on development.

4. 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 2½ years – 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 show 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.

One limitation is that sources of evidence for maternal deprivation are flawed. The 44 thieves study is flawed because it was open to bias – Bowlby himself assessed both deprivation and psychopathy, knowing what he hoped to find. Also, Goldfarb's (1943) study of wartime orphans is flawed because he used traumatised participants who lacked good aftercare. This introduced confounding variables. This means that Bowlby originally had no solid evidence on which to base his theory of maternal deprivation.

However, there is some evidence from newer studies to support the theory of maternal deprivation. For example, Lévy *et al.* (2003) found that separating baby rats for one day had a permanent effect on their social development. This means that there is now some evidence for the theory of maternal deprivation after all.

Another limitation is that Bowlby confused deprivation and privation. Rutter (1981) made the distinction between deprivation (separation from an attachment figure) and privation (failure to form an attachment) and concluded that privation has more serious effects. The children who Bowlby studied (e.g. the 44 thieves), and others he based his ideas on (e.g. Goldfarb's wartime orphans) may have been 'prived' rather than deprived. This means that Bowlby probably exaggerated the effects of deprivation on development.

## Page 67

1. 'Institutionalisation' is a term used to describe the effects of living in an institution such as 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, 15 and 22–25 years. The study also followed a control group of 52 adopted children from the UK.

Half of the orphans showed delayed intellectual development 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. Studies of institutionalised children have revealed a particular form of attachment type called disinhibited attachment. Such children are equally friendly and affectionate towards people they know well or total strangers. This may be an adaptation to multiple caregivers.

Research has also found damage to intellectual development. Institutionalised children often show signs of intellectual disability. This effect is not as pronounced if the children are adopted before six months of age.

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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 Bowlby's view that there is a *sensitive period* in the development of attachments – a failure to form an attachment before the age of six months (and after the age of 2 years) appears to have long-lasting effects.

One strength of institutionalisation studies is real-world application. 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 means children in institutional care have a chance to develop normal attachments and disinhibited attachment is avoided.

Another strength is fewer confounding variables than other research. There were many orphan studies before the Romanian orphans became available to study. These often involved children who experienced loss or trauma before they were institutionalised. Neglect, abuse and bereavement meant it was hard to observe the effects of institutionalisation in isolation. The children were affected by multiple factors functioning as confounding variables. This means we can be fairly sure that differences in institutionally-cared-for children are the result of this type of care (high internal validity).

However, Romanian orphan studies may have new confounding variables because quality of care was so poor, making it hard to separate effects of institutional care from those of *poor* institutional care. This means that internal validity might not be better than in previous studies after all.

## Page 69

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 babies tend to go on to form the best quality childhood friendships (Kerns 1994). Securely attached children 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).

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: (1) respondents’ current and most important relationship, (2) their general love experiences, (3) their 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.

3. One limitation is possible confounding variables. Some studies do make assessments of infant attachment and follow up children, assessing their later development. However, these studies may be affected by confounding variables. For example parenting style and personality might affect both attachment and later development. This means that we can never be entirely sure that it is infant attachment and not some other factor that is influencing later development.

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). 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).

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.

One strength is strong research support. There are many studies showing a link between infant attachment type and later development, including bullying, success in romantic relationships and parenting. A review by Fearon and Roisman (2017) concluded that infant attachment influenced development in many ways. Disorganised attachment was most predictive e.g. of later mental disorder. This means that insecure attachment appears to convey a disadvantage for children’s development.

However, not all evidence supports the link between infant attachment and later development. For example the Regensburg longitudinal study (Becker-Stoll *et al.* 2008) found no evidence of continuity of attachment type from age 1 to 16 years. This means it is not clear how strongly attachment influences later development.

One limitation is validity issues with retrospective studies. Most studies assess participants’ attachment type in adulthood (not in infancy) using questionnaires or interviews. These rely on honest answers. A further problem is that these studies assess attachment in late childhood or adulthood and assume that it has remained the same since infancy. This means that the measures of attachment may not be valid.

## Chapter 4 Approaches in Psychology

### Page 71

1. Wundt pioneered 'introspection', 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'. For instance, participants were given a ticking metronome and they would report their thoughts, images and sensations, which were then recorded.

One strength is that aspects of Wundt's work are scientific. For instance, he recorded the introspections within a controlled lab environment. He also standardised his procedures so that all participants received the same information and were tested in the same way. Therefore Wundt's research can be considered a forerunner to the later scientific approaches in psychology that were to come.

One limitation is that other aspects of Wundt's research are subjective. Wundt relied on participants self-reporting their 'private' mental processes. Such data is subjective. Participants may also have hidden some of their thoughts. This makes it difficult to establish meaningful 'laws of behaviour', one of the aims of science. Therefore Wundt's early efforts to study the mind were naïve and would not meet the criteria of scientific enquiry.

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 50 years.

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.

### Page 73

1. 'Classical conditioning' is learning through association, how a neutral stimulus (e.g. a bell) can come to elicit a new learned conditioned response (e.g. salivation) through association.
2. Skinner's research involved 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.
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 home by 9pm by being allowed to stay out until 10pm on a weekend 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 by 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.

One strength of behaviourism is that it uses well-controlled research. The approach has focused on the careful measurement of observable behaviour within controlled lab settings. Behaviourists have broken behaviour down into stimulus–response units and studied causal relationships. This suggests that behaviourist experiments have scientific credibility.

However this approach may oversimplify learning and ignore important influences on behaviour (e.g. thought). Other approaches (e.g. social learning and cognitive) incorporate mental processes. This suggests learning is more complex than just what we can observe.

Another strength is behaviourist laws of learning have real-world 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). Successfully used in prisons and psychiatric wards. This increases the value of the behaviourist approach because it has widespread application.

## Page 75

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 young 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 suggests 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.

One strength is SLT emphasises the importance of cognitive factors. 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. This shows that SLT provides a more complete explanation of human learning than the behaviourist approach by recognising the role of mediational processes.

Recent research suggests that observational learning is controlled by mirror neurons in the brain, which allow us to empathise with and imitate other people. This suggests that SLT may make too little reference to the influence of biological factors on social learning.

One limitation is SLT relies too heavily on evidence from contrived 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.

## Page 77

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.

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

The use of inference means cognitive psychology can occasionally be too abstract and theoretical. Also, research often uses artificial stimuli (such as word lists). Therefore, research on cognitive processes may lack external validity and not represent everyday experience.

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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.

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order to infer cognitive processes at work. In addition the two fields of biology and cognitive psychology come together (cognitive neuroscience) to enhance the scientific basis of study. This means that the study of the mind has established a credible, scientific basis.

The use of inference means cognitive psychology can occasionally be too abstract and theoretical. Also, research often uses artificial stimuli (such as word lists). Therefore, research on cognitive processes may lack external validity and not represent everyday experience.

One limitation is that the approach is based on machine reductionism. Although there are similarities between the operations of the human mind and computers (inputs, outputs, central processor, storage systems), the computer analogy has been criticised. For instance, emotion and motivation have been shown to influence accuracy of recall, e.g. in eyewitness accounts. These factors are not considered within the computer analogy. This suggests that machine reductionism may weaken the validity of the cognitive approach.

## Page 79

1. 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.

Behaviour has a genetic and neurochemical basis. Psychological characteristics (e.g. intelligence) are inherited in the same way as physical characteristics such as height or eye colour. Neurochemistry refers to the actions of chemicals in the brain. An imbalance may be a cause of some mental disorders, e.g. underproduction of serotonin in OCD.

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 newborns 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 and neurochemistry.

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Behaviour has a neurochemical basis. Neurochemistry refers to the actions of chemicals in the brain. An imbalance may be a cause of some mental disorders, e.g. underproduction of serotonin in OCD.

Behaviour has a genetic basis. Psychological characteristics (e.g. intelligence) are inherited in the same way as physical characteristics such as height or eye colour. 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.

One strength of the biological approach is its real-world application. Understanding of neurochemical processes in the brain has led to the use of psychoactive drugs to treat serious mental disorders. For example, drugs that treat clinical depression increase levels of the neurotransmitter serotonin at the synapse and reduce depressive symptoms. This means that people with depression are able to manage their condition and live a relatively normal life, rather than being confined to hospital.

However, antidepressant drugs do not work for everyone. Cipriani *et al.* (2018) compared 21 antidepressant drugs and found wide variations in their effectiveness. This challenges the value of the biological approach as it suggests that brain chemistry alone may not account for all cases of depression.

Another strength is the biological approach uses scientific methods. In order to investigate both genetic and neurochemical factors, the biological approach makes use of a range of precise and objective methods. These include scanning techniques (e.g. fMRI), which assess biological processes in ways that are not open to bias. This means that the biological approach is based on objective and reliable data.

## Page 81

1. When a stressor is perceived – for instance, your psychology teacher tells you that 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) governs 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.

## Page 83

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. The cell body (or soma) includes a nucleus which contains the genetic material of the cell. Dendrites are branch-like structures that protrude from the cell body and carry nerve impulses from neighbouring neurons towards the cell body. The 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 a 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.

## Page 85

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. As with any other stage if the child is under- or over-aroused at this stage, fixation will occur.

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 preconscious mind – we may become aware of thoughts 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.

One strength of the psychodynamic approach is it introduced psychotherapy. Freud's psychoanalysis was the first attempt to treat mental disorders psychologically rather than physically. Psychoanalysis claims to help clients deal with everyday problems by providing access to their unconscious, employing techniques such as dream analysis. Therefore psychoanalysis is the forerunner to many modern-day 'talking therapies' (e.g. counselling). The humanistic approach also introduced a form of talking therapy (client-centred therapy), but unlike psychoanalysis, it deals with the concrete problems of everyday life rather than unconscious conflicts.

Although psychoanalysis is claimed successful for clients with mild neuroses, it is inappropriate, even harmful, for more serious mental disorders (such as schizophrenia). Therefore Freudian therapy (and theory) may not apply to mental disorders where a client has lost touch with reality.

Another strength is the psychodynamic approach has explanatory power. Freud's theory is controversial and often bizarre, but 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. This suggests that, overall, the psychodynamic approach has had a positive influence on psychology and modern-day thinking. This contrasts with the humanistic approach which has been described as a loose set of abstract concepts and has had limited application in psychology and society as a whole.

## Page 87

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 for that child in future related to their sense of self-worth. 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. One strength is that humanistic psychology is anti-reductionist. 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-world context.

However, humanistic psychology, unlike behaviourism, has relatively few concepts that can be reduced to single variables and measured. This means that humanistic psychology in general is short

on empirical evidence to support its claims.

4. In Maslow's hierarchy of needs the four lower levels (deficiency needs such as food, water and safety) must be met before the individual (baby, child or adult) can work towards self-actualisation – a growth need. 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.

One strength is that Maslow's hierarchy is anti-reductionist. Humanistic psychologists reject any attempt to break up behaviour and experience into smaller components. The hierarchy suggests there are multiple needs that must be met before humans can meet their potential. This approach has validity as it considers meaningful human behaviour within its real-world context.

However, humanistic psychology has relatively few concepts that can be reduced to single variables and measured and this applies to Maslow's hierarchy too. Self-actualisation is a hypothetical concept that cannot be observed or measured in a laboratory in the same way that ideas within, say, the behaviourist approach can be. This means that Maslow's hierarchy and humanistic psychology in general is short on empirical evidence to support its claims.

5. Humanistic psychologists reject attempts to establish general 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 (counselling), 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.

One strength is that humanistic psychology is anti-reductionist. 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-world context.

However, humanistic psychology, unlike behaviourism, has relatively few concepts that can be reduced to single variables and measured. This means that humanistic psychology in general is short on empirical evidence to support its claims.

Another strength is the approach is a positive one. 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'. Therefore humanistic psychology offers a refreshing and optimistic alternative.

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1. Both the psychodynamic approach and humanistic psychology 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 behaviour stems from the genetic blueprint we inherit from our parents (genotype) though expression of this is influenced by the environment (phenotype). 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.

## Chapter 5 Psychopathology

### Page 91

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’, i.e. a statistical infrequency.

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. One strength of statistical infrequency is its real-world application. Statistical infrequency is useful in diagnosis, e.g. intellectual disability disorder, because this requires an IQ in the bottom 2%. It is also helpful in assessing a range of conditions, e.g. the BDI assesses depression, only 5% of people score 30+ (= severe depression). This means that statistical infrequency is useful in diagnostic and assessment processes.

3. One strength of deviation from social norms is its real-world application. Deviation from social norms is useful in the diagnosis of antisocial personality disorder because this requires failure to conform to ethical standards. Deviation from social norms is also helpful in diagnosing schizotypal personality disorder which involves ‘strange’ beliefs and behaviour. This means that deviation from social norms is useful in psychiatric diagnosis.

One limitation is that social norms are situationally and culturally relative. A person from one culture may label someone from another culture 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 means it is difficult to judge deviation from social norms from one context to another.

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### Page 93

1. Three criteria for ideal mental health are: 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.

One strength of failure to function is as a threshold for professional help. In any given year 25% of us experience symptoms of mental disorder to some degree (Mind). Most of the time we press on, but when we cease to function adequately people seek or are referred for professional help. This means that the failure to function criterion provides a way to target treatment and services to those who need them most.

3. One limitation of deviation from ideal mental health is that the definition may be culture-bound. Some criteria for ideal mental health are limited to USA and Western Europe, e.g. self-actualisation is not recognised in most of the world. Even in Western Europe there are variations in the value placed on independence (high in Germany, low in Italy). This means that it is very difficult to apply the concept of ideal mental health from one culture to another.
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.

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One limitation is this definition can lead to discrimination / social control. It is hard to distinguish between failure to function and a conscious decision to deviate from social norms. For example people may choose to live off-grid as part of an alternative lifestyle choice or take part in high-risk leisure activities. This means that people who make unusual choices can be labelled abnormal and their freedom of choice restricted.

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 have a realistic view of the world; we have good self-esteem and lack guilt; we are independent of other people; we can successfully work, love and enjoy our leisure.

One strength of the ideal mental health approach is being comprehensive. Ideal mental health includes a range of criteria for mental health. It covers most of the reasons why we might need help with mental health. This means that mental health can be discussed meaningfully with a range of professionals e.g. psychiatrist or CBT therapist. Therefore ideal mental health provides a checklist against which we can assess ourselves and other.

5. Same as Q4.

### Page 95

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. One emotional characteristic of OCD is guilt/disgust. One behavioural characteristic is avoidance of situations that trigger anxiety. One cognitive characteristic is obsessive thoughts.

3. The fear response is widely disproportionate to the threat posed, e.g. a person with a fear of birds is likely to have a severe panic reaction to even the smallest of birds. 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. birds in parks. There is selective attention to the phobic stimulus. The person with the phobia finds it hard to look away from the phobic stimulus, e.g. someone with a fear of birds cannot concentrate on a basic task if there is a bird flying around.

4. Emotional characteristics of depression include lowered mood. This is more pronounced than the daily experience of feeling lethargic or sad. People with depression 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. People with depression have reduced levels of energy making them lethargic. In extreme cases, this can be so severe that the person cannot get out of bed.

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

### Page 97

1. A person could develop a phobia of clowns by classical conditioning, e.g. by watching the film 'It'. The UCS (scary film) triggers a UCR (fear response) and this creates anxiety. The NS (clown, which previously did not create anxiety) is associated with the UCS. The NS (clown) becomes a CS causing a CR of anxiety/fear following the film.

2. The initial association that creates a phobia is explained by classical conditioning. A neutral stimulus (e.g. a dog) becomes associated with 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 person with a phobia 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. One strength of the two-process model is its real-world application. The idea that phobias are maintained by avoidance is important in explaining why people with phobias benefit from exposure therapies. Once avoidance behaviour is prevented it ceases to be reinforced by the reduction of anxiety. Avoidance behaviour therefore declines. This shows the value of the two-process approach because it identifies a means of treating phobias.

One limitation is the inability to explain cognitive aspects of phobias. Behavioural explanations like the two-process model are geared towards explaining behaviour – in this case avoidance of the phobic stimulus. However, we know that phobias also have a significant cognitive component, e.g. people hold irrational beliefs about the phobic stimulus. This means that the two-process model does not fully explain the symptoms of phobias.

4. The initial association that creates a phobia is explained by classical conditioning. A neutral stimulus (e.g. a dog) becomes associated with 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 person with a phobia 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.

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Another strength is evidence linking phobias to bad experiences. De Jongh *et al.* (2006) found that 73% of dental phobics had experienced a trauma (mostly involving dentistry), evidence of link between bad experiences and phobias. Further support came from the control group of people with low dental anxiety, where only 21% had experienced a traumatic event. This confirms that the association between stimulus (dentistry) and an unconditioned response (pain) does lead to the phobia.

**Page 99**

1. Flooding involves exposing the person with a phobia with the phobic object without a gradual build-up (as in systematic desensitisation). A person with arachnophobia receiving flooding treatment may have a large spider crawl over their hand until they can relax fully (the person not the spider). Without the option of avoidance behaviour, the person 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 people being treated give informed consent.

2. One limitation of flooding is that it is traumatic. Schumacher *et al.* (2015) found that both participants and therapists rated flooding as more stressful than systematic desensitisation (SD). SD is based on gradual exposure with the support of a therapist rather than total exposure of the phobic stimulus.

Partly because it is less of a traumatic experience than flooding, SD is also more suitable for people with learning difficulties because the processes involved in an anxiety hierarchy can be clearly explained to them.

3. One strength of flooding is that it is cost-effective. A therapy is described as cost-effective if it is clinically effective and not expensive. Flooding can work in as little as one session. Even with a longer session (e.g. three hours) this makes flooding more cost-effective than alternatives. This means that more people can be treated at the same cost by flooding than by systematic desensitisation (SD) or other therapies.

One limitation of flooding is that it is traumatic. Schumacher *et al.* (2015) found that both participants and therapists rated flooding as more stressful than SD. Thus there are ethical concerns about knowingly causing stress (offset by informed consent), and the traumatic nature of flooding also leads to higher attrition rates than for SD. This suggests that, overall, therapists may avoid using this treatment.

4. Systematic desensitisation (SD) 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 client and therapist design an anxiety hierarchy – a list of fearful stimuli arranged in order from least to most frightening. A person with arachnophobia might identify seeing a picture of a small spider as low on their anxiety hierarchy and holding a tarantula as the final item.

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

One strength of SD is evidence of effectiveness. Gilroy *et al.* (2003) followed up 42 people who had SD for spider phobia. At follow-up, the SD group were less fearful than a control group. In a recent review, Wechsler *et al.* (2019) concluded that SD is effective for specific phobia, social phobia and agoraphobia. This means that SD is likely to be helpful for people with phobias.

Another strength is SD's usefulness for people with learning disabilities. The main alternatives to SD are unsuitable for people with learning disabilities, e.g. cognitive therapies require a high level of rational thought and flooding is distressing. SD, on the other hand, does not require understanding or engagement on a cognitive level and is not a traumatic experience. This means that SD is often the most appropriate treatment for some people.

The exposure part of SD can be done in virtual reality (VR) which avoids dangerous situations (e.g. heights) and is cost-effective. However VR exposure may be less effective than real exposure for social phobias because it lacks realism (Wechsler *et al.* 2019). This means that SD using VR is sometimes but not always appropriate.

## Page 101

1. The three key elements of Beck's negative triad are: 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.

One strength of Ellis's model is its application in treating depression. Ellis applied the ABC model to treat depression (rational emotive behaviour therapy, REBT). There is evidence that REBT can both change negative beliefs and relieve the symptoms of depression (David *et al.* 2018). This means that REBT has real-world value.

One limitation is Ellis's model only explains reactive depression. This is a form of depression which is triggered by negative activating events. However, in many cases it is not obvious what triggers depression, described as endogenous depression. Ellis's model is less useful in explaining this. This means that Ellis's model can only explain some cases of depression.

3. 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.

Depressed people have negative self schema. We use schema to interpret the world, so if a person has a negative self-schema they interpret all information about themselves in a negative way. More specifically, Beck proposed the negative triad. There are three elements to the negative triad: negative view 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 self-esteem of the person with depression.

One strength of Beck's model is supporting research. Clark and Beck (1999) concluded that cognitive vulnerabilities (e.g. faulty information processing, negative self-schema) are more common in depressed people. A recent prospective study by Cohen *et al.* (2019) tracked 473

adolescents' development and found that early cognitive vulnerability predicted later depression. This shows that there is an association between cognitive vulnerability and depression.

Another strength is real-world application to screening for depression. Assessing cognitive vulnerability in young people most at risk of developing depression means they can be monitored. Understanding cognitive vulnerability is applied in CBT to alter cognitions underlying depression, making a person more resilient to life events. This means that the idea of cognitive vulnerability is useful in clinical practice.

### Page 103

1. One strength of CBT is that there is evidence of effectiveness. March *et al.* (2007) compared the effects of CBT with antidepressant drugs and a combination of the two in 327 adolescents with depression. After 36 weeks 81% of the CBT group, 81% of the antidepressants group and 86% of the CBT + antidepressants group were significantly improved. This means there is a good case for making CBT the first choice of treatment in public health care systems like the NHS.

2. A client 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 client taking an active role in their treatment (the 'client as scientist'). Clients 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 during therapy to prove the client's beliefs are incorrect.

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A limitation is suitability for diverse clients. In severe cases depressed clients may not be able to motivate themselves to engage with the cognitive work of CBT. They may not even be able to pay attention in a session. Sturmev (2005) suggests that any form of psychotherapy (including CBT) is not suitable for people with learning difficulties. This means that CBT may only be appropriate for a specific range of clients.

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REBT (Ellis's therapy) extends the ABC model to an ABCDE model: D for dispute (challenge) irrational beliefs and E for effect. A client 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

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Another limitation of CBT is its high relapse rates. Few early studies looked at long-term effectiveness and recent studies suggest that relapse is common. Ali *et al.* (2017) assessed depression for 12 months following a course of CBT. 42% relapsed within six months of ending treatment and 53% within a year. This means that CBT may need to be repeated periodically.

## Page 105

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 strength of the neural model is supporting evidence. Antidepressants that work on serotonin reduce OCD symptoms. This suggests that serotonin may be involved in OCD. Also, OCD symptoms form part of conditions that are known to be biological in origin e.g. Parkinson's disease (Nestadt *et al.* 2010). This means that biological factors (e.g. serotonin and processes underlying Parkinson's disease) are likely to be involved 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.

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One strength is evidence for the genetic explanation of OCD. 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. Marini and Stebnicki (2012) found that a person with a family member with OCD is around four times as likely to develop it as someone without. This means that people who are genetically similar are more likely to share OCD, supporting a role for genetic vulnerability.

One limitation is the existence of environmental risk factors. Genetic variation affects vulnerability to OCD, but there are also environmental risk factors that trigger or increase the risk of OCD. Cromer *et al.* (2007) found in one sample over half of people with OCD experienced a traumatic event. OCD severity correlated positively with number of traumas. This means that genetic vulnerability only provides a partial explanation for OCD.

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## Page 107

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 individual.

2. A strength of drug therapy is its effectiveness. Soomro *et al.* (2009) reviewed 17 studies of SSRIs for the treatment of OCD. All 17 studies showed better outcomes following SSRIs than placebos. Typically OCD symptoms reduce for around 70% of people taking SSRIs. This means that drugs can be of help to most people with OCD.

Another strength of drug treatments for psychological disorders in general is that they are 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 people's lives. If you wish you can simply take drugs until your symptoms decline rather than spending time going to therapy sessions. This means that many doctors and people with OCD prefer drug treatments.

3. 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.

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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 person's emotional symptoms, such as feeling anxious or depressed. This means that they can engage more effectively with CBT.

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One limitation is that drugs can have serious side-effects. A minority of people taking SSRIs get no benefit. Some people also experience side-effects such as indigestion, blurred vision and loss of sex drive (although these side-effects are usually temporary). For those taking *clomipramine*, side-effects are more common and can be more serious. More than 1 in 10 people experience erection problems and weight gain, 1 in 100 become aggressive. This means that people's quality of life is poor and the outcome is they may stop taking the drugs altogether, reducing the effectiveness of the treatment.

## Chapter 6 Research methods

### Page 109

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. An 'investigator effect' is 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. These must therefore be controlled in a research study.
4. A researcher might choose a repeated measures design over an independent groups design because the person in both conditions has the same characteristics. This controls the important CV of participant variables.

### Page 111

1. In a field experiment, the IV is manipulated by the experimenter and the effect on the DV is recorded in a natural setting (the researcher goes to the participants).
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 pre-existing difference between people, e.g. people with or without autism. Therefore, participants cannot be randomly allocated to each experimental condition. This is possible in a lab experiment, however.
5. 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.

### Page 113

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 students aged 18 and 40 students aged 19, there should be 6 18-year-olds and 4 19-year-olds 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. The implication of this is that any conclusions drawn can only be applied to the people who have been sampled and not to people in other streets or other towns.

#### **Page 114**

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. For example, in Asch's conformity experiment, participants were told the study was investigating visual perception, not conformity, and therefore did not give full 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 with human and animal participants, and provides a safeguard for those taking part.

#### **Page 115**

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

Unlike an experiment, there is no need for a controlled environment and secondary data (e.g. government statistics) can be used. So correlations are less time-consuming than experiments.

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).
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Correlations are often presented as causal, e.g. by the media, when they only show how two variables are related. This leads to false conclusions about causes of behaviour.

### **Page 117**

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 CVs/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. A covert observation may be preferred because if participants are not aware they are being observed, their behaviour is less likely to be influenced by the presence of the researcher and may be more 'natural'.
4. 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.

### **Page 119a**

1. A 'self-report technique' is 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 limit the richness of data collected.
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.

### **Page 119b**

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.

### **Page 120**

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.

### **Page 121**

1. 'Measure of central tendency' is 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.

### **Page 122**

1. A scattergram should be 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.

**Page 123**

1. (a) 70%  
(b) 0.7  
(c) 7/10
2. (a) 3.142  
(b) 3.1

**Page 124**

1. To use the sign test: we need to be looking for a difference; we need to have used a repeated measures design; and the data should be organised into categories, known as nominal data.
2. To use a table of critical values, we need to know 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 the critical value in the table, then *S* is significant and the experimental hypothesis is retained.

**Page 125a**

1. Before publication, all aspects of the investigation are scrutinised by experts ('peers') in the field. This is known as a 'peer review'. 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, peer review 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 (file drawer problem).

**Page 125b**

1. Recent research has stressed the importance of multiple attachments and the role of the father in healthy psychological development of the child. 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 people have their condition diagnosed quickly allowing them access to therapies or psychotherapeutic drugs, such as SSRIs. People with mental disorders can manage their condition effectively, return to work and contribute to the economy.