

A-level PSYCHOLOGY

Paper 3 Issues and options in psychology

Friday 14 June 2019

Morning

Time allowed: 2 hours

Materials

For this paper you must have:

- an AQA 16-page answer book.

You may use a calculator.

Instructions

- Use black ink or black ball-point pen.
- Write the information required on the front of your answer book. The **Paper Reference** is 7182/3.
- In **Section A**, you should answer **all** questions.
- In **Section B**, choose **one** topic. Answer **all** questions on the topic you choose.
- In **Section C**, choose **one** topic. Answer **all** questions on the topic you choose.
- In **Section D**, choose **one** topic. Answer **all** questions on the topic you choose.
- Do all rough work in your answer book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 96.
- You will be marked on your ability to:
 - use good English
 - organise information clearly
 - use specialist vocabulary where appropriate.

Section A**Issues and debates in psychology**

Answer **all** questions in this section.

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Explain what psychologists mean by socially sensitive research.

[2 marks]

Most early psychologists focused on causal explanations and argued that behaviour was determined by either internal or external influences. In the 1960s, some psychologists chose to focus more on the role of free will in behaviour. More recently, there has been a broad shift back to more deterministic thinking, but this time with the focus on biology and cognitive processes.

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Referring to the text above, explain what is meant by a paradigm shift.

[4 marks]

0	3
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Which **two** of the following are examples of ethnocentrism? Write the **two** correct letters in your answer book.

[2 marks]

When a Chinese researcher:

- A** assumes findings from research in other countries also apply to people in China.
- B** chooses to carry out research with people from China rather than with people from other countries.
- C** expects people from other countries to behave in the same way as people from China.
- D** thinks that people from China are superior to people from other countries.
- E** treats people from China in the same way that she treats people from other countries.

0	4
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Discuss the nature-nurture debate in psychology.

[16 marks]

Section B**Relationships or Gender or Cognition and development**

Choose **one** topic from **Section B**. Answer **all** questions on the topic you choose.

Topic: Relationships

0 5 Outline and briefly discuss the relationship between sexual selection and human reproductive behaviour. **[8 marks]**

0 6 Describe and evaluate the social exchange theory of romantic relationships. **[16 marks]**

Topic: Gender

0 7 Outline and briefly discuss Freud's theory of the Oedipus complex as an explanation for gender development in boys. **[8 marks]**

0 8 Describe and evaluate Kohlberg's explanation for gender development. **[16 marks]**

Topic: Cognition and development

0 9 Outline and briefly discuss the role of the mirror neuron system in social cognition. **[8 marks]**

1 0 Describe and evaluate Piaget's research in relation to the pre-operational stage of intellectual development. **[16 marks]**

Turn over for Section C

Turn over ►

Section C**Schizophrenia or Eating behaviour or Stress**

Choose **one** topic from **Section C**. Answer **all** questions on the topic you choose.

Topic: Schizophrenia

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Name and briefly outline **one** negative symptom of schizophrenia.

[2 marks]

In a study of communication, researchers used a language rating scale to compare two groups of participants. Participants in **Group A** were a volunteer sample of people from a self-help group for people with schizophrenia. Participants in **Group B**, the control group, were a volunteer sample of people who attended a community centre.

The researchers used an inferential statistical test to see if there was a significant difference in language rating between the two groups.

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Explain why a Mann-Whitney test is an appropriate choice of statistical test in this situation and a Spearman's test is not.

[2 marks]

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Explain **one** reason why there might be a problem of bias and generalisation in this study. How could the researchers modify their study to deal with this problem?

[4 marks]

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Discuss the use of an interactionist approach in explaining **and** treating schizophrenia.

[16 marks]

Topic: Eating behaviour

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Identify and briefly outline **one** psychological explanation for anorexia nervosa.

[2 marks]

In a study of body image, researchers used a body image rating scale to compare two groups of participants. Participants in **Group A** were a volunteer sample of people who attended a self-help group for people with eating disorders. Participants in **Group B**, the control group, were a volunteer sample of people who attended a community centre.

The researchers used an inferential statistical test to see if there was a significant difference in body image rating between the two groups.

1	6
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Explain why a Mann-Whitney test is an appropriate choice of statistical test in this situation and a Spearman's test is not.

[2 marks]

1	7
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Explain **one** reason why there might be a problem of bias and generalisation in this study. How could the researchers modify their study to deal with this problem?

[4 marks]

1	8
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Describe and evaluate genetic **and** neural explanations for obesity.

[16 marks]

Section C continues on the next page

Turn over ►

Topic: Stress

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Name **one** type of drug used to treat stress and briefly outline how it functions.

[2 marks]

In a study of stress, researchers used a stress rating scale to compare two groups of participants. Participants in **Group A** were a volunteer sample of people who attended a self-help group for people with stress. Participants in **Group B**, the control group, were a volunteer sample of people who attended a community centre.

The researchers used an inferential statistical test to see if there was a significant difference in stress rating between the two groups.

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Explain why a Mann-Whitney test is an appropriate choice of statistical test in this situation and a Spearman's test is not.

[2 marks]

2	1
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Explain **one** reason why there might be a problem of bias and generalisation in this study. How could the researchers modify their study to deal with this problem?

[4 marks]

2	2
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Discuss the role of personality type **and** hardiness in stress.

[16 marks]

Section D**Aggression or Forensic psychology or Addiction**

Choose **one** topic from **Section D**. Answer **all** questions on the topic you choose.

Topic: Aggression

A psychologist used a set of negative images to assess violent attitudes before and after participants played a 30-minute computer game. In a repeated measures design, 15 participants were tested before and after playing the game using a single set of images.

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Explain how two sets of images could be used in this study and why this would be an improvement.

[4 marks]

Each participant had a different total score in the before condition, where the maximum score was 40 and the median score was 23.

2	4
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How many of the participants had a score < the median in the before condition? Explain your answer.

[4 marks]

Researchers observed two brightly coloured male Siamese fighting fish. The fish were in separate tanks with a slide screen between the tanks so the fish could not see each other. When the slide screen was raised so that the fish could see each other, they both reacted by puffing themselves up to appear larger. The fish also puffed themselves up when a small, brightly coloured piece of card was displayed alongside the tank.

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Describe what is meant by a fixed action pattern. Refer to the study above in your answer.

[8 marks]

2	6
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Outline and evaluate the dispositional explanation for institutional aggression in prisons.

[8 marks]

Section D continues on the next page

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Topic: Forensic psychology

A psychologist used a set of negative images to assess angry attitudes before and after participants took part in a 30-minute anger management session. In a repeated measures design, 15 participants were tested before and after the session using a single set of images.

2	7
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Explain how two sets of images could be used in this study and why this would be an improvement.

[4 marks]

Each participant had a different total score in the before condition, where the maximum score was 40 and the median score was 23.

2	8
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How many of the participants had a score < the median in the before condition? Explain your answer.

[4 marks]

Researchers studied three generations of several families, noting the frequency and type of offending. They found that sons and grandsons of offenders often committed similar crimes themselves. The researchers also interviewed people who knew the families, such as friends and neighbours. Most friends and neighbours were not concerned by the offending behaviour, and some said it was a good way to behave in the circumstances.

2	9
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Describe differential association theory in the context of offending. Refer to the study above in your answer.

[8 marks]

3	0
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Outline and evaluate official statistics and/or victim surveys as ways of measuring crime.

[8 marks]

Topic: Addiction

A psychologist used a set of negative images to assess attitudes to smoking before and after participants took part in a 30-minute covert sensitisation session. In a repeated measures design, 15 participants were tested before and after the session using a single set of images.

3	1
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Explain how two sets of images could be used in this study and why this would be an improvement.

[4 marks]

Each participant had a different total score in the before condition, where the maximum score was 40 and the median score was 23.

3	2
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How many of the participants had a score < the median in the before condition? Explain your answer.

[4 marks]

Researchers studied the role of learning in gambling. Using a computer programme, they manipulated the predictability of 'wins' on different machines. For example, some machines were set to pay out after 2 minutes of play and others, on average, after every tenth bet. The researchers found a link between gambling behaviour and the setting of the machine. They also found that on certain machines, people would carry on betting for a long time after the last win.

3	3
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Describe learning theory as applied to gambling. Refer to the study above in your answer.

[8 marks]

3	4
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Outline and evaluate personality as a risk factor in the development of addiction.

[8 marks]

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0 1

Socially sensitive research is research where there are potential social consequences or implications, either directly for the participants or for the wider group of people they represent, such as a particular ethnic, gender or sexual group.

The findings could be used to change, or to justify, the way that group is treated or perceived in society, for example research into genetic differences in intelligence could be used to justify discriminatory policies (although implications can also be positive).

0 2

A paradigm is a set of shared assumptions and agreed methods within a scientific discipline about how behaviour should be studied and explained (Kuhn). In the text, the early psychologists shared the paradigm of causal explanations, seeing behaviour as determined by internal or external influences.

A paradigm shift happens when members of the scientific community change from one established way of explaining behaviour to a new one, because contradictory evidence builds up which the old paradigm cannot explain. This produces a 'scientific revolution'.

The 1960s move from causal explanations to a focus on free will (humanistic psychology) is one example of a paradigm shift, and the more recent shift back to deterministic thinking based on biology and cognitive processes, such as the cognitive revolution and today's emphasis on cognitive neuroscience, is another.

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The nature-nurture debate concerns the relative importance of heredity (nature) and the environment (nurture) in determining behaviour. The nature view is founded in nativism, which assumes that characteristics and abilities are innate and determined by genes inherited from our parents. Heritability coefficients, from 0 to 1, are used to estimate how much of the variation in a trait within a population is due to genetic factors.

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The nurture view is founded in empiricism. Locke argued that the mind at birth is a 'tabula rasa', a blank slate on which experience writes, so behaviour is acquired through learning and experience. Behaviourists such as Watson and Skinner claimed behaviour is shaped by classical and operant conditioning, and environmental influences range from the prenatal environment to social and cultural factors.

Most psychologists now take an interactionist view, that nature and nurture interact, for example the diathesis-stress model sees mental disorders as an inherited vulnerability that is triggered by environmental stress.

Twin and adoption studies support the nature side. Gottesman (1991) found concordance for schizophrenia of about 48% for MZ twins compared with 17% for DZ twins, suggesting a strong genetic contribution. However, MZ concordance is not 100%, so the environment must also play a role, and MZ twins are often treated more similarly than DZ twins, so shared environment is a confounding variable. Twin studies therefore cannot cleanly separate nature from nurture.

Studies of learning support nurture: Bandura showed that children imitated aggressive models, and Watson and Rayner's Little Albert acquired a phobia through classical conditioning. Yet Seligman's concept of preparedness shows we are biologically prepared to learn some fears, such as of snakes, more easily than others, which suggests that learning itself is constrained by nature.

The debate has been transformed by epigenetics: life experiences such as stress, diet or smoking can switch genes on or off, changing gene expression without altering the DNA sequence, and these marks may be passed on to later generations. Children of mothers who were starved during the Dutch Hunger Winter showed higher rates of schizophrenia and other health problems. This shows nature and nurture cannot be treated as separate, making an either-or debate redundant.

Plomin's idea of niche-picking (active gene-environment interaction) also blurs the line, as people seek out environments that suit their genetic tendencies, for example a sociable child seeks social situations that further develop sociability. In reactive interaction, a child's inherited temperament affects how others

respond to them. So even 'environmental' measures partly reflect genes.

The debate also has important implications. Extreme nativist positions have been linked to eugenics and socially sensitive claims that group differences in intelligence are innate, which can justify discrimination. Extreme empiricism suggests people can be shaped in any direction, raising ethical issues of control. An interactionist approach is more realistic, but it is harder to test scientifically, because it is difficult to quantify exactly how much each factor contributes. Overall, the question has moved from 'which one?' to 'how do they interact?'

Sexual selection is an evolutionary explanation for traits that increase reproductive success, even if they do not aid survival; individuals with these traits are more likely to mate and pass on the genes responsible. It stems from anisogamy, the difference between male and female sex cells: males produce many cheap sperm and can be less choosy, whereas females produce few, costly eggs and invest more in offspring, so they must use their gametes wisely.

Inter-sexual selection is the female strategy: females are choosy and select males who show good genes or resources, so these traits spread (for example Fisher's sexy sons hypothesis), while males prefer cues of youth and fertility.

Intra-sexual selection is the male strategy: males compete with each other for access to females, favouring traits such as size and aggression, and behaviours such as mate guarding.

Research supports this. Clark and Hatfield (1989) found that when approached by a stranger on campus, 75% of men but no women agreed to sex, supporting the female choosiness predicted by anisogamy. Buss (1989) found across 37 cultures that men valued youth and physical attractiveness and women valued resources, suggesting an evolved, universal pattern. However, evolutionary explanations are hard to falsify, as we cannot test what happened in our evolutionary past, so they risk being post-hoc. Social change, such as women's greater financial independence and access to contraception, means preferences today may reflect social norms rather than evolution, so male resources may be less important. The theory also cannot easily explain non-heterosexual relationships, which are not linked to reproduction.

Social exchange theory (Thibaut and Kelley, 1959) is an economic theory of romantic relationships based on the 'minimax principle': partners try to maximise rewards (such as companionship, sex and emotional support) and minimise costs (such as time, effort, stress and lost opportunities). Profit is rewards minus costs, so a partner who offers rewards is attractive, while one perceived as costly is less attractive.

Partners judge profit using a comparison level (CL), the amount of reward we

believe we deserve, based on past relationships and social norms such as the media. If the profit exceeds our CL, the relationship is satisfying. The comparison level for alternatives (CL_{alt}) is whether we could gain more profit with another partner or alone. If the current relationship is more rewarding than the alternatives, we stay.

Thibaut and Kelley proposed four stages: sampling (exploring rewards and costs by trying out relationships or observing others), bargaining (negotiating exchanges early on and identifying what is most profitable), commitment (exchanges become predictable and the relationship stabilises) and institutionalisation (norms are firmly established and the partners settle down). The theory predicts that relationships that benefit both parties succeed, whereas imbalanced ones fail.

One weakness is that SET assumes people make rational, calculated decisions, monitoring rewards and costs like an economic transaction. Clark and Mills (1979) distinguished communal relationships, governed by concern for the partner's needs, from exchange relationships such as business. Romantic relationships are usually communal, so SET may only describe relationships that are already in trouble, when 'scorekeeping' begins.

The theory also oversimplifies complex human relationships, as it cannot easily explain selfless behaviour, such as caring for an ill partner who provides few rewards. There is also a problem of direction of cause: Argyle (1987) argued that dissatisfaction comes first, and only then do people look at alternatives, so CL_{alt} may be a consequence rather than a cause of breakdown.

A strength is that it can account for individual differences, since what counts as a reward or cost, and each person's CL, differ between people, explaining why two people react differently to the same relationship. However, the key concepts are vague: it is hard to define and quantify rewards, costs and the value of CL, which makes the theory difficult to test.

SET also explains maintenance better than initial attraction, as over time costs such as arguments become more evident, which explains why relationships end. Yet much supporting research uses artificial laboratory studies of strangers rather

than real couples, lacking ecological validity.

Rusbult's investment model (1983) elaborates SET by adding investment size (what would be lost, such as shared children, a home and memories) to satisfaction and quality of alternatives. Le and Agnew's (2003) meta-analysis found that all three predicted commitment, and the model explains why people stay in unprofitable or even abusive relationships (Rusbult and Martz, 1995), which SET alone cannot. This suggests SET is useful but incomplete.

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Freud's psychoanalytic theory proposes that gender identity develops during the phallic stage, at around 4 to 5 years. The boy unconsciously desires his mother and sees his father as a rival. He fears his father will discover these feelings and castrate him (castration anxiety). To resolve this internal conflict, he gives up his desire for his mother and identifies with the aggressor, his father.

Through identification he internalises his father's gender identity and adopts his male-related attitudes and behaviours, forming the superego.

Freud's main evidence was the case study of Little Hans, a boy with a phobia of horses, which Freud interpreted as displaced fear of his father (castration anxiety). However, this was a single case, the data were collected by Hans' father, a supporter of Freud, and the phobia has a simpler explanation, as Hans had witnessed a horse accident. So the evidence is subjective and cannot be generalised. The theory is also unfalsifiable, as the Oedipus complex is unconscious and cannot be tested scientifically.

Furthermore, Freud predicts that boys raised without a father, or in gender-atypical households, should develop atypical gender identity, but Green (1978) found that 36 of 37 children raised by lesbian or transsexual parents developed typical gender preferences, contradicting Freud. The theory also suggests gender is fixed by age 5, whereas cognitive explanations such as Kohlberg's show gender understanding continues to develop until at least 6 or 7, and social learning theory shows the continuing influence of role models.

Kohlberg's (1966) theory is a cognitive explanation: gender development reflects the child's maturing thinking, so the child actively constructs an understanding of gender through experience. This understanding develops through three stages.

Stage 1, gender identity (around 2 years): the child can correctly label their own gender and that of others, but believes gender can change, for example a boy may think he could grow up to be a mummy.

Stage 2, gender stability (around 4 years): the child understands that their own gender is fixed over time (a boy will grow into a man), but is still swayed by outward appearances, for example thinking a man in a dress has become a

woman, because pre-operational thinking cannot conserve.

Stage 3, gender constancy or consistency (around 6 years): the child understands that gender stays the same across situations and despite changes in outward appearance or activity. Transition through the stages is driven by maturation, lessening egocentrism and socialisation. Once constancy is achieved, the child actively seeks out same-sex role models and gender-appropriate behaviour, so gender-typed behaviour follows understanding.

Slaby and Frey (1975) support the idea that constancy comes before same-sex imitation. Children aged 2 to 5 were assessed for gender constancy, then shown a split-screen film of a man and a woman doing simple activities. Children high in constancy spent more time watching the same-sex model, as Kohlberg predicts.

Cross-cultural research supports universality: Munroe et al. (1984) found the same sequence of stages in cultures including Kenya, Nepal, Belize and Samoa, suggesting the stages reflect cognitive maturation rather than any one culture. However, there is contradictory evidence, as gender-typed behaviour such as preference for same-sex toys and playmates appears long before constancy, even at around 2 years. This suggests children learn gender behaviour before they understand constancy, which gender schema theory (Martin and Halverson, 1981) explains better: a child needs only basic gender identity to start seeking schema-consistent information.

There are also methodological issues, as much of the research relies on questioning young children, who may lack the vocabulary to express what they understand. Bem (1989) found that children who knew the genital basis of sex achieved constancy earlier, suggesting the age of constancy depends on how it is tested.

Kohlberg's theory describes the stages in understanding gender rather than explaining why they occur. It also cannot easily explain why boys show stronger sex-typing than girls, suggesting social factors such as stronger disapproval of boys' gender-atypical behaviour matter. Biological explanations, such as the role of testosterone, and social learning theory offer complementary accounts, so the

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most complete view is that cognitive maturation interacts with biology and socialisation. Nevertheless, a strength is its sensible focus on cognition rather than just outward behaviour, seeing the child as an active processor of gender information rather than a passive recipient.

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Mirror neurons are brain cells that fire both when we perform an action and when we observe another person performing the same action, so the activation is as if we had carried out the action ourselves. They were first found by Rizzolatti and colleagues in the premotor cortex of macaque monkeys. In humans, scanning techniques suggest areas such as the pars opercularis (Broca's area of the frontal lobe) and the inferior parietal lobe are rich in mirror neurons. By internally simulating others' actions, they are thought to allow us to understand other people's intentions and emotional experiences, so they underpin social cognition: perspective-taking, theory of mind and empathy.

Supporting evidence comes from autism. Dapretto et al. (2006) found that children with autism showed less mirror neuron activity in the inferior frontal gyrus when imitating and observing emotional facial expressions, and less activity was linked to greater severity of social difficulties; Hadjikhani (2007) found thinning in mirror neuron areas in autism. This suggests deficits in social cognition may be linked to problems in mirror neuron function, and that the system could be fundamental to the development of human society.

However, the existence of human mirror neurons is controversial: individual cells can only be identified by their function, and brain scans only show activity in a region, not individual neurons, so the evidence is indirect. Hickok (2009) argued that mirror neuron activity may be a by-product of social interaction rather than its cause. The explanation is also biologically reductionist and deterministic, as social cognition is likely to depend on experience and learning too.

Piaget proposed that children pass through four stages of intellectual development, the second being the pre-operational stage, at roughly 2 to 7 years. It is subdivided into the pre-conceptual (2 to 4) and intuitive (4 to 7) substages. Children can use symbols and language (symbolic function), but their understanding is governed by outward appearances and they cannot yet perform logical mental operations, such as reversibility.

Egocentrism: the child can only see the world from their own perspective. In the three mountains task (Piaget and Inhelder, 1956), children were shown a model

of three mountains and asked to choose a picture showing what a doll would see from another position. Four-year-olds tended to choose their own view, and only by around 7 could they consistently choose the doll's view.

Conservation: the child does not understand that quantity stays the same despite changes in appearance, because of centration (focusing on one feature, such as the height of the liquid) and lack of reversibility. In the beaker task, children agreed two identical beakers held the same amount, but when one was poured into a taller, thinner beaker, pre-operational children said it held more.

Class inclusion: the child struggles to understand that a class can include sub-classes. Shown 7 dogs and 3 cats and asked whether there are more dogs or more animals, they say more dogs. Pre-operational children also struggle with seriation.

A key criticism is that Piaget's tasks focused on what children could not do, and failure to perform a task may not show lack of understanding. Hughes (1975) used the policeman doll task, in which children hid a boy doll from two policemen; 90% of children aged 3½ to 5 succeeded, suggesting egocentrism declines earlier than Piaget believed when a task makes human sense to the child.

There were also methodological flaws: in conservation tasks the same question was asked twice, before and after the transformation, so children may have assumed a different answer was expected. McGarrigle and Donaldson (1974) used 'Naughty Teddy' to accidentally disarrange counters, and 62% of 4 to 6 year olds conserved number, compared with 16% when the adult deliberately changed them. Samuel and Bryant (1984) found children conserved more when asked only once.

However, Moore and Frye (1986) argued that Naughty Teddy is distracting, so children may not have noticed the change at all, meaning the improvement may not show true conservation. So Piaget's conclusions are at least partly supported. Piaget saw stages as rigid, but evidence suggests development is more gradual and incremental, with abilities appearing in some tasks earlier than others.

Despite this, his research has had a huge practical influence on education, such

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as discovery learning and readiness, although if young children cannot decentre, the value of activities like role-play is questionable. A strength is that Piaget tied pre-operational thought to the development of language through general symbolic function, though Vygotsky argued he underestimated the role of social interaction and language in driving cognitive development.

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1 1

Avolition: a loss of motivation and inability to begin and persist with goal-directed activities, so the person lacks the will to act, for example showing poor hygiene and grooming, lack of persistence at work or education, and lack of energy (Andreasen, 1982).

1 2

A Mann-Whitney test is appropriate because the study is looking for a difference between two separate groups of participants (independent groups: Group A, people with schizophrenia, and Group B, the control group), and the language rating scale produces ordinal data.

Spearman's test is not appropriate because the study is not looking for a correlation (relationship) between two co-variables measured on the same participants.

1 3

Both groups are volunteer samples, and everyone in Group A attends a self-help group, so they may be atypical and unrepresentative of people with schizophrenia. For example, people who volunteer and go to a self-help group may be better communicators and more verbal than other people with schizophrenia.

Therefore it would not be appropriate to generalise their language rating to all people with schizophrenia, as the results may over- or underestimate the real difference between the groups.

The researchers could use random sampling instead, for example selecting at random from a list of everyone diagnosed with schizophrenia at local clinics, including people who do not go to a self-help group. This should give a less biased, more varied and more representative sample, so the results could be generalised more widely.

1 4

The interactionist approach argues that schizophrenia results from a combination of biological, psychological and social factors rather than any single cause. This is expressed in the diathesis-stress model: a person has an underlying vulnerability (diathesis) but only develops schizophrenia when this is triggered by

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stress.

In Meehl's (1962) original model, the diathesis was a single 'schizogene' and the stressor was a schizophrenogenic mother. Modern views see the diathesis as polygenic (many genes, each of small effect), and it can also come from early trauma affecting brain development, such as birth complications or childhood abuse. The stressor is any negative psychological experience or risk factor, such as a relationship breakdown, academic pressure, family conflict or cannabis use.

An interactionist treatment approach combines antipsychotic medication (such as chlorpromazine, which blocks dopamine D2 receptors) with psychological therapies such as CBT and family therapy, reflecting the view that both biological and psychological factors are involved. This combination is recommended by NICE in the UK.

Tienari et al. (2004) provide supporting evidence. They studied adopted children of mothers with schizophrenia in Finland and found that these children were more likely to develop schizophrenia if their adoptive families showed high levels of criticism and conflict, compared with control adoptees at low genetic risk.

This shows genetic vulnerability and family stress interact.

The understanding of the diathesis has also been broadened. Read et al. (2001) proposed a neurodevelopmental model in which early trauma, such as abuse, damages the developing brain, for example by causing overactivity of the HPA axis, creating vulnerability; Ingram and Luxton (2005) argue that early psychological trauma can itself be a diathesis, and Cannon (2002) linked obstetric complications to schizophrenia. This allows the model to account for many routes to the disorder, though it makes specific diatheses harder to identify.

The original model is now seen as overly simplistic: there is no single schizogene, and stress now includes any risk trigger, such as substance abuse, which may itself act as a diathesis, so the boundary between diathesis and stress is blurred.

There is good evidence that combined treatment is effective. Tarrier et al. (2004) found that patients receiving antipsychotics plus CBT showed lower

symptom levels at 18-month follow-up than those receiving medication plus supportive counselling or medication alone. This supports the practical value of a multidisciplinary approach over single treatments. However, the separate contribution of each treatment is hard to isolate, and professionals who hold a purely biological view may see psychological therapy as secondary, which can create tension in treatment teams.

The approach is more holistic than single-factor explanations, avoiding biological reductionism and recognising the complexity of the disorder; it is consistent with MZ concordance being high but not 100% (about 48%, Gottesman 1991). Yet it is less parsimonious and harder to test, as it is difficult to know how much each factor contributes, which makes interactionism a less precise scientific theory.

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1 5

Family systems theory: anorexia nervosa is attributed to the behaviour of the family, typically an enmeshed family in which members are over-involved in each other's lives. The adolescent may develop anorexia in a quest for autonomy, because what they eat is the only aspect of life they can control (Minuchin; Bruch).

1 6

A Mann-Whitney test is appropriate because the study is looking for a difference between two separate groups of participants (independent groups: Group A, people with eating disorders, and Group B, the control group), and the body image rating scale produces ordinal data.

Spearman's test is not appropriate because the study is not looking for a correlation (relationship) between two co-variables measured on the same participants.

1 7

Both groups are volunteer samples, and everyone in Group A attends a self-help group, so they may be atypical and unrepresentative of people with eating disorders. For example, people who volunteer and go to a self-help group may be more aware of their body image than other people with eating disorders.

Therefore it would not be appropriate to generalise their body image rating to all people with eating disorders, as the results may over- or underestimate the real difference between the groups.

The researchers could use random sampling instead, for example selecting at random from a list of everyone diagnosed with an eating disorder at local clinics, including people who do not go to a self-help group. This should give a less biased, more varied and more representative sample, so the results could be generalised more widely.

1 8

Genetic explanations argue that obesity runs in families because it is inherited and governed by DNA. Researchers compare body mass index (BMI) between family members, and higher concordance for BMI in MZ than DZ twins, or greater similarity of adoptees to their biological rather than adoptive parents,

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suggests a genetic influence. Obesity is thought to be polygenic; candidate genes include *FTO*, linked to greater food intake and body fat, and the *Taq1A* allele of *DRD2*, linked to fewer dopamine receptors. The 'thrifty gene' hypothesis (Neel, 1962) suggests genes for storing fat efficiently were adaptive when food was scarce.

Neural explanations focus on the hypothalamus. The lateral hypothalamus (LH) acts as a feeding centre and the ventromedial hypothalamus (VMH) as a satiety centre, so if the VMH malfunctions, appetite is unregulated and the person overeats. Leptin, released by fat cells, signals the hypothalamus to reduce appetite, so low leptin, or leptin resistance, means the VMH does not register satiety. Neurotransmitters are also involved: low serotonin may lead to disinhibited eating, and Wang et al. (2001) found obese people had fewer dopamine D2 receptors, so they may overeat to compensate for an underactive reward system.

Twin research supports the genetic explanation: Stunkard et al. (1990) found heritability for BMI of about 0.70 in twins reared apart and together, and Nan et al.'s (2012) review of twin studies estimated heritability at between about 0.47 and 0.80. Stunkard et al. (1986) also found that adopted adults' BMI was more similar to their biological than their adoptive parents.

However, obesity rates have risen too rapidly in recent decades to be explained by genetic change, so environmental factors such as cheap, high-fat food and sedentary lifestyles must be important. This supports a diathesis-stress view in which genes create a vulnerability that an obesogenic environment triggers.

Evolutionary theory adds that storing fat when food is available conferred a survival advantage, so overeating today may be an evolutionary hangover, which could explain the increase in obesity.

Evidence for neural mechanisms comes largely from animals: Hetherington and Ranson (1940) found rats with VMH lesions overate and became obese, leptin-deficient *ob/ob* mice lose weight when given leptin, and Ohia et al. (2013) linked serotonin to obesity in mice. Montague et al. (1997) found two severely obese cousins with a leptin gene mutation. But most obese humans

have high leptin levels (leptin resistance), so leptin deficiency explains only rare cases, and animal findings may not generalise, as human eating is shaped by cognition and culture.

A further complication is co-morbidity: obesity is often linked with depression, which also involves low serotonin, so it is unclear whether neural differences cause obesity or result from overeating or depression (direction of causality).

Both explanations are biologically reductionist and deterministic, ignoring psychological factors such as restraint theory and disinhibition (Herman and Polivy). This has implications: biological explanations may reduce stigma and blame, but they may make people feel their weight is beyond their control, lowering motivation to change behaviour. On the other hand, they have led to treatments targeting neural mechanisms, such as drugs acting on serotonin or appetite.

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1 9

Benzodiazepines, for example diazepam (Valium). They bind to GABA receptors on post-synaptic neurons and increase the effect of GABA, the brain's main inhibitory neurotransmitter, allowing more chloride ions into the neuron so it is less likely to fire, which calms the nervous system and decreases anxiety.

2 0

A Mann-Whitney test is appropriate because the study is looking for a difference between two separate groups of participants (independent groups: Group A, people with stress, and Group B, the control group), and the stress rating scale produces ordinal data.

Spearman's test is not appropriate because the study is not looking for a correlation (relationship) between two co-variables measured on the same participants.

2 1

Both groups are volunteer samples, and everyone in Group A attends a self-help group, so they may be atypical and unrepresentative of people with stress. For example, people who volunteer and go to a self-help group may be more stressed, or more willing to talk about their stress, than other people with stress.

Therefore it would not be appropriate to generalise their stress rating to all people with stress, as the results may over- or underestimate the real difference between the groups.

The researchers could use random sampling instead, for example selecting at random from a list of everyone diagnosed with stress at local clinics, including people who do not go to a self-help group. This should give a less biased, more varied and more representative sample, so the results could be generalised more widely.

2 2

Friedman and Rosenman (1959) proposed that personality type is related to the negative consequences of stress, especially coronary heart disease (CHD). Type A traits are competitiveness and achievement striving, time urgency and impatience, and hostility and aggression. Type A people experience a more negative response

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to stress, with chronic arousal raising blood pressure and stress hormones, which increases the risk of CHD. Type B people are relaxed, patient and less competitive, so they are less likely to suffer from stress.

Later researchers added Type C, people who suppress emotions and are easily stressed, and are thought to be cancer-prone (Temoshok, 1987), and Type D, the 'distressed' personality combining negative affectivity and social inhibition, which increases the risk of cardiac illness (Denollet, 1995).

Hardiness (Kobasa, 1979) is a set of traits that protects people from the negative effects of stress, so hardy people are less likely to suffer from stress.

It has three aspects: commitment (involvement in life, work, family and society), challenge (seeing change as an opportunity rather than a threat) and control (feeling autonomous and in control of one's life).

Friedman and Rosenman's Western Collaborative Group Study supports Type A: over 3000 Californian men aged 39 to 59 were assessed by structured interview, and after 8½ years twice as many Type A as Type B men had developed CHD (12% vs 6%). However, Ragland and Brand (1988) followed up the sample 22 years later and found Type A was not a strong predictor of CHD mortality, so the link is inconsistent.

Specific Type A traits seem more relevant than the overall type: hostility appears to be the key factor (Forshaw, 2012), as Williams et al. (2000) found people high in trait anger were about 2.7 times more likely to have a heart attack. So the global concept of Type A is too broad.

Kobasa (1979) studied 800 American business executives using the SRRS and found those with high stress but few illnesses scored highly on hardiness, supporting its protective role. Lifton et al. (2006) found that students high in hardiness were more likely to complete their degree. However, Kobasa's sample was mainly white, middle-class male executives, so the findings may not generalise, and there may be gender differences in the effects of hardiness on the response to stress.

Hardiness is measured by self-report questionnaires, which are open to social desirability bias, and Funk (1992) argued that low hardiness may simply be high

negative affectivity (neuroticism), so the concept may add little that is new. Research on both individual differences is correlational, so it cannot show that personality causes stress-related illness. External factors, such as the degree of control people have over their circumstances, for example at work, may explain both.

There are useful implications: personality type is hard to change, but behaviour can be changed. Hardiness training (Maddi) teaches people to recognise signs of stress, reconstruct stressful situations and use self-improvement, and has been found to reduce stress in managers and students. This suggests individual differences in stress can be modified, although training is time-consuming and targets deep-seated traits.

2 3

Instead of using the same set of images before and after the computer game, the psychologist could use two different sets: set A for the before test and set B for the after test. The two sets would need to be matched for negative content, for example the same number of images with the same level of negativity, checked in a pilot study. The psychologist could also counterbalance, so half of the participants see set A first and set B second, and the other half see B first and then A.

This would be an improvement because seeing the identical images twice could let participants guess the aim of the study and respond according to expectations (demand characteristics), and it would also reduce order effects such as practice or boredom from repeating the same images.

2 4

7 participants.

There were 15 participants and we are told that each had a different total score, so there are no tied scores.

When the 15 scores are put in order from lowest to highest, the median of 23 must be the middle score, the 8th one, because $(15 + 1) \div 2 = 8$.

So 7 scores lie below the median and 7 lie above it, which means 7 participants had a score lower than 23.

2 5

A fixed action pattern (FAP) is an innate, stereotyped and ritualised sequence of behaviours produced in response to a specific environmental stimulus. FAPs are universal: all members of a species (of the same sex) show the same pattern, so it is not learned. They are ballistic: once triggered, the sequence runs to completion and cannot be stopped. FAPs are produced when an innate releasing mechanism (IRM), an innate neural circuit, detects a specific sign stimulus, which releases or triggers the behaviour, and they are situation-specific. Lorenz's hydraulic model suggests action-specific energy builds up and is released by the sign stimulus. Ritualised aggressive displays are adaptive, as they can settle conflicts without injury.

In the study, the two male Siamese fighting fish both puffed themselves up to

appear larger. This is a ritualised, stereotyped aggressive display which makes each fish seem more threatening to its rival. Both fish reacted in exactly the same way, suggesting the behaviour is universal and innate rather than learned. They did not puff up while the screen was down, showing the behaviour is situation-specific: the IRM was only triggered by the sign stimulus, the sight of a brightly coloured rival male. The fact that they also puffed up at a small, brightly coloured piece of card shows the sign stimulus is the bright colour itself rather than the whole fish, as the IRM responds to a simple feature resembling the rival, just as Tinbergen found male sticklebacks attacked crude models with red undersides.

2	6
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The dispositional explanation, the importation model (Irwin and Cressey, 1962), argues that aggression in prisons is internal, caused by the individual characteristics of the prisoners rather than the prison environment. Inmates bring their personal traits, values, attitudes and experiences into prison, so people who are aggressive, bullying or angry outside prison behave in the same way as inmates. Irwin and Cressey argued that outside subcultures, such as a 'criminal' subculture with norms of toughness and loyalty to other inmates, are also imported. Other imported variables, such as gang membership, age, race and level of education, mediate aggression.

Research such as DeLisi (2011) supports the role of imported characteristics, and Poole and Regoli (1983) found that pre-institutional violence was the best predictor of aggression among juvenile offenders, regardless of the institution. However, the situational deprivation model (Sykes, 1958) argues aggression results from the prison culture and the harsh conditions of prison, such as the loss of liberty, autonomy, goods and services, and security. McCorkle et al. (1995) found violence was linked to factors such as overcrowding and poor prison management, suggesting the importation model is incomplete. The notion of brutalisation, where non-aggressive prisoners become hardened by the prison system, is also something the dispositional view cannot explain. The explanation has limited practical application, as prisons cannot easily change inmates'

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dispositions, whereas a situational view suggests changes to prison policy, although importation can help identify high-risk prisoners. It is likely that both explanations interact.

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2 7

Instead of using the same set of images before and after the anger management session, the psychologist could use two different sets: set A for the before test and set B for the after test. The two sets would need to be matched for negative content, for example the same number of images with the same level of negativity, checked in a pilot study. The psychologist could also counterbalance, so half of the participants see set A first and set B second, and the other half see B first and then A.

This would be an improvement because seeing the identical images twice could let participants guess the aim of the study and respond according to expectations (demand characteristics), and it would also reduce order effects such as practice or boredom from repeating the same images.

2 8

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There were 15 participants and we are told that each had a different total score, so there are no tied scores.

When the 15 scores are put in order from lowest to highest, the median of 23 must be the middle score, the 8th one, because $(15 + 1) \div 2 = 8$.

So 7 scores lie below the median and 7 lie above it, which means 7 participants had a score lower than 23.

2 9

Differential association theory (Sutherland, 1939) proposes that offending is learned through socialisation, in the same way as any other behaviour, through interaction with significant others such as family and friends. Through these associations a person learns pro-criminal attitudes (norms and values favourable to law-breaking) as well as the specific techniques of offending. Sutherland argued that a person will become an offender when the number of attitudes favourable to crime outweighs the number unfavourable to it. Associations differ in frequency, duration, priority and intensity, so everyone's associations are different, which is why some people offend and others do not. Approval and acceptance from those around us also reinforce criminal behaviour, especially when the rewards for offending outweigh those for not offending.

In the study, offending ran through three generations, with sons and grandsons committing similar crimes to their fathers and grandfathers. This suggests pro-criminal attitudes were passed down through close, frequent and intense association within the family, so criminal behaviour was accepted as the norm. The fact that the crimes were similar suggests that the specific techniques of offending had been learned from older relatives. The friends and neighbours who were not concerned by the offending show that pro-criminal attitudes were also the norm in the wider community, so the young men would meet more definitions favourable to crime than unfavourable. Those who said it was a good way to behave in the circumstances gave approval, reinforcing the offending, so it continued across generations.

3 0

Official statistics are the government's record of crimes reported to and recorded by the police, compiled by the Home Office and published annually; they cover crimes against households, adults, children, businesses and society. Victim surveys, such as the Crime Survey for England and Wales (CSEW), ask a randomly selected sample of around 50,000 households about crimes they have experienced in the past year, whether or not they reported them, covering adults aged 16+ (and children aged 10 to 15), with anonymous responses. Official statistics enable trends and patterns to be tracked over time and between areas, which is useful for allocating police resources and developing public policy. However, they underestimate crime, as many crimes go unreported, for example because victims think the crime is too trivial or fear reprisals, leaving a 'dark figure' of crime. Police recording practices also reduce reliability: Farrington and Dowds (1985) found that Nottinghamshire's apparently high crime rate was largely due to the police recording minor thefts that other forces ignored, and targets can lead to under-recording. Victim surveys reveal much of the dark figure, often recording far more crime than police figures. But they rely on memory, so suffer from poor recall and telescoping, and omit crimes without a direct victim, such as drug offences, and people living in institutions. Such unreliability can affect funding and policing strategies, so using both measures

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together gives a more valid picture.

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3 1

Instead of using the same set of images before and after the covert sensitisation session, the psychologist could use two different sets: set A for the before test and set B for the after test. The two sets would need to be matched for negative content, for example the same number of images with the same level of negativity, checked in a pilot study. The psychologist could also counterbalance, so half of the participants see set A first and set B second, and the other half see B first and then A.

This would be an improvement because seeing the identical images twice could let participants guess the aim of the study and respond according to expectations (demand characteristics), and it would also reduce order effects such as practice or boredom from repeating the same images.

3 2

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So 7 scores lie below the median and 7 lie above it, which means 7 participants had a score lower than 23.

3 3

Learning theory explains gambling addiction mainly through operant conditioning, where gambling is positively reinforced by the money from a win and by the 'buzz' of excitement (Griffiths, 1994). Reinforcement can be direct, such as a win, or come from near-misses, which feel almost like wins. Gambling is maintained especially by partial reinforcement, where wins happen only some of the time. On a variable ratio schedule a win comes after an unpredictable number of bets, so the gambler keeps betting in the hope that the next bet will pay out. Variable schedules produce the most persistent behaviour, which is highly resistant to extinction, so it continues even when wins stop. Classical conditioning also plays a part, as cues such as the lights and sounds of a machine become associated with the excitement of winning and trigger cravings.

In the study, the researchers were manipulating schedules of reinforcement, and machine 'wins' acted as positive reinforcement. Machines that paid out after 2 minutes of play were on a fixed interval schedule, which is predictable, so it produces less persistent behaviour. Machines that paid out on average every tenth bet were on a variable ratio schedule, which is unpredictable and highly reinforcing, so it leads to stronger and more persistent betting. The link between gambling behaviour and machine setting supports the idea that reinforcement schedules shape gambling. People who carried on betting long after the last win were probably using machines on a variable schedule: as they could never predict when the next win would come, their behaviour was hard to extinguish, which explains why addicted gamblers keep playing despite losing.

3 4

Personality is proposed as a risk factor because certain traits make a person more vulnerable to developing addiction, sometimes called an 'addictive personality', meaning a correlation between certain traits and addiction. Antisocial personality disorder has been strongly linked to addiction, and Eysenck's model suggests people high in neuroticism and psychoticism are at greater risk. Cloninger (1987) proposed three dimensions of addictive behaviour: high novelty-seeking, low harm avoidance and high reward dependence. The key trait may be impulsivity, leading to risk-taking, sensation-seeking and a chaotic lifestyle.

Cloninger et al. (1988) found that children rated high in novelty seeking and low in harm avoidance at age 11 were more likely to abuse alcohol at age 27, supporting personality as a risk factor, and Francis (1996) found high neuroticism and psychoticism scores in people addicted to nicotine, alcohol and heroin. However, most findings are only correlational, so they do not show cause and effect, as personality differences may be a consequence of addiction, since drugs change brain function and behaviour. Many people with these traits never become addicted, so personality may only be a predisposition that interacts with other risk factors such as stress and peers. Personality-based explanations may also have a genetic basis, making it hard to separate personality from genetic

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vulnerability, and some traits, such as resilience, may decrease the risk. Finally, the approach is deterministic, with negative implications for treatment, as personality is hard to change, though identifying high-risk individuals, such as impulsive adolescents, could support targeted prevention.

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