



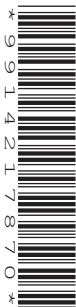
Oxford Cambridge and RSA

Monday 3 June 2024 – Afternoon

A Level Psychology

H567/03 Applied psychology

Time allowed: 2 hours



You must have:

- the OCR 12-page Answer Booklet

INSTRUCTIONS

- Use black ink.
- Write your answer to each question in the Answer Booklet. The question numbers must be clearly shown.
- Fill in the boxes on the front of the Answer Booklet.
- Answer **all** the questions in Section A.
- Choose **two** options in Section B and answer **all** the parts of the question for each option.

INFORMATION

- The total mark for this paper is **105**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **4** pages.

ADVICE

- Try to answer every part of each question you choose.
- Read each question carefully before you start your answer.

Section A

Issues in mental health

- 1 Outline **two** historical views of mental illness. [6]
- 2 The key research by Gottesman et al. (2010) involved analysis of data from the Danish Psychiatric Central Register.
- (a) What were Gottesman et al. (2010) trying to find out? [3]
- (b) Outline **one** strength of Gottesman et al. (2010) conducting their research through analysis of data in this register. [3]
- (c) Outline **one** weakness of Gottesman et al. (2010) conducting their research through analysis of data in this register. [3]
- 3 Orla is a researcher working in the Psychology department of a university. She works with a range of different therapists. Orla thinks that non-biological treatments of mental illness are effective and she wants to conduct some research into their effectiveness to find out whether she is correct.
- (a) Identify **and** describe **one** non-biological treatment of a disorder that Orla could consider for her research. [4]
- (b) Explain how Orla could investigate the effectiveness of this non-biological treatment of mental illness. [6]
- 4* To what extent can explanations of mental illness be considered socially sensitive? [10]

Section B**Options**

Choose **two** options and answer **all** the parts of the question in your chosen options.

OPTION 1**Child psychology****5**

(a)* Outline the key research by Barkley-Levenson and Galván (2014) **and** explain what it tells us about brain development. [10]

(b)* Discuss whether research into pre-adult brain development is scientific. [15]

(c)* Emma is Head of Sixth Form in a secondary school. She is worried about risk-taking behaviour among sixth form students at the school.

Outline at least one suggestion a psychologist, using their knowledge of brain development, might make to Emma about how to reduce risk-taking behaviours among students in the sixth form at her school. [10]

OPTION 2**Criminal psychology****6**

(a)* Outline the key research by Memon and Higham (1999) **and** explain what it tells us about training police interviewers. [10]

(b)* Discuss ethical considerations in relation to collection of evidence. [15]

(c)* Tom was in his local supermarket doing some shopping when he witnessed another customer stealing some goods from the shelves.

Outline at least one suggestion a psychologist might make to the police regarding how to interview Tom about what he saw. [10]

OPTION 3**Environmental psychology****7**

(a)* Outline the key research by Wells (2000) **and** explain what it tells us about territory in the workplace. [10]

(b)* Discuss whether research into territory and personal space is ethnocentric. [15]

(c)* Sundip is creating an office where people can hire workspaces. She wants the office to appeal to as wide a range of potential clients as possible.

Outline at least one suggestion, based on research into territory or personal space, that a psychologist might make to Sundip about how to design her office. [10]

OPTION 4**Sport and exercise psychology****8**

(a)* Outline the key research by Kroll and Crenshaw (1970) **and** explain what it tells us about measurement of personality in sport. [10]

(b)* Discuss sampling bias in research into personality and sport. [15]

(c)* Kareem works as a sports psychologist. It is over halfway through the football season and a team has lost most of its matches. The manager of this team wants advice from Kareem about how knowledge of personality might be used to improve the performance of this team in the last part of the season.

Outline at least one suggestion that Kareem could make to this football manager about how knowledge of personality could be used to improve the team's performance. [10]

END OF QUESTION PAPER

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Candidate name: *StemUp Model Solution*

1 *One historical view of mental illness is that it was caused by demonic possession or witchcraft. In the medieval period, behaviour that we would now see as symptoms of a disorder, such as hallucinations, erratic behaviour, hysteria or epileptic seizures, was interpreted as evidence that an evil spirit, demon or the devil had taken control of the person's body and mind. Because the cause was believed to be supernatural, so were the treatments. People were subjected to exorcism, which could involve prayer, beating or restraint, and some were accused of being witches and burnt. Trepanning, drilling a hole in the skull, was also used to allow the evil spirit to escape.*

A second historical view is Hippocrates' theory of the four humours. The body was believed to contain four fluids, blood, phlegm, yellow bile and black bile, and physical and mental health depended on these being in balance. Mental illness was explained as an excess or shortage of one humour, so for example melancholia, which we would now call depression, was thought to result from too much black bile, while mania was linked to excess yellow bile. Treatment aimed to restore the balance of the humours, for example through bloodletting with leeches, purging, or changes in diet and climate. This was an early attempt at a physical rather than supernatural explanation of mental illness.

2(a) *Gottesman et al. (2010) were trying to find out the likelihood, expressed as a percentage risk, of a child being diagnosed with schizophrenia or bipolar disorder depending on whether both parents, one parent or neither parent had been admitted to psychiatric hospital with that disorder. They also wanted to see whether the offspring were at increased risk of developing other mental disorders, in order to assess how far these disorders are transmitted genetically or hereditarily within families, and whether there is genetic overlap between schizophrenia and bipolar disorder.*

2(b) *One strength of using the Danish Psychiatric Central Register is that it gave Gottesman et al. access to data on an extremely large sample, which increases population validity and the reliability of the figures. The researchers were able to examine the records of 2.7 million people*

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born in Denmark between 1968 and 1997 who were followed up to 2007, including 196 couples where both parents had been admitted with schizophrenia. This matters because a sample of couples where both parents have the same disorder would be almost impossible to recruit in a conventional study, so the register meant that the risk figures they produced, such as the 27.3 per cent risk of schizophrenia when both parents were affected, are based on enough cases to be trustworthy and generalisable to the wider Danish population.

2(c) One weakness of using the register is that the researchers had to rely on the validity of diagnoses made by many different clinicians over a long period, and the diagnostic criteria changed during the time studied. Gottesman et al. analysed admissions recorded between 1970 and 2007, during which the ICD system used in Denmark was updated from ICD-8 to ICD-10, so a person diagnosed with schizophrenia in 1975 may not have met the criteria used in 2005. This is a weakness because it means the register may contain inconsistent or inaccurate diagnoses, and people with a disorder who were never admitted to hospital would not appear at all, lowering the validity of the risk percentages and the conclusions drawn about hereditary transmission.

3(a) A non-biological treatment that Orla could consider is systematic desensitisation, a behaviourist treatment for phobias. Orla could use it with clients who have a specific phobia, such as a fear of spiders. First the therapist teaches the client relaxation techniques such as deep breathing and progressive muscle relaxation. The client and therapist then draw up a fear hierarchy, a list of situations involving the feared object ranked from least frightening, such as looking at a cartoon of a spider, to most frightening, such as holding a live spider. Starting at the bottom of the hierarchy, the client is exposed to each situation while using the relaxation techniques, and only moves up a step once they can remain calm. Through classical conditioning the phobic stimulus becomes associated with relaxation instead of fear, so the fear response is gradually extinguished and the client can cope with the feared object.

3(b) Orla could carry out a field experiment with an independent measures design in which the

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independent variable is the type of treatment received. She could recruit a sample of about 40 adults who have been diagnosed with a specific phobia, such as arachnophobia, by the therapists she works with, using opportunity sampling from their waiting lists, and randomly allocate them to two conditions. The experimental group would receive six weekly sessions of systematic desensitisation from one of the therapists, while the control group would be placed on a waiting list and receive no treatment during the same six weeks.

Effectiveness would be measured by taking the same measures before and after the treatment period. Each participant would complete a standardised self-report anxiety questionnaire about spiders, rating their fear on a scale from 1 to 10, and would also take part in a behavioural approach test in which Orla records how close in centimetres they are willing to move towards a spider in a tank. Orla could also measure heart rate during the approach test as a physiological indicator of anxiety. If the systematic desensitisation group shows a significantly larger reduction in fear ratings and a greater increase in approach distance than the waiting list group, Orla can conclude that this non-biological treatment is effective. She should debrief all participants and offer the waiting list group the treatment afterwards.

- 4 Research or theory is socially sensitive when its findings or implications have consequences for the people being studied or for the wider group they represent, for example by leading to stigma, discrimination or changes in policy that disadvantage them. Explanations of mental illness are a good example because they attempt to say why a person has a disorder, and the answer can carry blame or label people.

Biological explanations, such as Gottesman et al.'s (2010) finding that the risk of schizophrenia rises to 27 per cent when both parents have the disorder, can be seen as highly socially sensitive. The group affected is people with a diagnosis and their relatives. Suggesting that mental illness is inherited could lead to discrimination in employment or insurance, and historically genetic explanations supported eugenicist policies such as forced sterilisation of the mentally ill. Children of parents with schizophrenia might be treated as time bombs, and

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parents might feel guilt about passing on faulty genes.

Behaviourist and cognitive explanations are also socially sensitive, but for different reasons. The behaviourist explanation suggests phobias are learnt through classical conditioning and reinforced by parents, and the psychodynamic explanation attributes disorders to early childhood experience, so both can lead to parents, especially mothers, being blamed for their child's illness. Cognitive explanations, such as Beck's view that depression stems from faulty thinking, can imply the sufferer is responsible for their own condition because their thoughts are irrational, which may add to stigma. Historical explanations, such as demonic possession, were extremely socially sensitive because they justified cruel treatments and exclusion from society.

However, the extent of social sensitivity is limited in several ways. Biological explanations can actually reduce stigma, because if a disorder is caused by genes or neurotransmitter imbalance it is beyond the individual's control and is treated as a medical condition rather than a moral failing. Every explanation also points towards a treatment, whether drugs, CBT or systematic desensitisation, which offers hope and justifies funding for services. Explanations that acknowledge an interaction of factors, such as the diathesis-stress model, spread responsibility rather than blaming one group.

Overall, explanations of mental illness are socially sensitive to a considerable extent because they inevitably identify a cause and therefore a group that may be blamed or discriminated against. Biological and genetic explanations are probably the most sensitive because their consequences can affect whole families and have shaped government policy, but no explanation is entirely free of sensitivity, so psychologists must consider carefully how their explanations are communicated.

5(a) Barkley-Levenson and Galvan (2014) aimed to find out whether the adolescent brain is more sensitive than the adult brain to expected value, that is the average amount a person can expect to gain or lose from a risky choice, and whether this could explain adolescent risk-taking.

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They studied 19 adolescents aged 13 to 17 and 22 adults aged 25 to 30, recruited in Los Angeles, who were screened for psychiatric and neurological conditions and were matched for their disposable income and spending so that money had a similar value to both groups.

The method was a laboratory experiment using fMRI scanning. On a first visit participants were given 20 dollars and told to treat it as their own money, which they brought back for the second visit. In the scanner they played a gambling task in which spinners showed a 50 per cent chance of gaining one amount and a 50 per cent chance of losing another, with gains from 5 to 20 dollars and losses from 5 to 20 dollars, so expected value ranged from negative to positive. There were 144 mixed gamble trials plus gain-only and loss-only trials, and participants chose to accept or reject each gamble, knowing that one chosen gamble would be played for real at the end.

They found that adolescents accepted more gambles than adults as expected value increased, and that activation in the left ventral striatum increased more steeply with expected value in adolescents than in adults. There were no differences in the loss-only or gain-only trials. They concluded that the adolescent ventral striatum is hypersensitive to the value of rewards.

This tells us that brain development is not complete in adolescence and that the reward system matures earlier than the prefrontal cortex which controls impulses. The ventral striatum is a dopamine-rich area involved in the experience of pleasure and reward, so its heightened response makes risky but potentially rewarding choices feel more attractive to adolescents. The researchers suggest this may be adaptive, providing neural support for the risk-taking needed as young people move away from dependence on caregivers towards independence. It also tells us that adolescent risk-taking is not simply poor judgement but has a biological basis, so brain imaging can reveal developmental differences that behaviour alone would not show.

5(b) Psychology is considered scientific when it uses objective and replicable methods, manipulates variables under controlled conditions to establish cause and effect, collects quantitative empirical

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data and tests falsifiable hypotheses. Research into pre-adult brain development can be judged against these criteria.

In many respects this research is highly scientific. Barkley-Levenson and Galvan (2014) used fMRI, which produces objective quantitative measures of blood oxygen level changes in the ventral striatum that do not depend on the interpretation of the researcher. They used a standardised gambling task with 144 trials, controlled the value of money by giving each participant 20 dollars and matching groups on income, and tested a clear falsifiable hypothesis that adolescents would show greater neural sensitivity to expected value than adults. The procedure is documented in enough detail to be replicated, and similar findings from Galvan et al. (2006) and Steinberg's dual systems research suggest the results are reliable. Because the research is biological, measuring brain structures and neurotransmitter systems, it fits the methods of natural science and lends credibility to the field.

However, there are limits to how scientific the research is. Although fMRI is objective, the task was artificial. Choosing spinners while lying still in a scanner lacks ecological validity and may not reflect how adolescents take risks with friends present, so generalising to real-world risk-taking involves inference rather than direct observation. The sample sizes were small, 19 adolescents and 22 adults, which reduces statistical power and makes it harder to be confident the effect is genuine. In addition, the design was quasi-experimental, because age cannot be manipulated or randomly allocated, so cause and effect cannot be firmly established.

Differences between groups could reflect experience, education or hormones rather than brain development itself.

Another issue is that the interpretation of brain imaging is not entirely objective. Researchers decide which regions of interest to analyse and set statistical thresholds, and the claim that ventral striatum activation reflects reward sensitivity is an inference. Concepts such as risk-taking are operationalised differently across studies, which reduces comparability. Some research in this area, such as studies linking adolescent brain development to real-life behaviour

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like graduated driving licence outcomes, relies on correlational data, which can never show cause and effect.

Nevertheless, the research is falsifiable, has been replicated across laboratories and uses measurement technology that is far more objective than self-report, so most criticisms are about the degree of scientific rigour rather than whether it is science at all. There are also ethical constraints that prevent fully controlled experiments on children's brains, so some compromises are unavoidable.

In conclusion, research into pre-adult brain development is largely scientific because it uses objective, quantitative, replicable methods and tests clear hypotheses, but it is weakened by small samples, artificial tasks and the inability to manipulate age, so claims about cause and effect between brain maturation and risk-taking should be made cautiously.

5(c) A psychologist would first explain to Emma that research such as Barkley-Levenson and Galvan (2014) shows that the sixth formers' ventral striatum, the brain's reward centre, is hypersensitive to rewards, while the prefrontal cortex, which controls impulses and weighs up consequences, is not fully developed until the mid twenties. Risk-taking is therefore partly biological, so strategies should work with the reward system rather than simply telling students to stop.

The main suggestion would be to use operant conditioning to make safe behaviour more rewarding than risky behaviour. Because adolescents are so responsive to rewards, Emma could introduce a points system in which students earn positive reinforcement for responsible behaviour, such as punctuality, safe conduct on school trips, attending study sessions and avoiding incidents at sixth form social events. Points could be exchanged for privileges that sixth formers value, like priority common room access, free periods off site or leadership roles. Rewards should be immediate and frequent, as the adolescent reward system responds strongly to immediate gains, whereas long-term consequences such as damaging future careers have

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little influence. Clear and consistent sanctions, such as removal of privileges for risk-taking like vaping on site, would act as punishment, but the emphasis should be on reinforcing the desired behaviour.

A second suggestion is to apply the principles of graduated driving licence schemes, which have reduced accidents among teenage drivers by introducing freedoms in stages. Emma could give Year 12 students fewer freedoms, for example staying on site in study periods, and allow Year 13 students to earn more independence, such as leaving school during free periods, once they have demonstrated responsible behaviour. This recognises that the brain's control systems are still maturing and provides scaffolding while they develop.

Finally, the psychologist might suggest situational changes based on social learning theory and peer influence, since research shows adolescents take more risks when peers are present. Emma could use older students or recent leavers as role models who demonstrate responsible choices in assemblies and mentoring, and could structure social events with adult presence so that peer reward for risk-taking is reduced. Together these strategies target the reward-driven adolescent brain while supporting the developing prefrontal cortex.

6(a) Memon and Higham (1999) carried out a review article rather than an experiment. Their aim was to evaluate the cognitive interview technique, which was developed by Fisher and Geiselman to improve the amount and accuracy of information gained from witnesses, and to consider the methodological problems in researching it.

They described the four components of the cognitive interview: context reinstatement, where the witness mentally recreates the physical and emotional setting of the event; report everything, where the witness is encouraged to recall every detail even if it seems trivial; recalling in a different order, such as backwards from the end of the event; and changing perspective, imagining the event from another person's viewpoint. The first two are based on Tulving's encoding specificity principle and the last two aim to retrieve memories through

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different routes. They also discussed the enhanced cognitive interview, which adds rapport building, transfer of control to the witness and witness-compatible questioning.

Memon and Higham considered how the technique should be assessed. They noted that the choice of control group matters: comparing it with a standard police interview is unfair because those interviews are often poor, so comparison with a structured interview that shares the communication skills is more valid. They also discussed how memory is measured, for example counting correct details, errors and confabulations rather than just the total recalled, and noted that research into the separate components suggests context reinstatement and report everything are the most effective, whereas change perspective can confuse witnesses or lead them to fabricate. They reviewed training studies such as Memon et al. (1994), in which a four-hour training session did not improve performance, and noted that officers vary in motivation.

This tells us several things about training police interviewers. Training should concentrate on context reinstatement and report everything, followed by reverse order recall, because these components have been shown to improve recall, while less time should be spent on change perspective. Training must be substantial, around two days rather than a few hours, with opportunities for practice and individual feedback on recorded interviews. It should be delivered by a credible trainer such as an experienced police sergeant rather than a university lecturer, and should be given to motivated officers selected for their potential, since reluctant officers do not apply the technique. Finally, all trainees should learn the same structured techniques so that performance can be fairly evaluated.

6(b) Ethical considerations are the principles that protect participants, witnesses and suspects from harm when psychologists conduct research or when their findings are applied, including informed consent, the right to withdraw, protection from psychological harm, deception and confidentiality. In the collection of evidence, these apply both to research studies and to the real interviews and procedures that the research informs.

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One consideration is deception and the lack of informed consent in research into eyewitness evidence. Loftus and Palmer (1974) showed students films of car crashes and misled them with leading questions such as how fast the cars were going when they smashed into each other, and a week later asked about broken glass that was not there. Participants could not consent fully because the aim had to be hidden, otherwise demand characteristics would ruin the study. This can be defended because the deception was mild and the findings have had real benefits, leading to guidance that police avoid leading questions, so the ends arguably justified the means. However, Memon and Higham (1999) point out that field research on the cognitive interview involves real witnesses to real crimes, who may not be in a position to refuse to take part, and their recall is being used both as evidence and as data.

A second consideration is protection from harm. Witnesses in cognitive interviews are asked to reinstate the context of the event, including their emotions, which for victims of violent crime may cause distress and could re-traumatise them. Research into weapon focus and anxiety, such as Yuille and Cutshall's study of a real shooting, involves interviewing people about frightening events. The interviewer must balance the need for evidence against the witness's wellbeing, and the enhanced cognitive interview addresses this partly through rapport building and transferring control to the witness, which is more ethical than the pressured standard police interview.

Thirdly, the collection of evidence from suspects raises issues of rights and coercion. Research into false confessions by Gudjonsson shows that suggestible or vulnerable suspects can be led to confess, so interview techniques like the Reid technique that use psychological pressure can be seen as unethical, and the PEACE model used in England was developed partly in response. Collection of forensic evidence such as DNA from suspects who have not been charged raises issues of privacy and consent to the retention of data. There is a wider debate about whether the end of convicting the guilty justifies means that risk harming the innocent.

On the other hand, failing to improve evidence collection is also unethical, because poor

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interviews lead to wrongful convictions, so researchers have a duty to carry out this research. Studies that use volunteer students watching staged crimes, as in much cognitive interview research, raise few ethical problems but lack validity, so there is a trade-off between ethics and usefulness.

In conclusion, research into the collection of evidence necessarily involves some ethical compromises, particularly deception and distress, but these are generally proportionate and the application of the research, in the form of the cognitive interview and the PEACE model, has made real police procedures more ethical. The main ongoing concern is protecting the rights of vulnerable witnesses and suspects.

6(c) A psychologist would advise the police to interview Tom using the cognitive interview technique, developed by Fisher and Geiselman and evaluated by Memon and Higham (1999), because it is designed to increase the amount of accurate detail recalled by a cooperative witness like Tom without introducing distortion.

First, the interviewer should build rapport with Tom and transfer control of the interview to him, explaining that he is the expert on what he saw and should not be rushed. This is part of the enhanced cognitive interview and helps Tom feel relaxed so that anxiety does not interfere with retrieval. The interviewer should then use context reinstatement, asking Tom to mentally return to the supermarket: which aisle he was in, what he was looking for on his own shopping list, the sounds, lights and smells, and how he was feeling when he noticed the customer. Tulving's encoding specificity principle suggests that recreating the cues present at encoding will trigger more memories about the thief and the goods that were taken.

Next, the interviewer should ask Tom to report everything, even details that seem unimportant, such as the colour of the thief's bag or the shelf the goods came from, because trivial details can cue other memories and may help identify the person on CCTV. Open-ended questions and uninterrupted free recall should be used, and the police should avoid leading questions such as

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"Did he put the items in his coat?" because Loftus and Palmer (1974) showed that the wording of questions can alter a witness's memory. Questions should be witness-compatible, following the order in which Tom recalls events rather than a fixed checklist.

The interviewer could then ask Tom to recall the incident in reverse order, starting from the thief leaving the shelves and working backwards, which disrupts the use of schemas about what shoplifters typically do and helps check consistency. Memon and Higham found this component useful, whereas changing perspective, for example imagining the view of the cashier, should be used cautiously or avoided because it may confuse Tom or encourage guessing.

Finally, the interview should be conducted as soon as possible after the event, by an officer properly trained in the cognitive interview over at least two days with feedback, as Memon and Higham recommended, and it should be recorded so that Tom's statement can be used reliably as evidence.

7(a) Wells (2000) aimed to investigate how employees personalise their workspace, whether personalisation is linked to well-being and job satisfaction, and whether there are gender differences in personalisation. The study was carried out in 20 companies in Orange County, California, using a survey of 338 office workers, which combined a questionnaire with observation of workspaces, and five in-depth case studies of companies with differing personalisation policies, in which Wells interviewed managers and employees and took photographs of workspaces.

The questionnaire measured the number and type of personal items displayed, reasons for personalising, satisfaction with the physical environment, job satisfaction and well-being, as well as perceptions of the company's personalisation policy. The case studies involved interviews with business owners about their policies and the organisational climate.

Wells found that personalisation was positively associated with satisfaction with the physical

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work environment, which in turn was linked to job satisfaction and employee well-being. Women personalised their workspace more than men and did so with items symbolising relationships, such as photographs of family and friends, trinkets and plants, whereas men displayed items relating to sport and achievements. Men were allowed more personalisation and more freedom in how they personalised. The case studies showed that companies which permitted more personalisation had a more positive organisational climate, with greater morale and lower turnover, and that personalisation was particularly important to the well-being of women.

This tells us that territory in the workplace matters. Personalisation is a form of territorial marking: by placing personal items on a desk employees claim the space as their primary territory, mark its boundaries and defend it against intrusion, and this gives them a sense of control, privacy and identity at work. Allowing employees to mark their territory enhances well-being and satisfaction, so lenient personalisation policies benefit both workers and the organisation, and companies with strict policies may harm morale. The gender differences tell us that men and women use territory differently, with women using personal items to express relationships and regulate social interaction, so a single workplace policy may not suit everyone. Because the data were correlational and gathered in one American county, however, the direction of the relationship between personalisation and well-being cannot be certain.

7(b) Ethnocentrism is the tendency to view one's own culture as the norm and to judge other cultures by its standards. Research is ethnocentric when it is carried out in one culture, usually Western, and its findings and theories are assumed to apply to everyone, so that behaviour in other cultures appears abnormal rather than simply different.

Much research into territory and personal space can be criticised as ethnocentric. Wells (2000) studied 338 office workers in 20 companies in Orange County, California, a wealthy and individualistic part of the United States. The finding that personalising a desk with family photographs improves well-being may reflect American values about individual self-expression and ownership of space. In collectivist cultures such as Japan, where open offices and shared

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space are common and the group is prioritised, marking personal territory may be less important or even frowned upon, so Wells's conclusions about how territory should be managed cannot be assumed to apply worldwide. Similarly, Felipe and Sommer's (1966) invasion studies in a California library and psychiatric hospital measured flight reactions to personal space invasion among American participants, using distances that may be comfortable in other cultures.

However, personal space research is one of the few areas where cultural variation has been explicitly recognised. Hall (1966) proposed proxemic zones but identified contact cultures, such as Latin American and Arab countries, where people interact at closer distances, and non-contact cultures, such as Northern Europe and North America, where greater distance is preferred. Sommer himself compared seating preferences across cultures, and later cross-cultural studies such as Sorokowska et al. (2017), which measured preferred interpersonal distance across 42 countries, show that researchers have actively looked for cultural differences rather than imposing one standard. This suggests the field is less ethnocentric than many areas of psychology.

A further argument is that some of the research is biological or based on non-human animals. Territoriality was first studied in animals, and the concept of the body buffer zone treats personal space as an evolved defence mechanism. If personal space is partly biological, then findings should generalise across cultures and ethnocentrism is less of a problem, although critics argue that applying animal territory concepts to humans ignores the cultural meaning of space.

The data collection methods may also be culturally specific. Wells's questionnaire asked about items such as photographs and trinkets and about job satisfaction in terms of Western individualistic values, and the gender differences she found may reflect American gender roles rather than universal differences. Measuring personal space by observing seating choices or using stop-distance methods assumes that discomfort is expressed in the same way everywhere.

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In conclusion, individual studies of territory, especially Wells (2000), are ethnocentric because they rely on single-culture American samples and culturally loaded measures, so caution is needed in applying them to offices around the world. However, research into personal space as a whole is relatively culturally aware, with cross-cultural comparisons built into theory from Hall onwards, so the topic area is only moderately ethnocentric compared with other fields of psychology.

7(c) Because Sundip wants her hire-office to appeal to as many clients as possible, a psychologist would advise her to design spaces that allow people to establish and mark territory while also respecting differences in personal space needs.

The first suggestion, based on Wells (2000), is to design workstations that can be personalised even though they are hired. Wells found that office workers who personalised their desks with photographs, plants and trinkets reported greater satisfaction with their environment, higher job satisfaction and better well-being, and that companies permitting personalisation had a better organisational climate. Sundip could therefore give each hired desk a pinboard, a small shelf and a lockable drawer or locker so that regular clients can display personal items and store them when they leave, and she could advertise a lenient personalisation policy. Because Wells found women personalised more, with items expressing relationships, while men displayed achievement-related items, offering a variety of display options would appeal to both.

A second suggestion is to use dividers and partitions to demarcate territorial boundaries. Research by Altman distinguishes primary territory, which is owned and controlled, from secondary and public territory. A hired desk is at risk of feeling like public territory where anyone can intrude, which reduces the sense of control and privacy. Low screens, desk-end panels or plants between workstations would act as territorial markers, letting clients defend their space from invasion without feeling isolated, and reduce the stress of personal space invasion that Felipe and Sommer (1966) found led people to leave an area.

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Thirdly, the office should provide a range of desk sizes and spacing to accommodate differences in personal space. Hall's (1966) proxemic zones show that people need around 45 centimetres to 1.2 metres of personal distance for comfortable work with colleagues, and that this varies by culture and gender, with contact cultures tolerating closer distances. Larger desks spaced further apart in one zone and denser, cheaper desks in another would let clients choose the arrangement that suits them.

Finally, Sundip should include both open-plan collaborative areas and closed, bookable rooms or quiet pods, as well as separate communal eating areas, so that clients can regulate their social interaction, moving between public territory for networking and private territory when they need privacy. This activity-based design would make the office attractive to clients from different cultures, genders and working styles.

8(a) Kroll and Crenshaw (1970) aimed to find out whether athletes in different sports have different personality profiles, and therefore whether personality could be measured and used to distinguish between types of sportspeople. The study used a questionnaire method with an independent groups comparison between sports. The sample was 387 male athletes competing at a high level, regional or national, in four sports: 81 American footballers, 141 gymnasts, 94 wrestlers and 71 karate participants, including some who were national champions.

Each athlete completed form A of Cattell's 16PF questionnaire, a self-report measure of 16 source traits such as outgoingness, tough-mindedness, dominance, self-sufficiency and anxiety. They also completed the 15-item lie scale from the MMPI, so that athletes who gave socially desirable rather than honest answers could be excluded from the analysis. The data were analysed using multivariate analysis of variance and multiple discriminant function analysis, first comparing all four groups across all 16 traits and then comparing the sports in pairs.

Kroll and Crenshaw found significant differences in personality profile between the sports. Footballers and wrestlers had very similar profiles, both scoring high on tough-mindedness and

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low on self-sufficiency, and could not be distinguished from each other. Gymnasts and karate participants each had distinctive profiles that differed from the footballers and wrestlers, and karate participants were the most different, being more group-dependent and conservative. They concluded that personality profiles do differ between sports, although similar sports share similar profiles.

This tells us several things about measuring personality in sport. First, personality can be measured with a standardised self-report inventory like the 16PF, which produces quantitative data that allows statistical comparison between sports and could in principle be used to channel people into sports suited to their traits or to identify potential. Second, the inclusion of the MMPI lie scale shows that self-report measures of athletes are vulnerable to social desirability bias, so validity checks are needed. Third, differences only emerge when comparisons are made between contrasting sports and at a high level of competition, so the sample chosen affects what is found. Finally, the sophisticated statistical analysis shows that personality in sport is best measured as a profile of many traits rather than a single trait, though the overlap between footballers and wrestlers suggests personality measurement alone cannot predict sporting choice precisely.

8(b) Sampling bias occurs when the participants in a study are not representative of the target population, so that the findings cannot be generalised beyond the sample. It can arise from the sampling method, from who is available or willing to take part, and from who drops out. Research into personality and sport is particularly vulnerable because samples tend to be drawn from specific sports, levels and countries.

One form of sampling bias is the restriction to a single country and culture. Kroll and Crenshaw (1970) studied 387 athletes who were all American men competing in American football, wrestling, gymnastics and karate. Personality traits measured by Cattell's 16PF, such as tough-mindedness or conservatism, are influenced by culture, so the profiles found might reflect American sporting culture rather than universal differences. Much personality and sport research,

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including Eysenck's work linking extraversion to sport, is Western, so conclusions about the sporting personality may be ethnocentric.

A second bias is gender. Kroll and Crenshaw's sample contained no women, so their conclusion that wrestlers and footballers share a tough-minded profile cannot be applied to female athletes. Given that the key research is the foundation for later studies of personality measurement in sport, this androcentric bias has shaped the field. Similarly, research into the hardy or mentally tough personality has often used male athletes, creating a male norm against which women are judged.

Thirdly, the level and range of sports is biased. Kroll and Crenshaw deliberately chose only regional and national level competitors. This can be defended because it controls for commitment and skill and makes the comparison between sports cleaner, but it means the findings say nothing about recreational participants, who make up most people who play sport. Only four individual or combat-based sports were included, and the two most similar, football and wrestling, could not be distinguished, suggesting the choice of sports determines whether differences appear. Research comparing team and individual sports, or players in different positions, has shown that position within a team is also associated with personality, so samples that ignore position may hide differences.

Age is another issue. Many studies use student athletes in their late teens or early twenties, because they are convenient to access through universities, so little is known about personality in older or younger athletes, and longitudinal research into whether sport changes personality suffers from attrition as less committed participants drop out, leaving a sample biased towards the persistent.

However, sampling bias can be defended on practical grounds. Elite athletes are rare, so researchers must use opportunity or volunteer sampling from the teams available to them, and Kroll and Crenshaw's sample of 387 was large for the time. Restricting a sample is also a

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legitimate form of control, and findings can later be tested on other groups. Volunteer samples, however, may be biased towards athletes who are confident about their personality, and the use of the MMPI lie scale suggests the researchers were aware that even the athletes who took part might not respond honestly.

In conclusion, research into personality and sport shows considerable sampling bias in terms of culture, gender, level, sport and age, which limits how far a sporting personality can be generalised. Some of this bias is unavoidable and even useful for control, but it means the measurement of personality in sport should be treated as describing particular groups rather than athletes in general.

8(c) Kareem could advise the manager to use knowledge of players' personality traits to select, position and prepare the squad for the final part of the season, drawing on research such as Kroll and Crenshaw (1970), who used Cattell's 16PF to show that successful athletes in different sports have distinct personality profiles.

The first suggestion is to measure the players' personalities using a standardised inventory such as the 16PF and use the results to inform team selection. Players who have the necessary footballing skills but who also score highly on traits such as conscientiousness, emotional stability and openness to change are more likely to keep working hard and adapt tactically when the team is losing, so Kareem could recommend promoting such players into the first team for the remaining matches, while including the MMPI lie scale, as Kroll and Crenshaw did, to make sure answers are honest.

A second suggestion is to consider positions within the team based on personality. Research suggests that players in different positions differ in traits, for example goalkeepers and central defenders tend to benefit from emotional stability and low anxiety, whereas strikers benefit from dominance and self-confidence. Kareem could suggest that a highly anxious player who has been struggling as a striker during the losing run might perform better in a less exposed

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role, and that socially bold, dominant players should be given leadership roles such as captain to lift the team.

Thirdly, Kareem could help players to withstand criticism from fans and the media, which will be intense after losing most matches. Players who score low on social boldness or high on apprehension are most likely to be affected, so Kareem could work with them individually, using cognitive strategies such as positive self-talk and reframing criticism, and advise the manager to shield these players from press duties.

Finally, Kareem should explain that although traits are relatively stable, states such as anxiety can be modified. He could identify players with high trait anxiety using a measure such as the Sport Competition Anxiety Test and teach them relaxation, imagery and pre-match routines so that their arousal stays in the optimal zone. For players high in extraversion who need stimulation, energising team talks and music could be used before matches. Tailoring preparation to individual personality in this way should improve performance over the last part of the season.