Surname	StemUp Model Solution	Centre Number	Candidate Number
First name(s)			2

GCE AS/A LEVEL

S25-2290U20-1

2290U20-1

TUESDAY, 20 MAY 2025 – AFTERNOON

PSYCHOLOGY – AS unit 2
Using Psychological Concepts

1 hour 30 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**20**	
2.	**3**	
3.	**2**	
4.	**2**	
5.	**7**	
6.	**3**	
7.	**13**	
8.	**19**	
9.	**11**	
Total	**80**	

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ADDITIONAL MATERIALS

You may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Additional space is provided for some questions within the booklet (if required). If further space is required for any question, you should use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

Assessment will take into account the quality of written communication used in your answers.

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Answer **all** questions in Section A **and** Section B.

SECTION A – Contemporary Debate

1. Infants form primary attachments to the adult who holds them and interacts with them most frequently. Therefore, the mother does not need to be the primary caregiver.

Discuss the extent to which psychological evidence agrees or disagrees with this statement. [20]

The statement suggests that attachment depends on who interacts with the infant most, not on biology, so a mother is not essential. This challenges the psychodynamic view and Bowlby's work, which see the mother as uniquely important, but is supported by behaviourist, comparative and more recent research.

Evidence that disagrees with the statement comes first from Freud. In the oral stage (0 to 18 months) the infant's libido is focused on the mouth and the mother, through breastfeeding, becomes the first 'love object'. Freud claimed this relationship is the prototype for all later relationships, so the mother must be the primary caregiver. However, his theory came from case studies of disturbed adults, relies on subjective interpretation and is unfalsifiable, so its validity is low.

Bowlby's Maternal Deprivation Hypothesis (1951) argued that an infant needs a warm, continuous relationship with its mother during a critical period up to about 2.5 years. In his 44 juvenile thieves study, 14 thieves were diagnosed as affectionless psychopaths and 12 of these (86%) had experienced prolonged early separation from their mothers, compared with only 2 of the 44 controls. His later theory of monotropy (1969) proposed an innate bias to attach to one figure, usually the mother, which forms an internal working model for future relationships. Research on day care also seems to support the mother's importance: Belsky (2006) linked long hours of non-maternal care with more aggressive and disobedient behaviour, and Sigman (2011) reported raised cortisol (stress hormone) levels in infants in day care. However, Bowlby's data were retrospective and correlational, he conducted the interviews and

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diagnoses himself (researcher bias), and his sample was disturbed adolescents, so the findings cannot show that maternal separation causes harm. His work also reflects post-war values, when women were encouraged to return to the home, so it may not apply today.

Other evidence agrees that the mother is not needed. The behaviourist 'cupboard love' explanation states that the infant learns to associate whoever feeds it with the pleasure of food (classical conditioning), so any feeder could become the attachment figure. Harlow (1959) challenged the role of feeding: rhesus monkeys reared with a wire 'mother' that gave milk and a cloth 'mother' that gave none spent most of their time clinging to the cloth mother and ran to it when frightened. This shows contact comfort, not feeding or biology, is key. However, findings from monkeys may not generalise to humans and the study caused the monkeys lasting harm.

Schaffer and Emerson (1964) studied 60 Glasgow infants from working-class families, visiting monthly for the first year and again at 18 months. Most first attached to the mother (about 65%), but 3% first attached to the father and 30% jointly to the mother and someone else, and by 18 months 87% had multiple attachments. Crucially, in 39% of cases the person who usually fed, bathed and changed the baby was not the primary attachment figure. Infants attached to the people who responded most sensitively to their signals (sensitive responsiveness), not those who spent most time with them. This agrees that the mother is not necessary but disagrees with the claim that frequency of holding is what matters: quality of interaction is more important than quantity. However, it relied on mothers' self-reports (social desirability) and a narrow 1960s Glasgow sample.

Research on fathers also supports the statement. Frodi et al. (1978) found no difference between mothers' and fathers' physiological responses to videos of crying

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infants. Feldman (2010) found that oxytocin levels in fathers rose with caregiving in a similar way to mothers, and Abraham et al. (2014) found that primary-caregiving fathers (including gay fathers) showed brain activity similar to primary-caregiving mothers, suggesting that caregiving experience rather than sex prepares the parent. Gettler et al. (2011) found that men's testosterone fell after becoming fathers, most in the most involved, suggesting males are adapted to care. Rutter's (1998) study of Romanian orphans adopted into British families found that those adopted before 6 months largely caught up emotionally and cognitively, showing adoptive parents can be effective primary caregivers. Rutter (1970) also argued that children form multiple attachments with fathers, siblings and the extended family, and that it is family discord, not maternal separation, that causes later problems.

The debate has wider implications. Society has changed: there are more single-parent families, stay-at-home fathers, same-sex couples and grandparents providing childcare, and in cultures such as the Efe of Africa infants are cared for by many women.

Additional space for Question **1** only:

Economically, many families need two incomes and the government funds childcare so that parents can work. Politically, Shared Parental Leave in the UK allows fathers to share care, challenging gender stereotypes. Ethically, the view of the mother as primary caregiver stigmatises working mothers and disadvantages fathers and male same-sex couples.

In conclusion, the weight of psychological evidence agrees that the mother does not need to be the primary caregiver: fathers, adoptive parents and other adults can form secure primary attachments, and the historical evidence for the mother's unique role (Freud, Bowlby) is methodologically weak. However, the evidence only partly agrees with the first sentence, as Schaffer and Emerson and Harlow show that sensitive responsiveness and comfort matter more than frequency of contact.

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SECTION B – Principles of Research

2. Using an example, define what is meant by a repeated measures experimental design. [3]

A repeated measures design is where the same participants take part in all conditions of the experiment (both the control and experimental conditions), and their results in each condition are compared. For example, the same participants would complete a memory test of 20 words in a quiet room and then in a noisy room, to compare their recall and see the effect of noise on memory.

3. Suggest an aim for Kohlberg's (1968) research, '*The child as a moral philosopher*'. [2]

To investigate whether moral reasoning develops with age through a universal, invariant sequence of stages, by presenting moral dilemmas to boys aged 10, 13 and 16, and extending stage theories of moral development by studying boys across different cultures (e.g. USA, Taiwan and Mexico).

4. Briefly explain why social desirability has a negative effect on the validity of psychological research. [2]

Social desirability bias is when participants change their behaviour or answers to present themselves in a better light, e.g. under-reporting how much alcohol they drink. The findings then reflect what participants think is socially acceptable rather than their true behaviour or feelings, so the research does not measure what it claims to and no longer paints a true picture of real-life behaviour, lowering its validity.

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Additional space for Question **4** only:

5. (a) Qualitative data was collected as part of Milgram's (1963) '*Behavioral study of Obedience*'. Explain why collecting qualitative data was a strength of this research. [2]

Milgram recorded qualitative observations of extreme stress, e.g. sweating, trembling, stuttering, digging fingernails into their flesh and nervous laughter (14 of the 40 participants), with 3 having uncontrollable seizures. This gave far more depth and detail about how participants felt when ordered to obey than the voltage figures alone, increasing the validity of the research.

Some quantitative results of Milgram's (1963), '*Behavioral study of Obedience*', can be seen in **Figure 1** below.

Figure 1: Frequency table to show obedience levels by voltage.

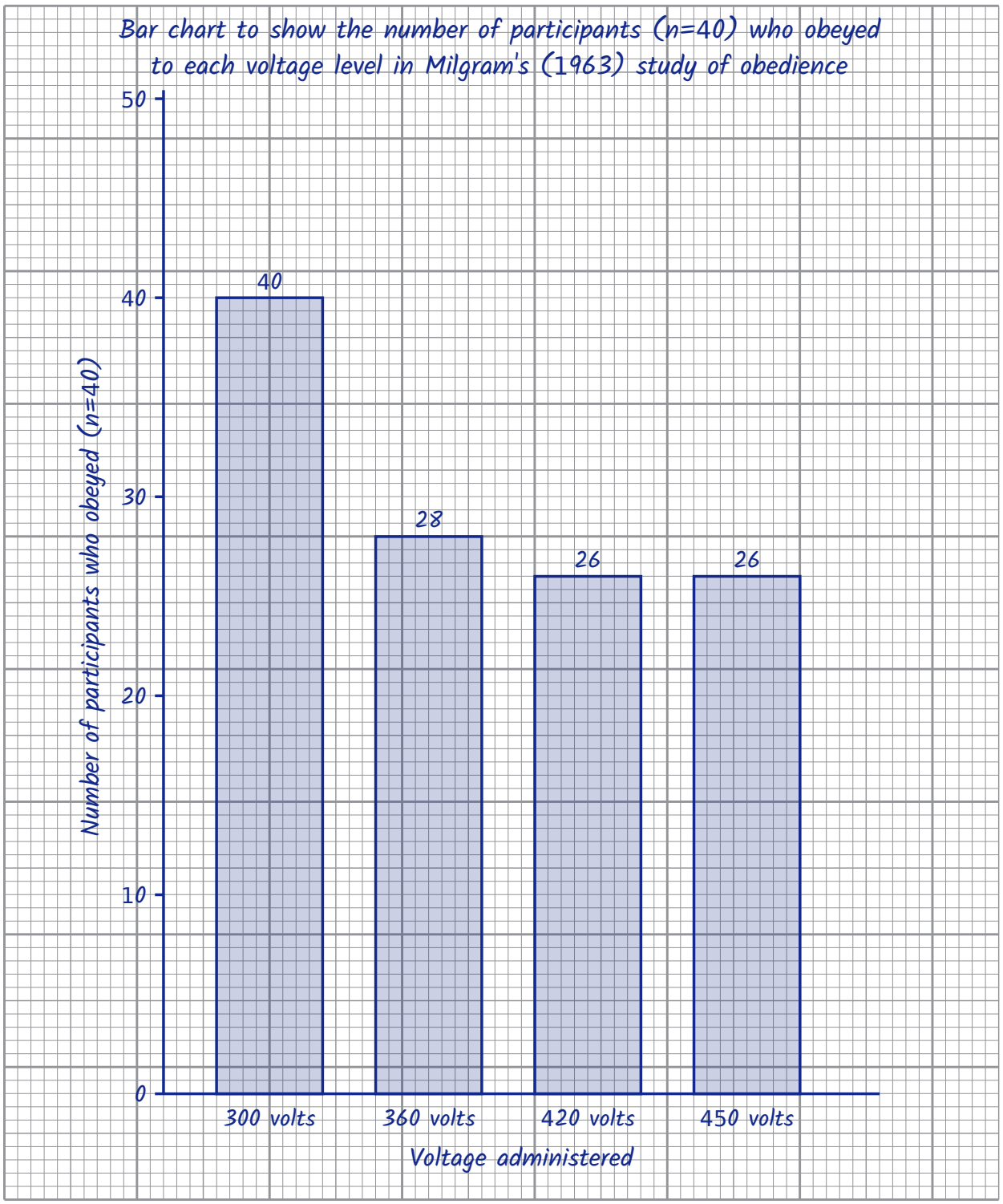
Administered	Number of participants (n=40)
300 volts	40
360 volts	28
420 volts	26
450 volts	26

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(b) Use the information from **Figure 1** to draw and label a bar chart. [5]



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6. Briefly explain the role of an ethics committee. [3]

An ethics committee is a group of people, usually based in a university, hospital or other institution that conducts research, made up of members from a range of disciplines and backgrounds (not just psychologists, e.g. lay members). They review proposed research before it starts and decide whether it is acceptable and ethical, checking that it meets the current code of ethics (e.g. the BPS Code of Human Research Ethics) and carrying out a cost-benefit analysis of the risks to participants against the value of the research. As they are independent, they can interpret the guidelines differently from the researcher, who may be biased in favour of their own study. They may approve the study, require researchers to amend the procedure (e.g. add a full debrief or right to withdraw) or refuse permission, in which case funding may not be provided.

Additional space for Question **6** only:

7. A health psychologist was interested in finding out whether exercise could reduce symptoms of depression. 200 individuals, with a diagnosis of depression, were selected using a systematic sample. The psychologist created two groups. The first group spent four weeks attending High Intensity Interval Training (HIIT) classes and the second group spent three weeks attending yoga classes.

(a) (i) Outline what is meant by the term 'internal reliability'. [2]

Internal reliability is the extent to which a test or measure is consistent within itself, e.g. all the items on a depression questionnaire measure the same thing so participants respond to them consistently. It is achieved by using standardised instructions and procedures for all participants, and can be checked using the split-half method.

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(ii) Explain **one** issue of reliability that may have arisen in this research. [2]

People with depression often lack motivation and withdraw socially, so the patients may not attend the HIIT or yoga classes consistently, meaning each patient receives a different amount of exercise. The procedure was also not standardised between the groups, as the HIIT group exercised for four weeks but the yoga group for only three, so if the study were repeated it may not produce consistent results.

(b) Define what is meant by the term 'target populations'. [2]

The target population is the whole group of people that a researcher is interested in studying, from which a sample is drawn and to whom the findings will be generalised. In this research it would be all people with a diagnosis of depression, e.g. adults in the UK.

(c) Briefly describe how the health psychologist might have collected their systematic sample. [2]

The psychologist would obtain a list of all patients diagnosed with depression, e.g. from local GP surgeries or an NHS mental health service, in alphabetical order. They would then select every 5th person on the list and ask them if they would like to take part in the exercise study, continuing until all 200 participants had been selected.

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(d) At the end of the study, all patients were asked to consider whether they would continue with the exercise classes. They could choose between the answers 'yes' and 'no'. State the level of measurement used to record the patients' answers. [1]

Nominal data

(e) Identify and explain **one** weakness of asking patients to self-report changes to their depressive symptoms at the end of the study. [2]

Demand characteristics. The patients may guess that the aim is to show that exercise reduces depression and so report that their depressive symptoms have improved after the HIIT or yoga classes, even if they have not, because they believe this is what the psychologist wants to hear (being a 'good participant'). This means the self-reports would not accurately reflect changes in their symptoms, weakening the validity of the findings.

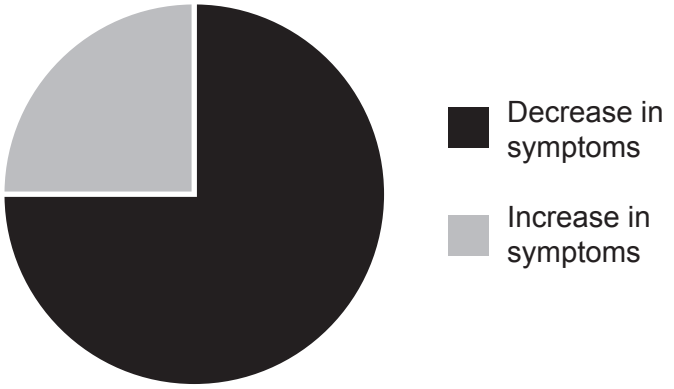
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(f) The effects for the two types of exercise are shown in the pie charts below.

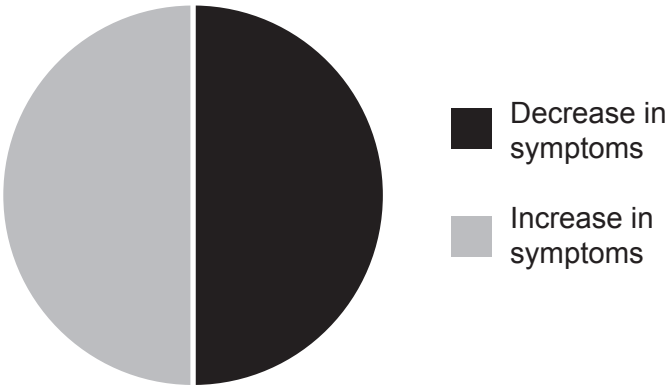
Figure 2: Pie chart to show the impact of HIIT classes on depressive symptoms (n=100).



(i) Using the data in **Figure 2**, state **one** finding. [1]

75% of the participants (75 out of 100) who took HIIT classes had a decrease in their depressive symptoms, while 25% had an increase.

Figure 3: Pie chart to show the impact of yoga on depressive symptoms (n=100).



(ii) Using the data in **Figure 3**, state **one** finding. [1]

50% of the participants (50 out of 100) who took yoga classes had a decrease in their depressive symptoms, while the other 50 had an increase.

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8. A nutritional psychologist was interested in whether the colour of the bowl from which food was served would impact how it tasted. They brought 50 students to a psychology laboratory at a university and asked them about their food preferences. They were split into one of two categories; 'picky-eaters' (people who only like a limited variety of foods) and a control group.

All students then tasted portions of a bag of salted crisps, equally split between three different coloured bowls: red, white, and blue. After each bowl, they rated the saltiness and desirability of the snack, before rinsing their mouth with water and moving to the next bowl. The students were told each bowl contained a different brand of crisps, when this was not the case.

(a) Evaluate the use of a laboratory environment in psychological research. [6]

A strength of a laboratory environment is the high level of control over extraneous variables. Here the psychologist could make sure every student tasted the same crisps, in equal portions, and rinsed their mouth with water between bowls, so any difference in saltiness ratings can be attributed to the colour of the bowl (IV), giving high internal validity and allowing cause and effect to be established. The standardised procedure also means the study is easy to replicate, so its reliability can be checked, and specialist equipment can be used that would not be practical in a natural setting such as a student's home.

However, laboratories are artificial, so research often lacks ecological validity. Students do not normally eat crisps one bowl after another in a university lab while rating them, so the findings may not generalise to how people perceive food at home or in a restaurant (low mundane realism). Participants also know they are being studied, so demand characteristics are more likely: the students may guess the aim and change their ratings. In comparison, a field experiment, e.g. serving crisps in different coloured bowls in a canteen, would have higher ecological validity and fewer demand characteristics, but less control over extraneous variables and fewer chances to gain consent. Overall, a lab is best when precise control and cause and effect are the priority, as in this study.

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(b) Explain why the nutritional psychologist might justify the use of deception in this research. [2]

If the students had known the crisps were identical and that the true aim was to find out whether the colour of the bowl affected the taste and desirability of the crisps, they would probably have rated all the bowls the same (demand characteristics). The psychologist could therefore justify deception as necessary to obtain valid ratings, especially as it is mild, unlikely to cause harm or distress, and the students could be fully debriefed afterwards.

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(c) The nutritional psychologist created the following conclusion: The picky-eaters rated the crisps as saltier (on average) in blue and red bowls, than in the white bowl.

Figure 4: Table to show mean scores for perceived saltiness of the crisps by bowl colour.

	Mean scores for saltiness (*5 = very salty, 1 = bland/not salty*)		
	Red bowl	White bowl	Blue bowl
Picky-eaters	4.6	3.6	4.8

(i) Use data from **Figure 4** to justify whether the conclusion given by the psychologist is true or false. [2]

True. The picky-eaters' mean saltiness score for the blue bowl (4.8) and the red bowl (4.6) were both higher than the mean for the same crisps in the white bowl (3.6), i.e. 1.2 and 1.0 points higher on the 5-point scale, so the conclusion is supported.

(ii) Evaluate **one** weakness of using the mean as a measure of central tendency. [2]

The mean is easily skewed by anomalous or extreme scores because every score is used in its calculation. In a small sample, one picky-eater giving an unusually low or high rating could pull the mean up or down, so it would not be a valid representation of the whole data set. It may also give a value not found in the data (e.g. 4.6 when ratings were whole numbers).

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(d) Crisps from the blue bowl were most desirable to the picky-eaters. Results of five of the participants (n=5) can be seen in the table below. The mean desirability score for these five participants was 6.

Figure 5: Table to show desirability scores for crisps in the blue bowl.

Participant	Desirability Score (1=disgusting, 10=delicious)
A	8
B	7
C	5
D	8
E	2

$$\sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$$

(i) Using the data from **Figure 5**, calculate the standard deviation. Show your workings. Round your answer to two decimal places. [5]

Participant	x	x - mean	$(x - mean)^2$
A	8	8 - 6 = 2	$2^2 = 4$
B	7	7 - 6 = 1	$1^2 = 1$
C	5	5 - 6 = -1	$(-1)^2 = 1$
D	8	8 - 6 = 2	$2^2 = 4$
E	2	2 - 6 = -4	$(-4)^2 = 16$

Mean = (8 + 7 + 5 + 8 + 2) ÷ 5 = 30 ÷ 5 = 6

$\Sigma(x - mean)^2 = 4 + 1 + 1 + 4 + 16 = 26$

n - 1 = 5 - 1 = 4

$\Sigma(x - mean)^2 \div (n - 1) = 26 \div 4 = 6.5$

SD = $\sqrt{6.5}$ = 2.5495...

Standard deviation = 2.55 (2 d.p.)

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(ii) Briefly evaluate **one** advantage of the nutritional psychologist choosing to calculate the standard deviation in this research. [2]

The SD tells the psychologist the spread of the desirability scores around the mean of 6 in a single value, using every score. It is less distorted than the range, which here (8 - 2 = 6) is skewed by participant E's extreme score of 2, so the SD of 2.55 gives a more representative picture of how much the picky-eaters agreed about the crisps in the blue bowl. It can also be used to compare the consistency of ratings across the red, white and blue bowls.

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9. A positive psychologist was interested in whether smiling during a task could increase self-confidence. They asked a class of university students to either complete a maths task whilst holding a pen in their teeth (forcing a smile-like position), or to do the same task holding a pen between their lips (creating a neutral facial position).

The psychologist created a directional hypothesis: students who smile whilst completing a task will report themselves as more confident in their ability, than those who adopt a neutral facial position.

(a) Explain what is meant by the term 'directional hypothesis'. [2]

A directional (one-tailed) hypothesis predicts that there will be a difference or change in the behaviour being measured and also states the direction of that difference, e.g. whether one condition will score higher or lower than the other. Here it predicts students who smile will report more confidence than those with a neutral facial position.

(b) Identify and briefly explain how the independent variable (IV) was operationalised in this research. [2]

The IV was facial expression (smiling or neutral). It was operationalised by asking students to hold a pen between their teeth, forcing a smile-like position (smiling condition), or to hold a pen between their lips, creating a neutral facial position (neutral condition), while completing the same maths task.

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(c) The psychologist used a structured interview to gather information about the students' confidence after the maths task. Briefly outline **one** strength and **one** weakness of using a structured interview to collect data in this research. [2 + 2]

Strength: structured interviews are standardised, as every student is asked identical questions in the same order about their self-confidence after the maths task. This makes the data easy to compare between the smiling and neutral groups and means the interview can be replicated to check the reliability of the confidence ratings. It also produces quantifiable answers that are quick to analyse.

Weakness: the fixed questions cannot be changed, so if a question is leading or open to interpretation the students cannot ask for clarification and the interviewer cannot follow up interesting answers. Students may also give socially desirable answers about their confidence face-to-face, so the responses may not be a valid reflection of their self-confidence during the maths task.

(d) Identify **one** ethical issue that may have arisen in this research and explain how the positive psychologist might have dealt with that issue. [3]

Ethical issue: deception. The students were not told that their facial expression was being manipulated and compared with their confidence (deception by omission), so they could not give fully informed consent. To deal with this, the positive psychologist should fully debrief the students after the interview, explaining the true aim of the pen task, and offer them the right to withdraw their data.

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