# GCE A LEVEL

1290U40-1

S18-1290U40-1

# PSYCHOLOGY – A2 unit 4
## Applied Research Methods

FRIDAY, 8 JUNE 2018 – MORNING

1 hour 30 minutes

**ADDITIONAL MATERIALS**

A WJEC pink 16-page answer booklet.
You may require a calculator and a ruler.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.
Answer **all** questions.
Write your answers in the separate answer booklet provided.

**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, clear presentation in your answers.
Assessment will take into account the quality of written communication used in your answers.

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## SECTION A – Personal investigations

You should answer **all** the questions in this section with reference to the personal investigations carried out in your study of psychology.

### INVESTIGATION ONE:

### An experiment on the effect of context on an individual's perception.

**1.** *(a)* State the null hypothesis from your research. [2]

*(b)* Describe how you collected your results and justify how they were analysed, using a statistical test, and state whether this led to your results being significant. [10]

*(c)* Identify **two** issues of validity you considered when planning your research and explain how these were dealt with. [3+3]

### INVESTIGATION TWO:

### An observation on sharing behaviour.

**2.** *(a)* (i) Explain how you operationalised sharing behaviour in your observation. [2]

(ii) Briefly describe an extraneous variable that wasn't controlled during your observation. [2]

*(b)* Briefly describe how you used either time sampling or event sampling as part of your procedure. [2]

*(c)* Identify **two** ethical issues you considered when planning your observation and explain how these were dealt with. [3+3]

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## SECTION B – Application of research methods to novel scenarios

*Answer* **all** *questions.*

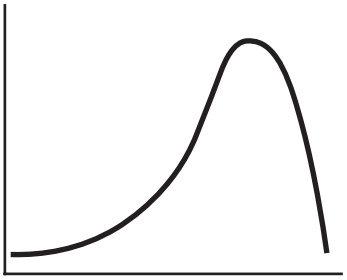
**3.** A research psychologist was concerned about the rise of obesity throughout the UK. Using a sample of 2000 people from a typical town the psychologist collected data on the participants' weight and age. The psychologist collected descriptive data using measures of central tendency. The results are shown in the table below.

| Age | Mean weight (in pounds) | Mode | Median |
|---|---|---|---|
| 16-25 | 122 | 119 | 120 |
| 26-45 | 184 | 196 | 186 |

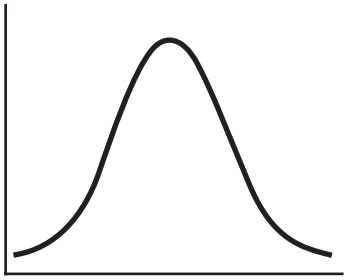
*(a)* State the level of measurement of this data. Explain your answer. [2]

*(b)* The data for the age group 26-45 was plotted on a distribution graph. Which of the graphs below (1, 2 or 3) illustrates the above results? Explain your answer. [2]

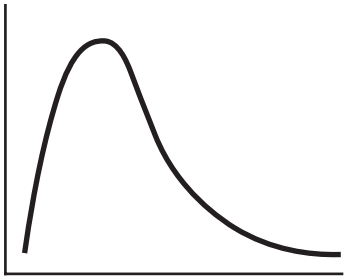
**1**
Negatively Skewed



**2**
Normal (no skew)



**3**
Positively Skewed



*(c)* State what the results tell us about the rise of obesity in this study. [2]

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**4.** A psychologist is interested in bystander intervention. The psychologist wants to see how many people would stop and help a distressed woman, depending on how she is dressed. Explain how you would carry out this study. [15]

In your answer you could include:

- The experimental hypothesis
- Type of experimental method/design
- The setting
- The sample
- Operationalisation
- Extraneous variables
- Checking reliability
- Checking validity
- Ethical issues

**5.** A psychologist carried out a longitudinal study into the effects of a new type of anti-psychotic drug. The drug was prescribed to eight men who had suffered from long term mental health issues. The men took the drug each week over a five year period. A questionnaire was given to the men every six months asking how they were responding to the medication and also to record any side effects. The results from the questionnaire were kept confidential.

*(a)* Briefly describe what is meant by the term 'longitudinal study'. [2]

*(b)* Identify and explain **two** disadvantages of using a longitudinal study for this research. [2+2]

*(c)* Explain why the results from the questionnaire were kept confidential. [3]

**END OF PAPER**

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| Surname | StemUp Model Solution |
|---|---|
| Answer booklet | Write the question number in the left-hand margin at the start of each answer. |

Question number

1 (a) There will be no difference in the number of participants who perceive the ambiguous figure as the letter 'B' rather than the number '13' between participants who see it in a context of letters (A and C) and participants who see it in a context of numbers (12 and 14). Any difference that is found will be due to chance.

1 (b) I carried out a laboratory experiment using an independent groups design, based on Bruner and Minturn (1955). The IV was the context in which the ambiguous figure was shown: a letter context or a number context. The DV was whether the participant reported the ambiguous figure as 'B' or '13'. I used an opportunity sample of 40 sixth form students, who were randomly allocated to the two conditions, 20 in each.

My measuring tool was a set of PowerPoint slides shown on the same laptop, at the same distance, in a quiet classroom. After standardised instructions, participants in the letter condition saw a slide showing 'A', the ambiguous figure and 'C' in a row, and participants in the number condition saw '12', the ambiguous figure and '14' in a column. Each slide was shown for exactly two seconds. Participants then wrote down what they had seen on an answer sheet, and I scored each response as either 'B' or '13'. This produced nominal data, as each participant could only be placed in one of two categories.

For descriptive statistics, I calculated frequencies and percentages and displayed them in a bar chart. In the letter condition 16 out of 20 (80%) reported 'B', compared with 5 out of 20 (25%) in the number condition.

I analysed the results using a chi-squared test, because I was looking for a difference between two conditions, the data was nominal (frequencies in

| Question number | |
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| | categories) and the design was independent groups, so each participant appeared in only one cell of the 2 x 2 contingency table. My observed value of chi-squared was 12.13. With df = 1, the critical value for a one-tailed test at $p \leq 0.05$ is 2.71. As 12.13 is greater than 2.71, my results were significant. It was also greater than 10.83, so the result was significant even at $p \leq 0.001$, meaning there is less than a 0.1% probability that the difference was due to chance. I therefore rejected the null hypothesis and retained my experimental hypothesis that participants are more likely to perceive the figure as 'B' in a letter context than in a number context, which supports the idea that perceptual set is influenced by context. |
| 1 (c) | One issue of validity was demand characteristics. If participants guessed that the study was about context, they might have reported what they thought I expected, for example saying 'B' in the letter condition. I dealt with this by using a single blind procedure: participants were not told the hypothesis, they were told the study was about how quickly people can read symbols, and as it was an independent groups design they only saw one condition, so they could not compare conditions and work out the aim.<br>A second issue was researcher (experimenter) bias. As I knew the hypothesis, I might have unconsciously influenced participants through my tone of voice, or interpreted unclear handwritten answers to fit my hypothesis. I dealt with this using a double blind procedure, where a fellow student who did not know the hypothesis read out the standardised instructions, ran the slides and scored each answer sheet as 'B' or '13'. |
| 2 (a)(i) | I operationalised sharing behaviour as a set of behavioural categories observed between students eating lunch in the school canteen: offering food to another person, handing over part of your own food, splitting a portion between two or more people, and letting another person drink from or taste your drink or food. Each one was recorded as a tally on a tally chart. |

| Question number | |
|---|---|
| 2 (a)(ii) | One extraneous variable that was not controlled was the relationship between the people being observed. Some students were sitting with close friends and others with people they did not know well. People are much more likely to share food with friends, so the amount of sharing may have been affected by friendship rather than by the variables I was observing. |
| 2 (b) | I used event sampling. Two observers sat at the side of the canteen during a 30 minute lunch period and each time any of the operationalised sharing behaviours occurred, we recorded one tally in the correct category on our tally charts, along with the gender of the person who shared. |
| 2 (c) | One ethical issue was lack of informed consent. As it was a covert observation, the students did not know they were being observed, so they could not consent, and asking first would have caused them to change their behaviour. I dealt with this by only observing in a public place, the school canteen, where people would expect to be seen by others, as allowed by the BPS Code of Ethics. I also gained permission from the head of sixth form, and afterwards we put up a notice explaining the study and offering students the right to withdraw their data.<br>A second ethical issue was privacy and confidentiality. Recording what people do while eating could invade their privacy, and the data might identify individual students. I dealt with this by not recording any names, photographs or video, only anonymous tallies and gender, and by not observing private conversations. The tally charts were stored securely and destroyed at the end of the investigation, so no participant could be identified. |
| 3 (a) | Ratio level data. Weight measured in pounds (and age in years) has equal intervals between each unit and a true, fixed zero point, so a weight of 184 lb is a meaningful amount heavier than 122 lb. |

| Question number | |
|---|---|
| 3 (b) | Graph 1, the negatively skewed distribution. For the 26-45 age group the mode (196) and median (186) are both higher than the mean (184). A few people with very low weights pull the mean down, so the tail of the distribution is to the left, which is a negative skew. |
| 3 (c) | The results suggest that obesity is rising, especially among the 26-45 age group: their mean weight (184 lb) is much higher than that of the 16-25 group (122 lb), and their mode, the most common weight, of 196 lb is above the mean, so most people in this group are heavier than average. |
| 4 | I would carry out a field experiment, because the behaviour of real passers-by can be observed in a natural setting. The IV would be how the distressed woman is dressed, with two conditions: smartly dressed (a clean dark business suit and smart shoes) or scruffily dressed (dirty, torn jeans and a stained old jumper). The DV would be whether the passer-by stops and helps her.<br>Experimental hypothesis (directional): significantly more passers-by will stop and help a distressed woman when she is smartly dressed than when she is scruffily dressed.<br>Design: independent groups, as each passer-by would only experience one condition. The setting would be a pedestrianised shopping street in Manchester city centre, on weekday mornings between 10 am and 12 noon, in dry weather. The sample would be an opportunity sample of passers-by. To make it replicable, the participant in each trial would be the first adult walking alone who passes within 3 metres of the woman. There would be 40 trials in each condition, giving 80 participants.<br>Procedure: a female confederate aged about 30 would walk along the street, then stumble, drop a bag of shopping, sit down holding her ankle and look distressed, saying the scripted line 'Ow, my ankle'. The same confederate, the same bag, the same script and the same spot would be used in every trial, and |

Question number

the conditions would be alternated every ten trials, so each condition is run at similar times of day.

Operationalisation: 'helping' would be recorded if, within 30 seconds of the fall, the passer-by stops and either asks if she is okay, picks up her shopping or offers physical help. Two observers would stand across the street, hidden among shoppers, and record on a tally chart whether the participant helped or not, the type of help given, the participant's gender and estimated age, and the time taken to help, using a stopwatch.

Extraneous variables: the number of other bystanders could cause diffusion of responsibility, so trials would only start when there were fewer than three other people within 10 metres. Time of day, weather and location would be kept constant, and the confederate would be trained to act in exactly the same way in both conditions. If the passer-by knew the confederate, the trial would be discarded.

Checking reliability: I would carry out a pilot study to practise the procedure and check that the behavioural categories are clear. Inter-observer reliability would be checked by both observers recording every trial independently and then correlating their records; agreement of 0.8 or above would show high reliability. The standardised procedure would allow the study to be replicated to check for test-retest reliability.

Checking validity: as the participants do not know they are in a study, there are no demand characteristics, so ecological validity is high. To check internal validity, before the study I would show photographs or a video of the confederate in both outfits to a separate group, who would rate how distressed she looked on a 1 to 10 scale, to make sure only her clothing differs and not her level of distress. The observers would not be told the hypothesis, to reduce observer bias.

Data and analysis: this would produce nominal data (helped or did not help) in a 2 x 2 table, so I would analyse it with a chi-squared test at $p \leq 0.05$, one-tailed.

| Question number | |
|---|---|
| | Ethical issues: participants cannot give informed consent and are deceived, and seeing a woman in pain may cause mild distress. I would get approval from an ethics committee first and only use a public place where people expect to be observed. Immediately after each trial a researcher would debrief the passer-by, explain that the woman was not hurt, thank them, and give them the right to withdraw their data. No names or images would be recorded, so data would be confidential. The confederate's safety would be protected by having a researcher nearby. |
| 5 (a) | A longitudinal study is when the same participants are studied over a long period of time, with repeated measurements taken at intervals, to observe long-term changes or effects. Here, the same eight men were given a questionnaire every six months for five years to see the long-term effects of the drug. |
| 5 (b) | One disadvantage is attrition. Over five years some of the men may drop out, for example if their mental health gets worse, if the drug causes severe side effects or if they move away. With only eight men, losing even two would leave a very small sample, and those who stay may be the ones responding well to the drug, so the results would be biased and overestimate its effectiveness.<br>A second disadvantage is that the participants are given the same questionnaire ten times. They may become familiar with it and aware of the aims of the study, so their answers may be affected by demand characteristics, such as reporting that they feel better to please the psychologist, or they may answer out of habit, which reduces the validity of the results. |
| 5 (c) | The results were kept confidential because mental illness and the side effects of anti-psychotic drugs are sensitive topics. If the men knew their answers might be seen by others, they might worry about stigma, so social desirability bias could lead them to hide side effects or say they were responding better than |

Question number

they were. Confidentiality means they are more likely to answer honestly, improving the validity of the data. It is also an ethical requirement of the BPS Code of Ethics and data protection law, protecting these vulnerable men from harm, and it builds trust, so they are more likely to stay in the study for the full five years.