



CANDIDATE
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9990/21

Paper 2 Research Methods

October/November 2020

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages. Blank pages are indicated.

Section A

Answer **all** questions in this section.

- 1 In the study by Yamamoto et al. (chimpanzee helping), one variable being measured was the object offered by a chimpanzee.

(a) Describe **two** ways in which an 'object offer' was operationalised in this study.

1

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2

..... [2]

(b) Explain whether this study was ecologically valid.

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..... [2]

- 2 In the study by Saavedra and Silverman (button phobia), data was collected in the form of statements. During therapy the boy stated that:

- buttons 'emitted unpleasant odours'
- 'buttons are gross'.

(a) Identify this type of data. Include a reason for your answer that refers to the boy's statements.

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..... [2]

(b) Explain **one** disadvantage of collecting this type of data in this study.

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..... [2]

- 3 Explain the difference between a 'measure of central tendency' and a 'measure of spread'.

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..... [2]

- 4 The study by Laney et al. (false memory) used an independent measures design. However, there was still a risk of order effects.

- (a) Explain what is meant by 'order effects', using this study as an example.

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..... [3]

- (b) Explain why order effects reduce validity in experiments.

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..... [1]

- 5 Explain why following ethical guidelines can cause demand characteristics.

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..... [2]

- 6 Describe the difference between 'samples' and 'populations' in research, using any examples.

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..... [6]

Section B

Answer **all** questions in this section.

- 7 Aileen is planning an interview-based study to investigate what old people often forget. She is concerned that this could break the ethical guideline of 'privacy'.

- (a) (i) Explain what is meant by the ethical guideline of privacy, using Aileen's study as an example.

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..... [2]

- (ii) Suggest how Aileen could ensure that she follows the ethical guideline of privacy in her study.

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..... [2]

- (b) Aileen wants to be certain that the forgetting is due to her participants' age. She could do this by making her study into an experiment, using two groups of participants.

- (i) State how Aileen could operationalise her **two** groups of participants.

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..... [2]

- (ii) Aileen believes that a possible extraneous variable is whether any participant has a job.

Explain the effect that this extraneous variable could have on the results.

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..... [2]

- 8 Elaf used a natural experiment to investigate the effect of noise on sleep. His participants completed identical questionnaires before the opening of a new motorway behind their houses and after the motorway had been open for one month.

(a) Explain what is meant by a 'natural experiment', using this study as an example.

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..... [2]

(b) Suggest **one** problem with natural experiments, using this study as an example.

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..... [2]

(c) (i) Identify the experimental design used in Elaf's experiment. Include a reason for your answer.

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..... [2]

(ii) Explain **one** advantage of using this experimental design in Elaf's experiment.

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..... [2]

- 9 Jasmin conducted an overt observation of friendship behaviours on customers in a café for many weeks. She observed the same customers every day, who initially asked her what she was doing. She explained that she was taking notes on their behaviour.

(a) Explain what made Jasmin's study an overt observation.

.....
 [1]

(b) Suggest **one** advantage of overt observations, using Jasmin's study as an example.

.....

 [2]

(c) Suggest **one** disadvantage of overt observations, using Jasmin's study as an example.

.....

 [2]

(d) (i) Suggest **two** behavioural categories that Jasmin could have used to record 'friendship behaviours'.

1

 2
 [2]

(ii) For **one** of the behavioural categories you suggested in (d)(i):

Explain **one** disadvantage of using this behavioural category.

Behavioural category:
 Disadvantage:

 [1]

10 Valerie is a teacher. She notices that students who are expecting a test in another lesson are more likely to feel angry in her lesson. She thinks this is because they are misinterpreting their high level of arousal as anger rather than anxiety about the test. She decides to use a questionnaire to investigate whether her students are misinterpreting their arousal.

-
- This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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..... [10]

- (b) Identify **one** practical weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem.

Do **not** refer to ethics or sampling in your answer.

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[Turn over

Section A

Answer **all** questions in this section.

- 1 In the study by Saavedra and Silverman (button phobia), the results were the effect of the therapy sessions on button manipulation and on severity rating of distress. These are shown in Fig. 1.1 and Fig. 1.2.

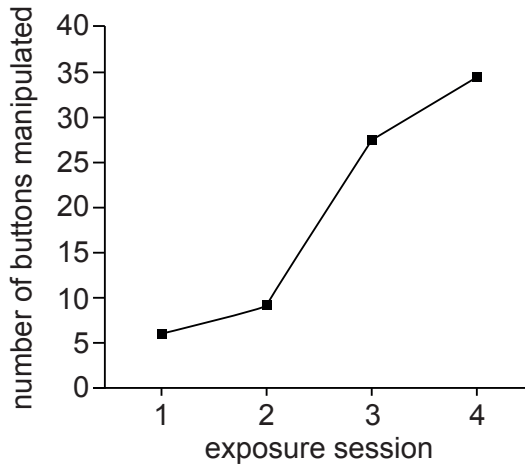


Fig. 1.1

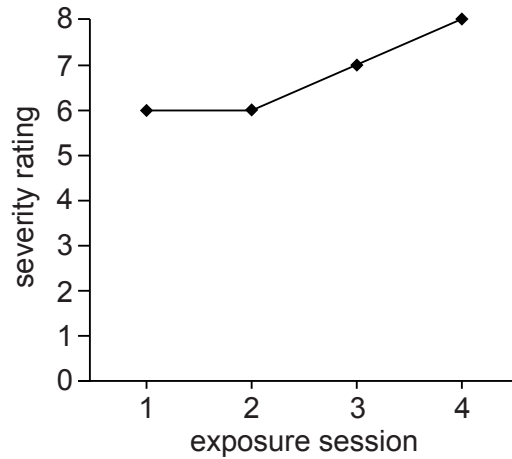


Fig. 1.2

Explain **one** conclusion from the results on each graph. You **must** refer to the results in each conclusion.

Fig. 1.1

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Fig. 1.2

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..... [4]

2 From the study by Laney et al. (false memory):

- (a) State why a false memory about liking asparagus would be more ethical than a false memory created using filmed events like car crashes and thefts.

.....
 [1]

- (b) Explain **one** way in which the study by Laney et al. was **not** ethical.

.....

 [2]

3 Libby is planning a case study of a boy with autism to investigate his social interactions.

- (a) Explain how Libby could use **two** different techniques to collect data in her case study.

1

 2

 [4]

- (b) For **one** of the techniques you explained in 3(a):

Suggest **one** problem with using this technique in this study. Do **not** refer to generalisability in your answer.

Technique:

Problem:

.....

 [2]

- 4 In the study by Canli et al. (brain scans and emotions), the dependent variable of emotional arousal was measured by the participants pressing buttons 0, 1, 2 or 3.

Suggest why it was necessary for the participants to press buttons rather than speaking or writing.

.....
 [1]

- 5 In a study about phobias, researchers have identified two problems.

- (a) One problem is that they cannot be sure that they are studying phobias rather than just dislikes. For example, people may refuse to eat a food they claimed to have a phobia of simply because they don't like it.

Explain whether this is a problem of validity or reliability.

Validity or reliability:

Explanation:

..... [1]

- (b) Another problem is that they cannot be sure that they are measuring phobias consistently. For example, the researchers may interpret the participants' written comments differently.

Explain whether this is a problem of validity or reliability.

Validity or reliability:

Explanation:

..... [1]

6 Describe different types of hypothesis in research, using any examples.

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Section B

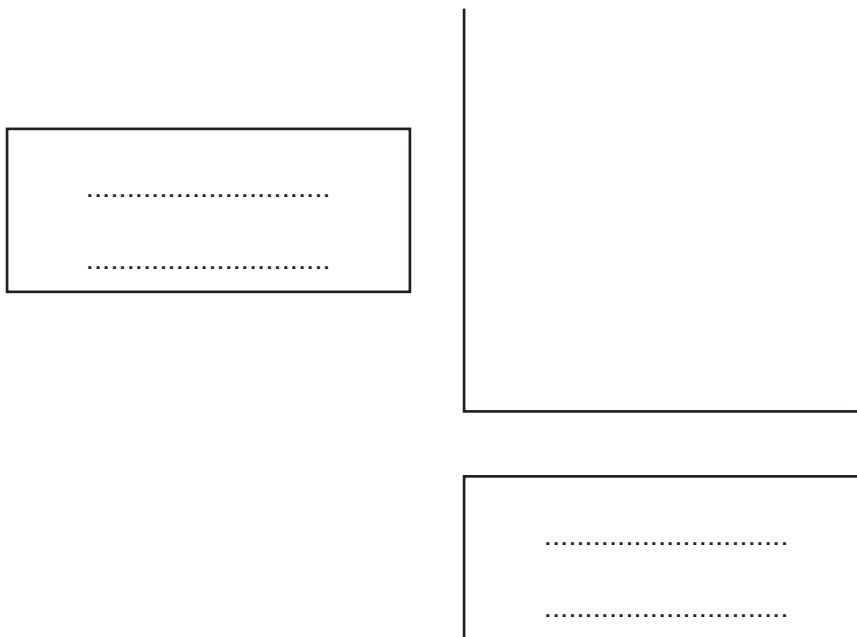
Answer **all** questions in this section.

7 Claus is investigating whether there is a correlation between happiness and exercise.

(a) (i) Outline what the results would show if Claus found a negative correlation.

.....
 [1]

(ii) Sketch a graph, using the axes below, to show what the pattern of results would look like if Claus found a negative correlation. You **must** label the axes.



[3]

(b) Explain why Claus cannot conclude that exercise causes unhappiness.

.....

 [2]

(c) Explain why it was useful for Claus to conduct a correlational study before using another method to investigate factors affecting happiness.

.....

 [2]

- 8 Duncan is conducting an experiment to test whether watching videos of natural scenes or city scenes is better at helping stressed people to relax. Half of the participants watch the natural scenes first and the city scenes one week later. The other half of the participants watch the city scenes first and the natural scenes one week later.

(a) Identify Duncan's experimental design. Include a reason for your answer.

.....

.....

..... [2]

(b) Explain why it is an advantage that the participants watch the scenes in different orders.

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.....

..... [2]

(c) Duncan obtains his sample from the student population at his university, who all live in the local city.

Suggest **one** disadvantage of taking a sample from this location for this study.

.....

.....

..... [2]

(d) In order to ensure that his participants are stressed before watching the videos, Duncan could scare them but this would be unethical. He must stress them in an ethical way. He decides to do this by raising their arousal level.

Describe **one** ethical way that Duncan could stress his participants by raising their arousal level.

.....

.....

..... [2]

9 Lydia is planning to interview students about how they learn a new language.

(a) Suggest **one** open question that Lydia could ask during her interviews.

.....
..... [1]

(b) Suggest **one** disadvantage of using open questions in this study.

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.....
..... [2]

(c) Lydia's first language is English. Her participants speak a variety of different first languages, although all can understand English.

Explain why the variety of first languages spoken by the participants could still be a problem in Lydia's study.

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..... [2]

(d) Suggest what type of interview Lydia should conduct in this study. Include a reason for your answer.

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..... [3]

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..... [10]

- (b) Identify **one** practical weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem.

Do **not** refer to ethics or sampling in your answer.

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..... [4]

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[Turn over

Section A

Answer **all** questions in this section.

1 From the study by Bandura et al. (aggression):

(a) Identify **one** example of quantitative data collected in this study.

.....
 [1]

(b) Explain **one** advantage of collecting quantitative data in this study.

.....

 [2]

2 In the study by Andrade (doodling), the participants were people from the general public who were members of an Applied Psychology Unit participant panel.

Explain **one** advantage and **one** disadvantage of using participants from a participant panel in this study.

Advantage:

Disadvantage:

 [4]

- 3 Carrie is studying when people decide to eat meals and the quality of their sleep. She is worried about variables that could affect when people decide to eat meals, and the effect these could have on validity.

(a) (i) Suggest **one** participant variable that could affect when people decide to eat meals.

.....
 [1]

(ii) Explain how this participant variable could affect the validity of Carrie's study.

.....
 [1]

(b) (i) Suggest **one** situational variable that could affect when people decide to eat meals.

.....
 [1]

(ii) Explain how this situational variable could affect the validity of Carrie's study.

.....
 [1]

- 4 Dement and Kleitman studied participants who were asleep.

Explain **one** limitation in research with participants who are asleep that does not apply to participants who are awake. You must refer to the study by Dement and Kleitman in your answer.

.....

 [2]

- 5 (a) Explain what is meant by the ethical guideline of 'reward' in relation to animals in psychological research.

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..... [1]

- (b) Describe how the ethical guideline of 'species and strain' affects what psychologists should, or should not, do with animals.

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..... [2]

- 6 Describe the similarities and differences between a structured and an unstructured interview, using any examples.

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..... [6]

Section B

Answer **all** questions in this section.

- 7 A company is having a new kitchen built that will produce better quality food for its workers so will improve work output. Cedric measures work output three weeks before the new kitchen opens, as a baseline. He finds work output is low. When Cedric measures work output again three weeks after the new kitchen opens, he finds that work output is higher.

(a) State how Cedric could operationalise the independent variable in his study.

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..... [2]

(b) State how Cedric could operationalise the dependent variable in his study.

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..... [2]

(c) (i) Suggest **one** extraneous variable that could affect Cedric's results.

.....

..... [1]

(ii) Explain why it is necessary to control this variable in this study.

.....

..... [1]

(iii) Suggest **one** way that Cedric could control this variable.

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..... [2]

(d) Cedric's study was a natural experiment.

Give **one** reason why Cedric had to choose this method for his study.

.....
 [1]

8 Jeni implanted false memories about feeling ill in two different contexts:

- relating to food
- relating to location.

Her laboratory experiment tested participants' confidence that these 'memories' were true. She used a ten-point rating scale to measure this confidence.

(a) (i) Suggest why Jeni used a ten-point rating scale for confidence rather than asking participants if they were confident in the 'memory' or not.

.....

 [2]

(ii) Suggest **one** disadvantage of using a ten-point rating scale in this study.

.....

 [2]

(b) Jeni knew that many factors could affect memory and she wanted to obtain results that could be generalised beyond her sample.

- (i) Identify **one** sampling technique that Jeni could have used to obtain a representative sample.

.....
..... [1]

- (ii) Suggest how Jeni could have obtained a sample using the sampling technique you have suggested in (b)(i).

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..... [2]

- 9 Daniel is planning a correlational study. He is investigating the relationship between how happy a person is and how many friends they have.

(a) Suggest how Daniel could operationalise each variable.

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..... [4]

(b) Explain why Daniel should be concerned about the subjectivity of his data about happiness.

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..... [2]

(c) Explain why Daniel should be concerned about **one** extraneous variable that could affect his data about friendships.

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..... [2]

Question 10 appears on page 10

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..... [10]

- (b) Identify **one** practical weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem.

Do **not** refer to ethics or sampling in your answer.

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