Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

CENTRE NUMBER | | | | | |

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9982320010

PSYCHOLOGY **9990/22**

Paper 2 Research Methods **February/March 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.

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Section A

Answer **all** questions in this section.

1 From the study by Piliavin et al. (subway Samaritans):

(a) Describe how the quantitative data was collected in this study.

Observers sat in the carriage and covertly recorded the frequency of helping: the number of passengers who helped the victim, the race and sex of each helper, whether they came from the critical or adjacent area, and the time taken before the first passenger helped. [2]

(b) Suggest **one** advantage of using quantitative data in this study.

Numerical data can be analysed statistically, so Piliavin et al. could calculate and compare the percentage of trials in which the cane victim and the drunk victim were helped, e.g. the cane victim was helped far more often, and it is objective so less affected by observer bias. [2]

2 From the study by Canli et al. (brain scans and emotions):

Explain what is meant by 'generalisability', using **two** examples from this study.

Generalisability is the extent to which the findings of a study can be applied to (are representative of) the wider population. In Canli et al. all the participants were women, who may be more emotionally reactive or report emotion differently, so the findings may not generalise to men. Also all the participants were right-handed, and left-handed people may have different brain activation, so the results may not apply to left-handers. [3]

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3 In an experiment with a repeated measures design, there may be a problem with order effects.

Explain **one** type of order effect.

A practice effect: because participants do the task in both levels of the IV, by the second condition they have become familiar with the task and more skilled, so they perform better. So any difference between conditions may be due to practice rather than to the IV. [2]

4 In the study by Laney et al. (false memory), a comparison was made between a 'love asparagus' group and a control group.

(a) (i) Name the experimental design used in this comparison.

Independent measures design (independent groups) [1]

(ii) Explain **one** disadvantage of this design.

Individual differences between the participants in the two groups, e.g. people in the "love asparagus" group may have already liked asparagus more, could confound the results. So the researchers cannot be sure the difference in liking was caused by the false memory. [2]

(b) Describe **one** ethical problem in this study.

Participants were deceived; they were told the study was about food preferences and personality, and were given false feedback that they had loved asparagus as a child, so they could not give fully informed consent and may feel foolish for being taken in. [2]

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5 In the study by Bandura et al., the children's aggression levels were rated at the start of the study and used to allocate children to groups.

Explain why this information was needed to allocate the children to groups.

Children differ in how aggressive they naturally are (individual differences). The ratings were used to match children with similar aggression levels and put one into each condition, so more and less aggressive children were spread evenly between the groups, and later differences were due to the model seen. [2]

6 Describe **two** different ways that dependent variables can be measured, using any examples.

1 *The dependent variable (the variable that is measured in an experiment) can be measured as time, e.g. in seconds using a stopwatch. For example, in Piliavin et al. observers timed the latency to help, i.e. how many seconds passed after the victim collapsed before the first passenger helped, and this was compared between the cane and drunk conditions. A shorter time shows more willingness to help.*

2 *It can be measured by observation, overt or covert, using behavioural categories and counting how often each behaviour occurs. For example, in Bandura et al. observers behind a one-way mirror recorded the child's behaviour every 5 seconds for 20 minutes using categories such as imitative physical aggression (e.g. hitting the Bobo doll with the mallet) and imitative verbal aggression (e.g. "POW"), giving a score in each category for every child.* [6]

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Section B

Answer **all** questions in this section.

7 Jenny is studying Sven, a man who has problems with his memory. He is unable to remember new people or facts, even if they are repeated many times. Jenny is collecting data using techniques including interviews, questionnaires and observations.

(a) (i) Name the research method Jenny is using.

A case study [1]

(ii) Explain **one** advantage of this research method in this study.

Sven can be studied in great detail using several techniques (interviews, questionnaires and observations), so Jenny can investigate exactly what he cannot remember and why, and the different methods can be triangulated to check each other, making her conclusions more valid. [2]

(b) (i) Suggest **one** open question that Jenny could ask Sven to investigate his memory problems.

Describe what happens when you try to remember someone you met earlier today. [1]

(ii) Suggest **one** closed question that Jenny could ask Sven to investigate his memory problems.

Do you know when you have forgotten something? (Yes / No)

[1]

(iii) Suggest **one** advantage of asking closed questions.

Closed questions give numerical data that is easy to compare and analyse, e.g. how often Sven forgets. [1]

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(c) One problem for Jenny is that whenever she talks to Sven, he does not recognise her.

Suggest **one** reason why this is a problem for Jenny's study.

Because Sven does not know who she is, he cannot give fully informed consent, as he needs to be aware of what he has agreed to. Jenny will have to explain who she is and what the study is every time, which might distress him or make him want to withdraw. [2]

8 Janet is investigating attitudes to healthy eating. She is considering using a questionnaire or an interview.

(a) Explain what is meant by a 'questionnaire'.

A written or online set of questions that the participant completes themselves.

[1]

(b) Explain what is meant by an 'interview'.

A spoken, face-to-face (or real-time) questioning of a participant by a researcher.

[1]

(c) Explain **one** advantage of using questionnaires to investigate healthy eating.

Questionnaires are not face to face, so participants are less likely to be affected by social desirability. So they are less likely to lie about eating unhealthily, e.g. how much fast food they eat, giving more valid data about their attitudes to healthy eating. [2]

(d) Explain **one** disadvantage of using questionnaires to investigate healthy eating.

The questions are fixed, so Janet cannot follow up on what a participant says. So if a participant says they like fatty foods, or eat lots of vegetables, she cannot explore the reasons behind their attitude to healthy eating in more detail.

[2]

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Question 9 appears on the following page

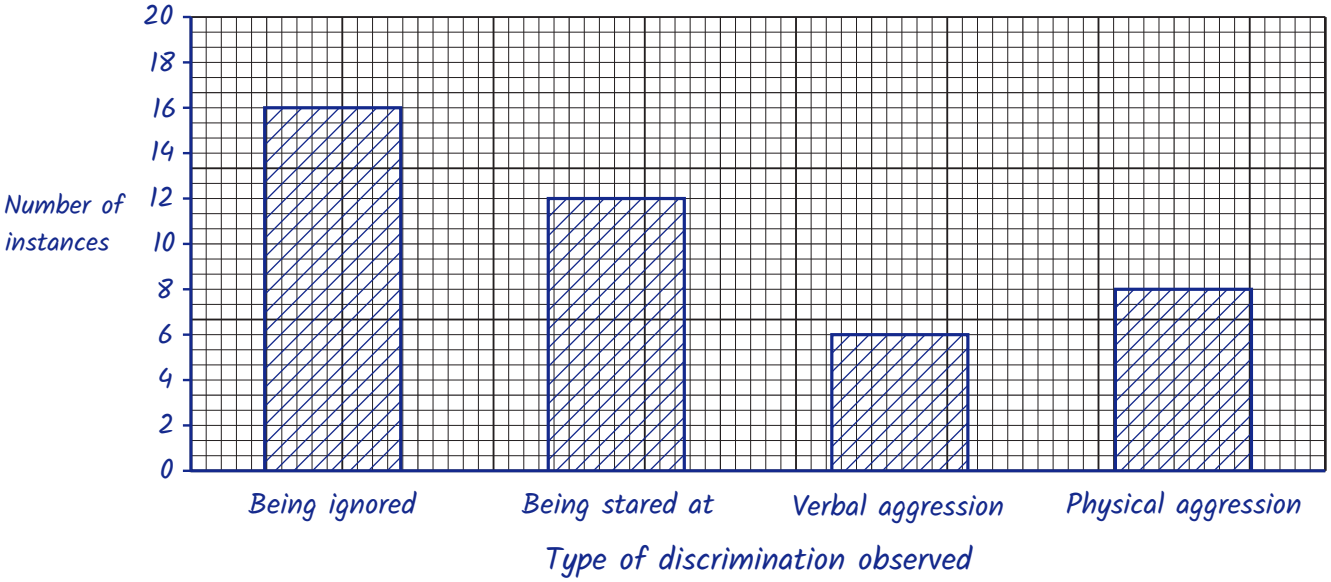
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9 Silas conducted an observational study about discrimination and counted examples of different kinds of discrimination. His data is shown in Table 1.

Table 1

	Type of discrimination observed			
	Being ignored	**Being stared at**	**Verbal aggression**	**Physical aggression**
Number of instances	16	12	6	8

(a) Draw a bar chart of Silas's results. [4]



Bar chart showing the number of instances of each type of discrimination observed by Silas

(b) Silas was observing in a large playground in a school with the permission of the school principal and the parents of the children.

(i) Explain whether there could be an issue with privacy in this study.

No, because the children were in a large school playground, a public place where they would expect to be seen, as children know their behaviour in the playground is watched by teachers and supervisors.

..... [2]

(ii) Explain whether there could be an issue with informed consent in this study.

No, because the children are under 16, so they cannot give informed consent themselves; instead their parents and the school principal must give consent for them, and Silas had the permission of both.

..... [2]

(c) Explain the feature of Silas's observation that means it is a structured observation.

It uses behavioural categories decided before the observation. Silas decided in advance which behaviours to record, "being ignored", "being stared at", "verbal aggression" and "physical aggression", and tallied each instance in these categories.

..... [2]

Section C

Answer **all** questions in this section.

10 Clarice is studying repetitive behaviours in lessons, such as playing with a pen or doodling. These behaviours could be beneficial to concentration or be a distraction. Clarice wants to know whether there is a correlation between repetitive behaviours and the understanding of a lesson.

(a) Describe how Clarice could conduct a correlational study to test whether there is a relationship between repetitive behaviours and the understanding of a lesson.

Participants: 60 students aged 15 to 16 from two classes in Clarice's school, an opportunity sample. Consent is gained from the principal, the parents and the students, who are told they are being observed in a lesson but not the exact aim, can withdraw and will have their data kept confidential, and are debriefed afterwards.

Procedure: each class has the same normal 40-minute science lesson in their usual classroom, given by the same teacher. The lesson is video recorded with a camera at the front so each student's hands and desk can be seen.

Variable 1 (repetitive behaviour): Clarice watches the video and uses event sampling to tally every instance of repetitive behaviour for each student, using operationalised categories: "playing with a pen" (clicking, spinning or tapping it), "doodling" (drawing anything not about the lesson) and "fidgeting" (tapping fingers or feet, twirling hair). Each student gets a total number of repetitive behaviours in the lesson.

Variable 2 (understanding): straight after the lesson every student completes a 20-question multiple-choice test on the lesson content, in silence, giving a score out of 20.

Hypothesis: there will be a correlation between the number of repetitive behaviours and test score (non-directional, as they could help concentration, a positive correlation, or distract, a negative correlation).

Analysis: the two scores for each student are plotted on a scattergraph (number of repetitive behaviours on the x-axis, test score on the y-axis) and a correlation coefficient is calculated to show the direction and strength of the relationship. A strong negative correlation would suggest repetitive behaviours distract students, and a positive one that they aid concentration. The test would be piloted first to check

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the questions are clear and of suitable difficulty.

[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.

Weakness: only Clarice codes the video, and deciding what counts as a repetitive behaviour, e.g. whether writing is doodling or note-taking, is subjective, so her tallies may be unreliable and biased by her expectations. Improvement: two trained observers who do not know the test scores would each independently code the same video using the same operationalised behavioural categories. Their tallies for each student would be correlated, and if there is a strong positive correlation (e.g. above +0.8) the data have good inter-rater reliability.

[4]

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