Cambridge Assessment International Education

# Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

CENTRE NUMBER | | | | | |

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*1987864337*

**PSYCHOLOGY** **9990/21**

Paper 2 Research Methods **May/June 2020**

**1 hour 30 minutes**

You must answer on the question paper.

You will need: Ruler

**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.
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**[Turn over**

## Section A

Answer **all** questions in this section.

**1** In the study by Baron-Cohen et al., one variable was the score on the Eyes Test.

**(a)** State whether this was an independent variable or a dependent variable.
Include a reason for your answer.

*Dependent variable, because the Eyes Test score was what was measured, and it differed between the groups (the adults with autism/Asperger syndrome scored lower than the controls).* [1]

**(b)** One problem with the original version of the Eyes Test was that the results produced a 'ceiling effect'. This is where most participants obtain high scores on the test.

Explain why a ceiling effect is a problem.

*Most scores bunch near the maximum, so there is little spread and it is hard to tell scores apart, e.g. autistic and control groups could look the same.* [1]

**2** A psychologist is investigating whether a person's happiness depends on whether people around them are happy.

**(a)** Suggest how you could operationalise 'happiness' when using observations.

*Count the number of times the person smiles or laughs during a 10-minute observation.* [1]

**(b)** Suggest how you could measure 'happiness' when using a self-report.

*A questionnaire asking them to rate how happy they feel today from 1 (very unhappy) to 10 (very happy).* [1]

**(c)** Write a directional (one-tailed) hypothesis for this investigation. You do **not** have to operationalise your hypothesis.

*People will feel happier when the people around them are happy than when the people around them are unhappy.* [1]

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**3** One part of the investigation by Dement and Kleitman (sleep and dreams) involved a correlational study measuring a range of times spent in REM sleep and the number of words in the participant's dream narrative.

**(a)** Explain why this part of the investigation was a correlational study rather than an experiment.

*They were looking for a relationship between two measured variables, time in REM sleep and the number of words in the narrative.* [1]

**(b)** Explain **one** disadvantage of using a correlation in this study.

*A correlation cannot show cause and effect. So Dement and Kleitman could not conclude that more time in REM sleep caused longer dream narratives; another factor, e.g. how expressive or talkative a participant was, could have affected the number of words.* [2]

**4** In a study about helping, participants were told the study was about visual tracking. They played a computer game in which they could help other players. They were given fake eye-movement tracking spectacles to wear.

**(a)** Describe the ethical issue of deception, using this study as an example.

*Deception means misleading or lying to participants about the aim or procedure of a study. Here participants were told the study was about visual tracking when it was really about helping, and the eye-tracking spectacles they were given to wear were fake.* [2]

**(b)** Some participants were upset at debriefing because they had not helped other players.

Describe the ethical guideline of protection, using this study as an example.

*Protection from harm means participants must not be caused physical or psychological distress, and if their state has changed they should leave as they arrived. The upset participants should be reassured, e.g. told the game was not real so nobody was hurt by them not helping, and that their behaviour was normal.* [2]

**5** Before the study by Pepperberg (parrot learning), most research on animal learning had been conducted on primates, such as chimpanzees.

**(a)** Explain **one** ethical reason why a parrot is a better choice of animal than a chimpanzee for a study in a laboratory.

*The "species" guideline says researchers should use the species that will suffer the least. Chimpanzees are more intelligent than parrots, so they would be more distressed by being kept in a laboratory and by strange procedures such as learning labels for coloured objects, whereas parrots are used to being kept in cages.* [2]

**(b)** Explain **one** practical or methodological reason why the parrot was a better choice of animal than a chimpanzee for this study.

*Smaller animals are easier to house and handle in a laboratory. A parrot is much smaller than a chimpanzee, so Alex could be kept in a laboratory room and worked with closely every day, whereas a chimpanzee is strong and can become aggressive, so would be harder and less safe to work with.* [2]

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**6** Describe what is meant by 'experimental conditions' and 'control conditions' in research, using any examples.

*An experimental condition is a level of the independent variable in which the IV is present, i.e. participants are exposed to the variable being tested. A control condition is a level in which the IV is absent, so it acts as a baseline that the experimental condition(s) can be compared against to see whether the IV had an effect. For example, when testing a new drug, the experimental condition takes the drug and the control condition takes a placebo, so any extra improvement must be due to the drug. A study can also compare two experimental conditions with each other without a control, e.g. testing which of two drugs works better. Bandura et al. had two experimental conditions, in which children watched an aggressive model or a non-aggressive model, and a control condition in which the children saw no model, so the amount of aggression copied in each experimental condition could be compared with the baseline level of aggression.*

..... [6]

## Section B

Answer **all** questions in this section.

**7** Maria is conducting a self-report study into obedience using school children as participants. Her questions are:

Question 1 How many times this week have you disobeyed a teacher?
Never / once / 2–3 times / 4 times or more
Question 2 Describe why you last disobeyed a teacher.

**(a) (i)** State which question collects quantitative data. Include a reason for your answer.

*Question 1, because it collects numerical data; each child chooses from a fixed scale (never / once / 2–3 times / 4 times or more).* [1]

**(ii)** State why this type of data is useful.

*It can easily be analysed and compared, e.g. with averages and graphs, and is objective.* [1]

**(b)** Suggest **one other** question which could be used in Maria's study that would collect quantitative data.

*Would you obey a teacher who asked you to tidy the classroom? Yes / No*

..... [1]

**(c)** Identify the **most** appropriate measure of central tendency for Maria to use with the responses to her first question. Include a reason for your answer.

*The mode, because the answers are categories on a scale rather than exact scores, so a mean cannot be calculated. The mode finds the most common response, e.g. "once", showing the typical number of times the children disobeyed.*

..... [2]

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**8** Richard is conducting an experiment to investigate whether daydreams are affected by the type of background noise. He has two groups who are both given a boring task in a room. For one group there are children laughing outside the open window. For the other group there are adults talking loudly in the corridor. Different participants are used in each group.

**(a) (i)** Identify Richard's experimental design. Include a reason for your answer.

*Independent measures design, because different participants are used in each group; one group hears children laughing and a separate group hears adults talking.*

..... [2]

**(ii)** Suggest **one** advantage of this experimental design in this study.

*It avoids order effects. If the same people did both conditions, the boring task would be even more boring the second time, so they might daydream more in the second condition whatever the background noise was.*

..... [2]

**(b)** Suggest **one** reason for using a boring task in this study.

*To make the participants daydream, so all participants are equally likely to daydream.*

..... [1]

**(c)** Suggest **one** practical or methodological problem with studying daydreams.

*Daydreams are vague and easily forgotten, so when participants are asked afterwards to report what they daydreamed about, their reports may be incomplete or inaccurate, which reduces the validity of the data.*

..... [2]

**(d)** Suggest **one** ethical problem with studying daydreams.

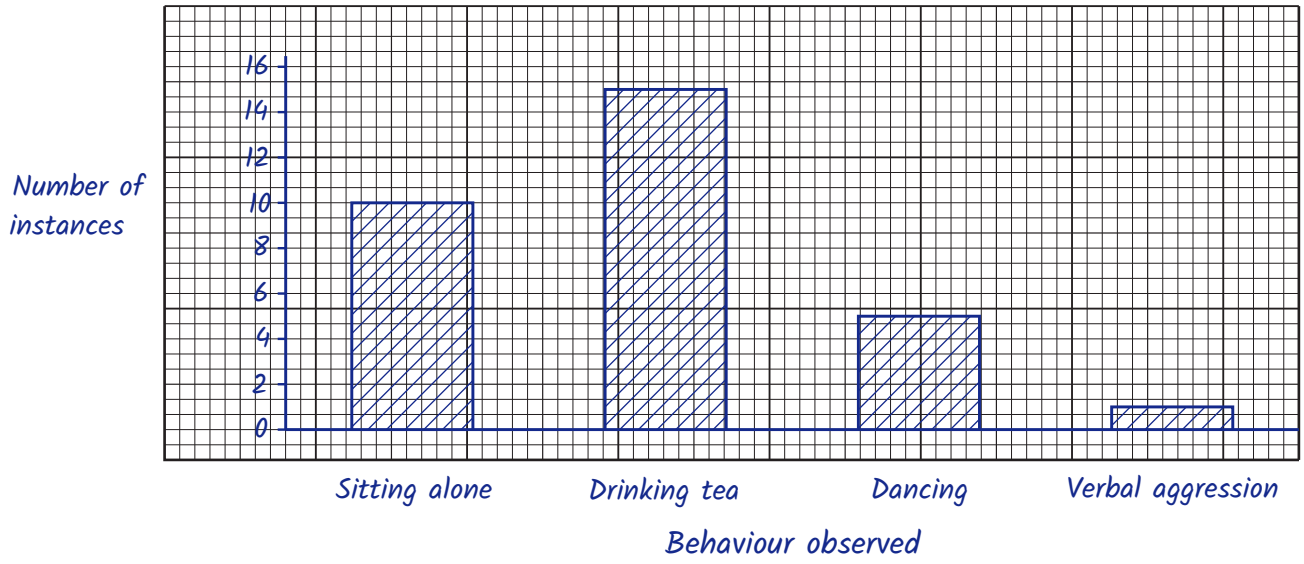
*Daydreams are private and personal thoughts, so asking participants to report them could invade their privacy, e.g. they may feel pressured to reveal embarrassing thoughts. They should be told they do not have to share any daydream they want to keep private.* [2]

**9** Jasper conducted an observational study of children's behaviours in their school common room. Jasper's data is shown in Table 9.1.

**Table 9.1**

| | Behaviours observed | | | |
|---|---|---|---|---|
| | **Sitting alone** | **Drinking tea** | **Dancing** | **Verbal aggression** |
| **Number of instances** | 10 | 15 | 5 | 1 |

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




Bar chart showing the number of instances of each behaviour observed in the school common room



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**(b)** Jasper observed the children with the permission of the school principal and the children's parents.

**(i)** Explain why it was necessary to obtain permission in this study.

*Informed consent is needed, but many of the children will be under 16 and may not fully understand that they are in a study, so their parents must give consent for them. The principal must also agree because the observation takes place in school, where the principal is responsible for the children.* [2]

**(ii)** Explain whether there could have been an issue with privacy in this study.

*Yes. The children would expect to be unobserved in their own common room, a private space away from teachers. If they did not know they were being watched, they may have behaved in ways, e.g. verbal aggression, that they would not want others to see, and could be upset if they found out.* [2]

**(c)** Jasper was a non-participant observer.

Explain what is meant by a 'non-participant observer', using this study as an example.

*A non-participant observer does not join in with the activity or become part of the social group being observed. Jasper did not sit, drink tea or dance with the children; he watched from the side of the common room, e.g. disguised as a technician, and just recorded their behaviours.* [2]

## Section C

Answer **all** questions in this section.

**10** Jason is a university lecturer and is interested in doodling behaviour. One day, Jason sees one of his students, Karen, doodling. Jason is especially interested because Karen has a visual impairment that means she cannot see. Jason decides to conduct a case study on her.

**(a)** Describe how Jason could conduct a case study on Karen to investigate her doodling behaviour.

*Participant and setting: the case study is on Karen, a university student who cannot see. It would last 8 weeks and take place in Jason's lectures and in a quiet university room. Karen would give informed consent (the information read aloud and the form in braille), be told she can withdraw at any time, and her data would be kept confidential.*

*Background: Jason would first hold an unstructured interview to collect background information, e.g. her age, whether she has been blind from birth, and when and why she began doodling.*

*Observation: in 10 one-hour lectures Jason (or an assistant) would carry out a non-participant observation, sitting at the back so as not to affect her. Event sampling would be used with behavioural categories: "doodling lines/patterns", "doodling shapes" and "doodling objects/people", timing each doodling episode in seconds and noting what is happening at the time (e.g. lecturer talking, discussion, break).*

*Doodles: with her permission all her doodles would be collected, dated and analysed for content (e.g. number of separate shapes, whether objects are recognisable), size and how much lines overlap.*

*Interviews: at the end of each week Jason would hold an audio-recorded semi-structured interview with open questions, e.g. "What were you thinking about when you doodled?" and "How do you know where you have drawn on the page?", and closed questions, e.g. "How bored were you in today's lecture, from 1 (not at all) to 5 (very)?". After some lectures she would also do a short recall test on the lecture content to see whether doodling helps her concentrate, as Andrade found.*

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*Analysis: quantitative data (frequency and duration of doodling in each category and situation, ratings, recall scores) would be summarised as totals and means and shown in bar charts. Qualitative interview data would be analysed for themes, e.g. "doodling to stay focused". A second researcher would code the doodles to check inter-rater reliability, and Jason would triangulate the observations, doodles and interviews so his conclusions about her doodling are supported by more than one method.*

..... [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: Jason is the only person recording and interpreting Karen's doodling, so his observations and coding of her doodles may be subjective, e.g. he may expect her doodles to be simple because she cannot see (researcher bias), which reduces reliability. Improvement: the lectures could be video recorded, and two independent observers who do not know the aim would code the video and the doodles using the same behavioural categories. Their scores would be correlated, and if they agree strongly (e.g. above +0.8) the data have good inter-rater reliability.*

..... [4]

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# Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

CENTRE NUMBER: | | | | | |

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*6725083474*

**PSYCHOLOGY** **9990/22**

Paper 2 Research Methods **May/June 2020**

**1 hour 30 minutes**

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No additional materials are needed.

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## Section A

Answer **all** questions in this section.

**1** **(a)** State what is meant by the ethical guideline of 'replacement' in relation to animals.

*Replacing animals with alternatives where possible, e.g. using humans, computer simulations or cell cultures, or a species that will suffer less.* [1]

**(b)** Suggest **one** practical problem with following the ethical guideline of replacement in relation to animals.

*An alternative such as a simulation or a different species may be a worse model of the behaviour, so the results may be harder to interpret or generalise.* [1]

**2** In the study by Canli et al. (brain scans and emotions), participants watched scenes presented to them on a screen. They responded to these scenes by pressing buttons. Their response was one dependent variable.

**(a)** Describe how this dependent variable was operationalised in this study.

*The DV was each participant's rating of how emotionally intense she found each scene. It was operationalised by pressing a button to give a score from 0 (not at all emotionally intense) to 3 (extremely emotionally intense) for every picture.* [2]

**(b)** Explain **one** reason why the results of this study may not generalise to everyday life.

*All the participants were women, so the results may not generalise to men, who may experience emotional scenes differently and show different patterns of brain activation, so the link between emotion and memory found may not apply to everyone in everyday life.* [2]

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**3** Andrade conducted an experiment on doodling. Alternatively, she could have conducted a case study.

**(a)** Identify **two** ways that data could be collected in this case study.

1 *Interviews with the doodler*

.....

2 *Observation of the person doodling*

..... [2]

**(b)** For **one** of your answers in **3(a)**:

Explain **one** advantage of this way of collecting data in this case study.

Way of collecting data: *Interview*

Advantage: *The researcher can ask specific, open questions, so they can explore that individual's doodling in detail, e.g. why and when she doodles and what she thinks about while doodling, giving rich qualitative data.*

..... [2]

**4** **(a)** Name **two** types of observations.

1 *Covert observation*

2 *Naturalistic observation* [2]

**(b)** For **one** of your answers in **4(a)**:

Explain why this type of observation is a valid way of observing participants.

Type of observation: *Covert observation*

Explanation: *The participants are unaware that they are being observed, so they are less likely to change their behaviour, show socially desirable behaviour or respond to demand characteristics. So the behaviour recorded is genuine, which makes the observation valid.* [2]

**5** At the start of the study by Bandura et al. (aggression), the children were scored numerically on their behaviour in the nursery school.

Explain **one** advantage of scoring behavioural data in this way.

*Scoring behaviour numerically is objective; the observers rated each child on the same five-point scales (e.g. physical aggression, verbal aggression), so the researchers could be confident that the ratings were consistent. The scores could also be analysed, e.g. used to match children into groups with similar levels of aggression.* [2]

**6** Describe what is meant by 'participant variables' and 'situational variables' in research, using any examples.

*Participant variables are individual differences between participants, such as age, personality, intelligence, culture or hunger, which could act as confounding variables and affect the DV. They can be temporary, e.g. hunger in a study on motivation to eat, or permanent, e.g. personality in a study on risk taking. They matter most in an independent measures design, because different people are in each level of the IV, e.g. in Andrade how much each participant normally doodled could affect their recall. They are reduced by random allocation, matched pairs or a repeated measures design. Situational variables are features of the environment or procedure, such as noise, temperature, time of day or the researcher's behaviour, that could affect the DV. E.g. in Piliavin et al. the comments and behaviour of other passengers in the carriage could have affected helping. They are reduced by controlling the environment and using standardised procedures, e.g. the same room and instructions for everyone.* [6]

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## Section B

Answer **all** questions in this section.

**7** Mark is planning a natural experiment to investigate the short-term effect of noise on classroom performance of school children. He has found a school next to a noisy railway. He is going to compare the children before and during a temporary closure of the railway which will stop all trains for two weeks.

**(a)** Explain what makes this study a natural experiment.

*Mark cannot manipulate the IV (the noise); it changes naturally because of the temporary closure of the railway, so he can only compare the conditions that occur, trains running (noisy) and during the closure (quiet). He cannot control when the noise starts or stops.* [2]

**(b)** Suggest **one** way that Mark could measure the effect of noise on the children.

*At the end of each school day the children would take a short standardised test on that day's lesson content, e.g. 20 questions on the maths lesson, scored out of 20. The mean test score in the two weeks before the closure (trains running) would be compared with the mean score during the closure (no trains), to show whether the children paid more attention and learned better without the noise.* [3]

**(c)** Identify **two** extraneous variables that Mark could control.

1 *The time of day of the lesson and test.*

2 *The difficulty of the lesson content and test.* [2]

**(d)** Write an operationalised directional (one-tailed) hypothesis for Mark's experiment.

*Children will score more marks out of 20 on a test of that day's lesson content during the two weeks when no trains run (quiet) than during the two weeks when trains run past the school (noisy).* [2]

**8** Rachel is correlating two variables: helping behaviour and communication skills.

**(a) (i)** Suggest **one** way that Rachel could measure helping behaviour for this study.

*In the school canteen a confederate drops a pile of books next to the participant and an observer records whether they help pick them up (1) or not (0). This is repeated on 5 occasions, so each participant gets a helping score from 0 to 5.*

..... [2]

**(ii)** For the way you have suggested in **(a)(i)**:

Suggest **one** advantage and **one** disadvantage of this way of measuring helping behaviour.

Advantage: *It measures real helping in a natural setting rather than what people say they would do, so it is not affected by social desirability, and it can be observed from a distance so the observer does not disturb the helping.*

.....

Disadvantage: *It is difficult to know the reason for the behaviour; a person might help because they want to look good in front of friends, not because they are a helpful person, so the score may not validly measure helpfulness.*

..... [4]

**(b)** Outline the relationship that Rachel will find if her results indicate a positive correlation.

*As helping behaviour scores increase, communication skills scores also increase.*

..... [1]



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**9** Perry has collected data about intelligence. He has measured the IQ (Intelligence Quotient) of a large sample of participants.

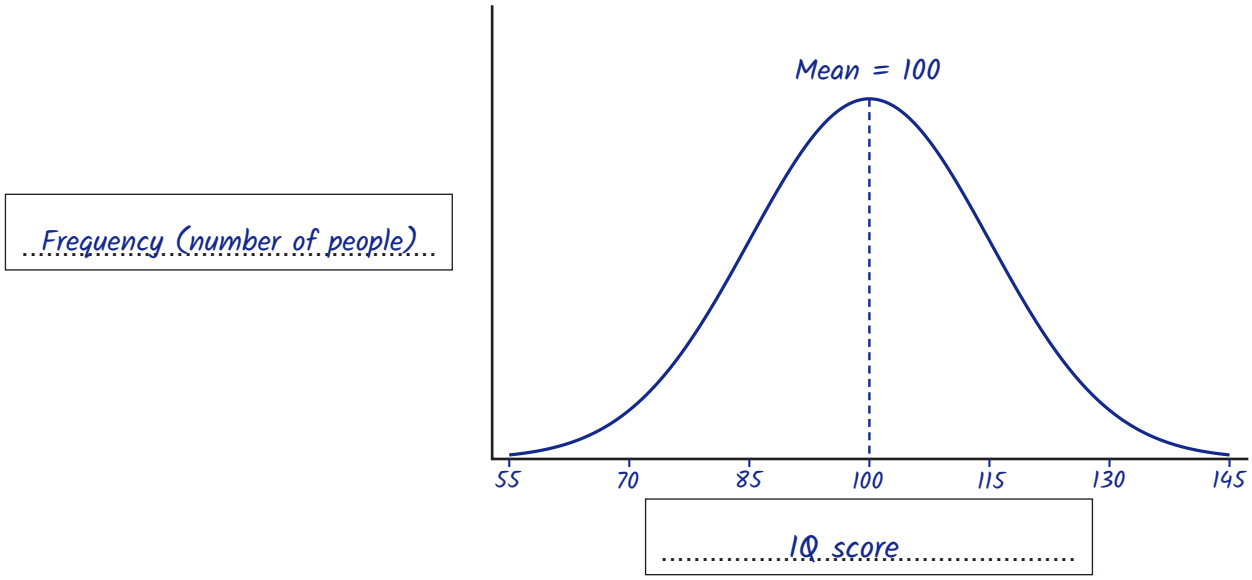
**(a)** Describe **one** way that Perry could obtain a large sample of participants.

*A volunteer (self-selected) sample: Perry could put an advert online and in newspapers asking people to take an IQ test, and use everyone who responds. Because adverts reach many people, this quickly gives a large sample.*

..... [2]

**(b)** **(i)** When Perry plots the IQ results, they show a normal distribution.

Draw a graph of the likely results of the IQ scores using the axes below.
You must label the axes of your graph. [3]




**(ii)** Name the **most** appropriate measure of central tendency for Perry to use with the IQ data. Include a reason for your answer.

*The mean, because IQ scores are interval data and the distribution is normal (symmetrical), so the mean uses every score and is the most informative average.*

..... [2]

**(iii)** Label your graph to show the position of the measure of central tendency that you have named in **(b)(ii)**. [1]



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## Section C

Answer **all** questions in this section.

**10** Cecil is studying a family. The mother, father and both of their sons all have a phobia of trees.

**(a)** Describe how Cecil could conduct unstructured interviews to investigate the phobia in this family.

*Participants and setting: Cecil would interview each of the four family members (mother, father and the two sons) separately in their own living room, a familiar place away from trees, so they feel relaxed and do not influence each other's answers. Each would give informed consent (the parents also consenting for the sons if under 16), be told they can stop at any time and that the recordings will be confidential.*

*Procedure: the interviews are unstructured, so Cecil starts with the same open question, "Tell me about your fear of trees", and then follows up whatever each person says with further open questions, so each interview develops differently. Topics he would explore include: when and how the phobia began ("Can you remember the first time you felt afraid of a tree?"), what they feel and think near a tree ("What goes through your mind?"), physical symptoms such as a racing heart, what they avoid (e.g. parks, forests), how the fear affects daily life, and whether they learned it from other family members ("Did you see your parents being scared of trees when you were young?").*

*Each interview would last about 45 minutes and be audio-recorded and transcribed. Cecil would interview each person twice, two weeks apart, to follow up new ideas and check that their accounts are consistent. He would build rapport, stay neutral and avoid leading questions.*

*Analysis: the qualitative data in the transcripts would be analysed by thematic analysis: Cecil reads the transcripts and identifies recurring themes, e.g. "fear of falling branches", "learned from parents", "avoiding parks", and counts how often each theme appears. He would compare the four accounts, e.g. whether the sons' phobias started after seeing their parents' fear, suggesting the phobia was learned by*

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observation, or whether each person had their own frightening experience with a tree.

[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: because the interviews are unstructured, each family member is asked different follow-up questions, so it is hard to compare their answers, and Cecil's interpretation of the transcripts may be subjective (researcher bias). Improvement: Cecil could use semi-structured interviews, asking all four the same core open questions in the same order (e.g. when did it start, what do you feel near a tree) before follow-ups, so answers can be compared. Two independent researchers would identify the themes and compare their coding to check inter-rater reliability.

[4]

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Cambridge Assessment International Education

# Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

*6741056913*

**PSYCHOLOGY** **9990/23**

Paper 2 Research Methods **May/June 2020**

**1 hour 30 minutes**

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## Section A

Answer **all** questions in this section.

**1** Describe the difference between qualitative and quantitative data.

*Qualitative data is descriptive, detailed data in words, e.g. a participant's description of their feelings, giving in-depth information. Quantitative data is numerical, e.g. scores or counts, which can easily be analysed and compared statistically.* [2]

**2** The study by Piliavin et al. (subway Samaritans) was conducted in a subway train.

**(a)** Suggest **one** advantage of conducting a study in this location.

*People do sometimes collapse on subway trains, so the passengers did not realise they were in a study and behaved naturally. Also they were confined to the carriage between stops, so each had to decide whether to help or not, making it easy to record whether they helped.* [2]

**(b)** Suggest **one** disadvantage of conducting a study in this location.

*Passengers may have seen the emergency staged before, e.g. on an earlier trip travelling in the other direction, so they may have realised it was not real (demand characteristics), which could have affected whether they helped.* [2]

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**3** The study by Saavedra and Silverman (button phobia) was a case study.

Explain the **two** reasons that the case study method was chosen, using examples from this study. Do **not** refer to 'longitudinal' in your answer.

1 *There was only one participant, a 9-year-old boy with a rare phobia of buttons, which is too uncommon to find enough people to conduct an experiment.*

2 *A case study gives rich, in-depth data about one person; they collected detailed information on the history of his phobia, e.g. the bowl of buttons incident at school when he was 5, and on his feelings and symptoms during each therapy session.* [4]

**4** Baron-Cohen et al. (eyes test) collected data from several standardised tests.

**(a)** State what is meant by 'standardisation'.

*Keeping the procedure the same for all participants, so there are no differences in their experience that could affect the results.* [1]

**(b)** State **two** ways that the Eyes Test was standardised.

1 *All the photographs were black and white images of the eye region of the same size.*

2 *Every item had four words to choose from (one target and three foils) and all participants had a glossary.* [2]

**5** Descriptive statistics used in studies can include the range and the standard deviation.

**(a)** State what these descriptive statistics measure.

*The spread (dispersion) of the scores.* [1]

**(b)** Explain **one** advantage of the standard deviation compared to the range.

*The standard deviation takes every score into account, as it measures the average distance of all the scores from the mean, whereas the range only uses the highest and lowest scores. So the SD is more representative and is not distorted by one extreme score.* [2]

**6** Describe the use of the ethical guidelines of 'numbers' and 'housing' in relation to animals in research, using any examples.

*The guideline of "numbers" says researchers should use the smallest number of animals that will still produce valid, meaningful results, e.g. by using a good design and appropriate statistics, so that as few animals as possible are exposed to research. For example, Pepperberg studied only one African grey parrot, Alex. The guideline of "housing" says animals must be kept in suitable conditions: enough space to move and exercise, appropriate social grouping (social species housed with others of their species, solitary species alone), and clean cages, though not cleaned so often that the animal is distressed by losing familiar scents. The housing should also not be overcrowded or too isolated, as this causes stress. For example, Pepperberg allowed Alex out of his cage to move around the laboratory, rather than keeping him confined all the time.*

[6]

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## Section B

Answer **all** questions in this section.

**7** Jodie is investigating attitudes to doodling in class. She wants to obtain a sample that includes students and teachers.

**(a)** Name **one** sampling technique Jodie could use to obtain her sample.

*Opportunity sampling* [1]

**(b)** Suggest how Jodie could use this sampling technique to obtain her sample.

*She would use the people who are available at the time, e.g. asking the teachers in the staff room and the students in her classes during one lunch time, until she has enough students and teachers.* [2]

**(c)** Suggest **one** advantage of using this sampling technique in Jodie's study.

*It is quick and easy, so Jodie can get a large sample of students and teachers in school.* [1]

**(d)** Explain **one** problem with using this sampling technique in Jodie's study, compared to **one** other sampling technique.

*The students and teachers available at one time and place may be similar, e.g. only those in her own subject or year group, so they may not be typical of all students and teachers and their attitudes to doodling may not generalise. A random sample, e.g. putting the names of all students and teachers in the school into a hat and drawing 20 of each, would give everyone an equal chance of being chosen, so it would include people of all subjects and ages and be more representative.* [3]

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**8** Todd is using a questionnaire to investigate personality, such as being a calm or anxious person.

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

*A self-report method in which participants answer a set of written questions (on paper or online) about themselves, e.g. their behaviour, feelings or attitudes, without needing to be face to face with the researcher.*

..... [2]

**(b)** **(i)** Suggest **one** open and **one** closed question about personality that Todd could use in his questionnaire.

Open question: *Describe your personality and whether you are usually a calm or anxious person.*

Closed question: *"I am a calm person." Strongly agree / agree / don't know / disagree / strongly disagree* [2]

**(ii)** Explain whether the open or the closed question that you suggested in part **(b)(i)** would provide more information about personality.

*The open question, because it gives more detail: participants can explain in their own words why they feel calm or anxious and in what situations, rather than being restricted to fixed choices, so they can say what they really mean.*

..... [2]

**(c)** Describe how Todd could obtain informed consent from the participants in his study.

*Before the questionnaire, Todd gives each participant a brief explaining that the study is about personality, e.g. whether they are calm or anxious, what they will be asked to do and their right to withdraw. He then asks them to sign a consent form agreeing to take part.* [2]

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**9** Arjun and Mary have collected data about aggression in adults using an observation.

**(a)** They want to know if they have good inter-rater reliability.

Suggest how they would test this for their study.

*Arjun and Mary would both independently observe the same adults at the same time (or the same video recording), using the same behavioural categories of aggression, e.g. hitting, pushing, shouting, and tallying each one. They would then compare their tallies by correlating their scores for each category. If there is a strong positive correlation (e.g. above +0.8) their scores are similar, so they have good inter-rater reliability.* [3]

**(b)** Explain why it is important that Arjun and Mary have good inter-rater reliability in their study.

*So they can be confident that they are recording consistently, i.e. both score the same aggressive act in the same way. If they are not consistent, their data on the adults' aggression are not reliable, so they cannot be valid and no credible conclusions can be drawn.* [2]

**(c)** Suggest **one** advantage of using participant observation in Arjun and Mary's study.

*As participant observers they are part of the adults' social group, so they can see and hear the aggression close up and understand its context, e.g. why the adults became aggressive, giving more detailed data.*

[2]

**(d)** Suggest **one** disadvantage of using participant observation in Arjun and Mary's study.

*There are physical risks to the researchers: if Arjun or Mary are part of the group when the adults become aggressive, they could get hurt, e.g. if a fight breaks out they cannot easily leave without revealing that they are observers.*

[2]

## Section C

Answer **all** questions in this section.

**10** Kenley is studying whether manipulating participants' mood (to 'good' or 'bad') will make them better at identifying positive facial expressions such as 'friendly' and 'happy'.

**(a)** Describe how Kenley could conduct a laboratory experiment to test whether manipulating a participant's mood will make them better at identifying positive facial expressions.

*Design: a laboratory experiment with an independent measures design. The IV is mood (good mood or bad mood). The DV is the number of positive facial expressions correctly identified.*

*Participants and setting: 40 adult volunteers recruited through a poster at a university, randomly allocated to the two conditions (20 each) by drawing names from a hat. Each participant is tested alone in the same quiet laboratory room with a computer, at the same time of day.*

*IV: participants watch a 5-minute film clip. In the good mood condition it is a funny comedy scene; in the bad mood condition it is a sad scene from a film. To check the manipulation, participants then rate their mood from 1 (very bad) to 10 (very good).*

*DV: participants are shown 30 black and white photographs of faces on the screen, one at a time for 5 seconds each, in the same order for everyone. 15 show positive expressions (e.g. friendly, happy) and 15 show neutral or negative ones. For each face they press one of four labelled buttons (happy, friendly, angry, sad). The DV is the number of positive expressions correctly identified out of 15.*

*Controls: standardised instructions read from a script, the same faces (same size and lighting), the same length of clip, and the same room temperature and lighting. The experimenter running the face test does not know which clip the participant saw, to avoid experimenter bias.*

*Ethics: informed consent and the right to withdraw; afterwards participants in the bad mood condition watch the funny clip to restore their mood, and everyone is debriefed.*

*Analysis: the mean and standard deviation of the scores out of 15 are calculated for*

each condition and shown in a bar chart. If the good mood group has a higher mean, putting people in a good mood makes them better at identifying positive facial expressions.

[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: the film clips may not change everyone's mood in the same way, e.g. some participants may not find the comedy funny, so the IV is not validly operationalised and some people in the "good mood" condition may not actually be in a good mood.
Improvement: Kenley could pilot several clips first and choose the ones that most reliably change mood, then use the 1 to 10 mood rating after the clip as a check, only analysing participants whose rating shows the intended mood (e.g. 7 or more for good mood, 4 or less for bad mood).

[4]

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